LAST UPDATE: JANUARY 30TH, 2026



Logica

Raul Corazzon

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History of Logic

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History of Logic

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About This Ebook

This ebook and the web site "History of Logic from Aristotle to Godel"

The pages of this ebook version of my web site, "History of Logic from Aristotle to Godel" (https://www.historyoflogic.com), can be read in sequence, starting from the beginning or end of the website, or by consulting the table of contents at the beginning (menu "Contents"), the detailed indexes at the end (menu "Last"), or the chapter index (menu "Section").

I will made a new versione of the ebook every time that the website will be updated.

Last Update: January 30th, 2026

Digital Quadrivium Project



History of Logic

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What's New on This Site: Recently Modified Pages

Last updates

January 30th, 2026: Updated the Qwen report and other chatbot reports.

January 19th, 2026: Added Artificial Intelligence Chatbots reports about Digital Quadrivium Project.

December 17th, 2025: Updated the bibliography on the history of Islamic (Arabic and Persian) logic.

August 12th, 2025: Updated the bibliography on Abelard's Logic and Ontology.

December 13th, 2024: Added Alexander of Aphrodisias' logic: Annotated bibliography of the studies in English.

September 18th, 2024: Updated the bibliography on the medieval theory of supposition.

July 2nd, 2024: Updated the bibliography on Boethius' logic.

December 16th, 2023: Updated the bibliography on the Megarians and the Dialectical School.

December 10th, 2023: Updated the bibliography on Aristotle's *De interpretatione*.

August 23th, 2023: Updated the bibliography of E. J. Ashworth.

August 19th, 2023: Updated the bibliography of L. M. de Rijk.

August 8th, 2023: Updated the page Medieval Logic: Bibliography of English studies.

July 27th, 2023: Updated the page Bibliography of Logic in the Hellenistic Period.

May 24th, 2023: Updated the page General Works on the History of Logic in Western Thought.

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History of Logic

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History of Logic

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The History of Logic from Aristotle to Gödel

Introduction

"Preliminary definition of the subject matter of the history of logic is hard to come by. For apart from 'philosophy' there is perhaps no name of a branch of knowledge that has been given so many meanings as 'logic'. Sometimes the whole of philosophy, and even knowledge in general, has been thus named, from metaphysics on the one hand, cf. Hegel, to aesthetics ('logic of beauty') on the other, with psychology, epistemology, mathematics etc. in between. With such a wide choice it is quite impossible to include in a history of logical problems all that has been termed 'logic' in the course of western thought. To do so would practically involve writing a general history of philosophy. But it does not follow that the use of the name 'logic' must be quite arbitrary, for history provides several clues to guide a choice between its many meanings.

This choice can be arrived at by the following stages.

1. First let us discard whatever most authors either expressly ascribe to some other discipline, or call 'logic' with the addition of an adjective, as for example epistemology, transcendental logic, ontology etc.

2. When we examine what remains, we find that there is one thinker who so distinctly marked out the basic problems of this residual domain that all later western inquirers trace their descent from him: Aristotle. Admittedly, in the course of centuries very many of these inquirers -- among them even his principal pupil and successor Theophrastus -- have altered Aristotelian positions and replaced

them with others. But the essential problematic of their work was, so far as we know, in constant dependence in one way or another on that of Aristotle *Organon*. Consequently we shall denote as 'logic' primarily those problems which have developed from that problematic.

3. When we come to the post-Aristotelian history of logic, we can easily see that one part of the *Organon* has exercised the most decisive influence, namely the Prior Analytics. At some periods other parts too, such as the Topics or the Posterior Analytics, have indeed been keenly investigated and developed. But it is generally true of all periods marked by an active interest in the *Organon* that the problems mainly discussed are of the kind already to hand in the Prior Analytics. So the third step brings us to the point of describing as 'logic' in the stricter sense that kind of problematic presented in the Prior Analytics.

4. The Prior Analytics treats of the so-called syllogism, this being defined as logos in which if something is posited, something else necessarily follows. Moreover such *logoi* are there treated as formulas which exhibit variables in place of words with constant meaning; an example is 'B belongs to all A'. The problem evidently, though not explicitly, presented by Aristotle in this epoch-making work, could be formulated as follows. What formulas of the prescribed type, when their variables are replaced by constants, yield conditional statements such that when the antecedent is accepted, the consequent must be admitted? Such formulas are called 'logical sentences'. We shall accordingly treat sentences of this kind as a principal subject of logic." (pp. 2-3)

From: Joseph Bochenski, *A History of Formal Logic*, New York: Chelsea Publishing Co. 1961.

Logic and Ontology

The question "how are logic and ontology interrelated?" is an ambiguous question, that is, it can refer either to logic and ontology themselves or to the metatheories of logic and ontology (that is, to the views about them). Furthermore, in the first case, both logic and ontology may be considered either objectively or subjectively.

(1) If the question refers to logic and ontology themselves considered objectively (that is, in their content), the disciplines are seen as sets of laws and/or rules, and so the problem is purely logical. It will be clear that its solution depends largely on the content of logic and of ontology as they were constructed at a given time.

(2) If the question refers to the same, but as seen subjectively (that is, in as far as they were conceived by some thinkers or groups of thinkers), then it is about empirical facts and is then a historical question: how did the fact that x held the ontology *O* influence the fact that he also held the logic *L* or inversely?

(3) Finally, if the question is concerned not with the two systems as they are but rather with the metatheoretical views about them (that is, with the corresponding philosophies of logic), the question is a quite different one. That this is so is indicated by the fact that often the same type of logic was philosophically interpreted in a different manner by two different schools. This question, in turn, can be considered either logically or historically. It should be clear that the first question is fundamental. Therefore, the principal focus of this presentation will be upon it. The philosophy of logic and ontology will be treated only secondarily, while the historical question of the mutual factual influences of doctrines about them will be only marginally noted.

Now to state at once one of the principal conclusions of the present investigation, it must be confessed that there is considerable confusion about that basic question. Almost any imaginable answer has been proposed by one or another philosopher. To mention only two of the extreme views, respectable logicians have maintained that there is a complete identity of both disciplines (thus, Scholz) and that there is no relation whatsoever between them (thus, Nagel). The very fact that this is so requires an explanation. As is always so in such cases, this explanation must be historical.

One reason for the unfortunate state prevailing in investigations of this problem can readily be identified: ignorance. Most ontologists do not know even the ABC's of logic. But the inverse is also true: most logicians do not have the least idea what ontology might be. These deficiencies are often combined, on both sides, with value judgments of an unkind sort. Thus, to most ontologists, logic does

not seem to be a serious discipline, although they concede that it provides (hélas!) some practical results for computer science. On the other hand, ontology is merely nonsense in the estimation of many logicians. It is little wonder that such scholars produce few worthwhile contributions regarding the relations of the two disciplines.

But this is not the whole answer. The present bifurcation did not always prevail. There have been ontologists who were well instructed in logic and who were even creative logicians in their own right ; Thomas Aquinas and Uddyotakâra (seventh century) are examples. There were also logicians who knew a good deal about ontology; one need think only of Leibniz and of Whitehead. Nevertheless, confusion about our problem is widespread across the ages. Some explanation must be offered for this fact, and once again it has to explained historically. (pp. 274-275)

(...)

The history begins with Aristotle, as so many philosophical questions do. Nor is it a question of that history merely beginning with him. For in many cases one gets the impression that where "the Master of those who know" (Dante) failed to perceive or to formulate a problem, his successors had a difficult time at formulating or solving it. Among these problems is that of the relations between logic and ontology.

The following is a brief description of both disciplines as they appear to the unbiased reader in the Aristotelian corpus. There is a book, or rather a collection of writings, called "*Metaphysics*" by Andronikos Rhodes. There is also a collection of works which received the name "*Organon*" from the commentators. None of these names derive from Aristotle himself. There can be no doubt, however, that we find in his writings a considerable number of doctrines belonging to what will subsequently be called 'logic" and "ontology" respectively.

As regards ontology, Aristotle talks about a "first philosophy" and a "divine science." He says that they are about being as being; what we see here is an attempt to define this discipline. But as far as logic is concerned, we find no name for it in his writings. (...) Still less is there any attempt to define the subject matter of logic.

If, however, we turn from his philosophy of logic and of ontology to the theories themselves (that is, to the systems Aristotle developed), it is relatively easy to describe what he would have meant by "ontology" and "logic" respectively, if he had such terms.

Regarding ontology, we should first note that Aristotle, unlike many later thinkers, did not believe that there is an entity or even a meaning unambiguously associated with the term "being." In one of those passages which can certainly be esteemed as a stroke of genius, Aristotle explicitly states that "being" is an ambiguous term; he justifies this assertion by a sort of embryonic theory of types. And yet, we find extensive discussions of the characteristics of entities in general in the *Metaphysics* and elsewhere. On closer inspection, we discover that his ontological doctrines can be divided into two classes.

First of all, in the fourth book of his Metaphysics, Aristotle undertakes to state and discuss the "principles" -- namely, non-contradiction and the excluded middle. (Aristotle made explicit use of the principle of identity in his logic, but never made it the object of a similar study.) Next we have a number of analyses of concrete entities. Of these the most conspicuous are the doctrine of act and potency and the table of the categories (also studied in the *Organon*, but obviously belonging to the "first philosophy"). The last named could be and has often been viewed as a classification of entities. But it seems more consistent with Aristotle's thought to consider it as a sort of analysis of a concrete entity into its various aspects. (...)

In summary, the Aristotelian ontology appears to be a study (1) of (isomorphically, we would say) common properties of all entities and (2) of the aspects into which they can be analyzed. Both sorts of studies are about *real objects*. One distinctive characteristic of this ontology is its conspicuous lack of existential statements, which is contrary to what we find in what is now commonly called "metaphysics". (pp. 279-281)

(...)

In summary, then, Aristotle left: (1) an ontology conceived as a theory of real entities in general and of their most general aspects; this discipline is defined; (2) two quite different systems of logic: a

technology of discussion and an object-linguistic formal logic; (3) a considerable overlapping of both disciplines (for example, the "principles," the categories, etc.) ; (4) not even a hint, direct or indirect, as to what formal logic might be about ; in other words, no philosophy of logic at all.

It should be clear that in that frame of reference, the question of the relations between logic and ontology cannot even be clearly stated. For we do not know what logic is nor which of the two logics has to be considered nor where are the boundaries between it and ontology.

And yet that is the frame of reference within which most of the Western discussions of our problem will develop. That is, so it seems, the explanation of the confusion reigning in our field.

With the Stoics, we find a clear choice between the alternative conceptions of logic: they opt for "dialectics," the art of arguing. This does not mean that they remained at the level of the Topics. On the contrary, their logic of propositions, magnificently developed, is formal logic. But it is conceived as being a set of rules of arguing.

Moreover, the Stoics were the first to formulate a consistent theory of the object of logic. Logic is, according to them, radically different from ontology of the Aristotelian type. There is, it is true, no ontology in their philosophy; and what corresponds to the Aristotelian table of categories is considered to be a part of logic. But the subject matter of logic, the meanings, is sharply distinguished from what is real. For, whereas everything which is real, including mental entities, is a body in the Stoics' view, the meanings are not bodies. They are ideal entities.

Thus the first known philosophy of logic emphasizes the radical difference and independence of logic as regards ontology.

The Scholastics make no use of the term "ontology" and discuss subjects which will subsequently be called "ontological" in the context of their commentaries on Aristotle's Metaphysics. As compared with the latter, there are some important developments. For example, much consideration is given to the semantic status of "being." We are aware of several positions adopted regarding this problem: while the Thomists considered "being" as analogous (that is, basically a systematically ambiguous term), others, such as the

Ockhamists, held that it was purely ambiguous; Scotists, on the other hand, claimed that it is a "genus" (that is, not an ambiguous expression). Depending on the position assumed, some philosophers will develop a general theory of being, while others will not. In addition, we find a few new chapters in ontology: above all, the doctrine of the distinction between essence and existence, the theory of the "transcendental" properties of all entities, and, of course, a rich technical elaboration of every doctrine. With these exceptions, the subject matter of ontology is the same as that found in Aristotle.

When we turn to logic, the situation is quite different. While incorporating and developing a number of Aristotelian doctrines, Scholastic logic is very much un-Aristotelian insofar as its method and approach are concerned, but also, to a large extent, as regards the content. It is completely metalinguistic and consists of rules. But it is unlike Stoic logic as well, for its explicit concern is not with mere meanings but rather with what were called propositions (meaningful sentences). Semantics undergoes tremendous development during this period.

This being so, several important facts which are relevant to our problem emerge. First of all, a sharp distinction between logic and ontology is explicitly established: the former is metalinguistic, the latter, object-linguistic; logic formulates rules, ontology, laws. Secondly, given this distinction and the nature of the Aristotelian corpus, a curious duplication of doctrines appears: problems are treated twice, once in logic and then again in ontology. As Ockham noted, there are two principles of noncontradiction: one ontological, stated in object-language, and another logical, formulated in meta-linguistic terms.

The Scholastics also formulated various philosophies of logic. They had several common views. For one, logic, while being primarily a methodology of reasoning and arguing, is said to be also a theory of certain entities. Second, they all shared the assumption that logic is not about "first intentions," which are dealt with in ontology, but rather about "second intentions." However, these terms assumed very different meanings in the context of different schools. (pp. 282-283)

(...)

The modern era, prior to the rise of mathematical logic, is an alogical and a largely unontological period. It opens with the Humanists; in their view, if logic has any usefulness at all, it is only as a set of rules for everyday arguments: it is an inferior sort of rhetoric, as Valla put it. Later on, when the scientific spirit began to rise, even the most rationalistic thinkers, such as Descartes, would not dare to reconsider the Humanists' total condemnation of "scholastic subtleties," including formal logic. Gradually, the so-called conventional logic was formulated.

The latter consists of extracts from Scholastic logic which omit almost every logical matter not connected with the theory of the assertoric syllogism (thus, the logic of propositions among others) and with the addition of a number of methodological doctrines. Logic is quite clearly conceived of as "dialectics," "the art of thinking," as the authors of the influential *Logique de Port-Royal* titled it. Philosophically, there is a novelty: widespread psychologism, according to which logic has as its object mental entities and activities (concepts, judgments, reasonings).

There is, of course, one great exception -- Leibniz, a logician of genius and an important thinker in the field of ontology. His ontology has been popularized by Wolff; in the latter's work the term "ontology" is clearly defined as designating the most general part of metaphysics, dealing with "being in general" (quite in the Aristotelian spirit). Leibnizian logic is mathematical and should rather be considered together with more recent logics, for its influence on the seventeenth, eighteenth, and nineteenth centuries was almost negligible. Leibniz also established his own philosophy of logic, which can only be understood in light of his logic. Our discussion of this will be deferred as well.

But, apart from Leibniz, the situation of our problem is not much different from that found in the Stoics and Scholastics: as logic is concerned with the mental behavior of men and ontology with being in general, the separation of the two is just as sharp as in the older schools. Indeed, this separation is reinforced by the fact that logic is now thought of as being a purely practical discipline and not as a theoretical one.

The whole course of the evolution between Aristotle and Boole may be summarized as follows. Ontology, whenever present, is on the whole of the Aristotelian type: a general theory of real entities. Regarding logic, the great majority of thinkers opt for the first Aristotelian logic, that of the Topics; they cultivate this discipline as a methodology of thought. While it is true that some Scholastics admitted a theory founding such a methodology, their logic nevertheless belongs to the type outlined in the Topics, not to that of the Prior Analytics. With such an assumption as a basis, whatever philosophy of logic they developed--whether conceived as a theory of meanings, of second intentions, of syntax or of mental entities, it was always radically different from ontology." (pp. 284-285)

From: Joseph Bochenski, "Logic and Ontology", *Philosophy East and West*, 24, 1974, pp. 275-292.

"Aristotle was the founder not only of logic in western philosophy, but of ontology as well, which he described in his *Metaphysics* and the *Categories* as a study of the common properties of all entities, and of the categorial aspects into which they can be analyzed. The principal method of ontology has been one or another form of categorial analysis, depending on whether the analysis was directed upon the structure of reality, as in Aristotle's case, or upon the structure of thought and reason, as, e.g., in Kant's *Critique of Pure Reason*. Viewed in this way, the two subjects of logic and ontology could hardly be more different, and many schools in the history of philosophy, such as the Stoics, saw no common ground between them. Logic was only a system of rules for how to argue successfully, and ontology, as a categorial analysis and general theory of what there is (in the physical universe), was a system of categories and laws about being.

Scholastic logicians also drew a sharp distinction between logic and ontology, taking the latter to be about ‘first intentions’ (concepts abstracted directly from physical reality), and the former about ‘second intentions’ (concepts abstracted wholly from the ‘material’ content of first intentions, as well as about such categorial concepts as individual, proposition, universal, genus, species, property, etc., and so-called syncategorematic concepts such as negation). According to Aquinas, second intentions have a foundation in real

entities, but 'exist' only in knowledge; i.e., they do not exist in the real world but depend on the mind for their existence – which is not say that they are subjective mental entities." (p. 117)

From: Nino Cocchiarella, "Logic and Ontology", *Axiomathes* vol. 12, 2001, pp. 117-150.

A survey of research on the history of logic until 1950

"Ancient and medieval history of ancient logic.

One meets sometimes with the assertion that history of philosophy is an invention of the XVIIIth century. This is in so far correct, that in older times -- in spite of Aristotle's and Thomas Aquinas' explicit teaching -- scholars neglected completely the genetic point of view in history of logic; on the other hand, thorn is no doubt that another aspect of historiography, namely the understanding of doctrines, was much cultivated by ancient and medieval thinkers. A complete account of ancient logic would have to take their results into consideration. Unfortunately, we know practically nothing of all the huge work which was accomplished, especially on Aristotle, by Greek, Syrian, Arabian, Jewish, or, above all, by Latin medieval logicians: as was already stated, the Greek commentators have not yet been studied, while the others are little more than a field for future research. And yet, we know that there were important discoveries during that time. This has been proved at least in one particularly striking instance: Albertus Magnus had a perfect understanding (superior to that of Alexander [of Aphrodisias], not to mention Prantl) of the highly difficult Aristotelian modal logic. This understanding has been nearly completely lost, however, during the modern ages.

State of the history of formal logic during the XIXth century.

Modern history of Logic had been started during the XIXth century, but its state was very bad at that time -- indeed until 1930 approximately -- because of two phenomena. On one hand, most of the historians of logic took for granted what Kant said on it; namely that "formal logic was not able to advance a single step (since Aristotle) and is thus to all appearance a closed and complete body of

doctrine" (*); consequently, there was, according to them, no history of logic at all, or at the most, a history of the decay of Aristotelian doctrines. On the other hand, authors writing during that period were not formal logicians and by "logic" they mostly understood methodology, epistemology and ontology. That is why e.g. Robert Adamson could devote 10 pages to such a "logician" as Kant -- but only five to the whole period from the death of Aristotle to Bacon, i.e. to Theophrastus, the Stoic-Megaric School and the Scholastics. In order to realize what this means, it will be enough to remember that from the point of view we assume here, Kant is not a logician at all, while the leading Megaricians and Stoics are among the greatest thinkers in Logic.

The worst mischief was done during that period by the work of Carl Prantl (1855). This is based on an extensive knowledge of sources and constitutes the only all-embracing History of Ancient Logic we have until now. Unfortunately, Prantl suffered most acutely from the two above-mentioned phenomena: he believed firmly in the verdict of Kant and had little understanding of formal logic. Moreover, he had the curious moralizing attitude in history of logic, and, as he disliked both the Stoics and the Scholastics, he joined to incredible misinterpretations of their doctrines, injurious words, treating them as complete fools and morally bad men precisely because of logical doctrines which we believe to be very interesting and original. It is now known that his work -- excepting as a collection of texts (and even this far from being complete) -- is valueless. But it exercised a great influence on practically all writers on our subject until J. Łukasiewicz and H. Scholz drew attention to the enormous number of errors it contains.

Recent research.

We may place the beginning of recent research in our domain in 1896 when Peirce made the discovery that the Megaricians had the truth-value definition of implication. The first important studies belonging to the new period are those of G. Vailati on a theorem of Plato and Euclid (1904), A. Rüstow on the Liar (1908) and J. Łukasiewicz (1927); the Polish logician proposed in it his re-discovery of the logical structure of the Aristotelian syllogism and of Stoic arguments. Four years later appeared the highly suggestive,

indeed revolutionary, *History of Logic* by H. Scholz, followed in 1935 by the paper of Łukasiewicz on history of logic of propositions; this is considered until now as the most important recent contribution to our subject. Both scholars -- Łukasiewicz and Scholz -- formed small schools. J. Salamucha, the pupil of the former, wrote on Aristotle's theory of deduction (1930) and the present author on the logic of Theophrastus (1939). Fr. J. W. Stakelum, who studied with the latter, wrote a book on Galen and the logic of propositions. On the other hand, A. Becker, a student of H. Scholz, published an important book on Aristotle's contingent syllogisms (1933). Professor K. Dürr was also influenced by Łukasiewicz in his study on Boethius (1938); his results were somewhat improved by R. van den Driessche (1949). In the English speaking world we may mention the paper of Miss Martha Hurst on implication during the IVth century (1935) -- but above all the already quoted work of Dr. B. Mates on Stoic Logic (in the press [*published 1953*]), which, being inspired by Łukasiewicz and his school may be considered as one of the best achievements of recent research.

Such is, in outline, the work done by logicians. On the other hand philologists had considerable merits in the study of ancient logic. We cannot quote here all their contributions, but at least the important book of Fr. Solmsen (1929) on the evolution of Aristotle's logic and rhetoric must be mentioned, and, above all, the masterly commentary on the Analytics by Sir W. D. Ross (1949). It does not always give full satisfaction to a logician trained on modern methods, but it is, nevertheless, a scholarly work of a philologist who made a considerable effort to grasp the results of logicians." (pp. 4-7, some notes omitted)

Notes

(*) *Kritik der reinen Vernunft*. 2d ed. p, VIII (English by N. Kemp Smith)

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Kapitel 13-22 von Aristoteles' Analytica priora I (Dissertation, University of Munster), Berlin 1933.

Józef M. Bochenski, "La logique de Théophraste", *Collectanea logica*, 1, 1939, pp. 195-304) second edition Fribourg: Librairie del'université 1947 (reprint New York: Garland 1987)

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Jan Łukasiewicz, "O logice Stoików" (On the Logic of the Stoics), *Przeglad Filozoficzny* 30, 1927, pp. 278-279.

Jan Łukasiewicz, "Zur Geschichte der Aussagenlogik" (On the history of the logic of propositions), *Erkenntnis*, 5, 1935, pp. 111-131 (English translation: Storrs McCall (ed.), *Polish Logic 1920-1939*, Oxford: Clarendon Press 1967, pp. 66-87 and L. Borkowski (ed.), *Jan Łukasiewicz. Selected Works*, Amsterdam: North-Holland 1970, pp. 197-217.

Benson Mates, *Stoic Logic* Berkeley: University of California Press 1953 (second edition 1961).

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Friedrich Solmsen, *Die Entwicklung der Aristotelischen Logik und Rhetorik*, Berlin 1939.

James W. Stakelum, *Galen and the Logic of Propositions* (Dissertation, Rome, Angelicum), Romae 1940.

Giovanni Vailati, "A proposito d'un passo del Teeteto e di una dimostrazione di Euclide", *Rivista di Filosofia e di scienze affini*, 6, 1904, pp. 378-388.

From: Joseph Bochenski, *Ancient Logic*, Amsterdam: North-Holland 1951.

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History of Logic

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Aristotle's Logic: General Survey and Introductory Readings

A summary of Aristotle's syllogistic

"We have identified five aspects of Aristotle's syllogistic to highlight the remarkable modernity of his logical investigations: 1) Aristotle took logic to be a formal part of epistemology. A logic is an instrument for establishing knowledge of logical consequence; this is a principal concern of the science of logic. 2) *Prior Analytics* is a metalogical treatise on the syllogistic deduction system. Aristotle exhaustively treated all possible combinations of elemental "syllogistic" argument patterns to determine which have only valid argument instances. 3) Aristotle recognised the epistemic efficacy of certain elemental argument patterns having only valid instances, and he explicitly formulated them as rules of natural deduction in corresponding sentences. 4) *Prior Analytics* is a proof-theoretic treatise in which Aristotle described a natural deduction system and demonstrated certain of the logical relationships among syllogistic rules. In fact, Aristotle modelled his syllogistic in a rudimentary way for this purpose. One important metasystematic result is to have established the independence of a set of deduction rules. Finally, 5) Aristotle worked with a notion of substitution sufficient for distinguishing logical syntax and semantics. In this connection he also distinguished validity from deducibility sufficiently well to note the completeness of his logic. Our reading of *Prior Analytics* takes Aristotle to have treated the process of deduction much as modern mathematical logicians do and not to have been confused about some fundamental matters of logic. Least of all was he confused, as some commentators believe, about a distinction between "following

necessarily" and "being necessary," both in respect of the distinction between a *συλλογισμός* or a deduction and a demonstration and of the distinction between assertoric logic and modal logic. Aristotle clearly distinguished between 1) a given sentence's following necessarily from other given sentences and 2) a given sentence denoting a state of affairs to be necessary (or possible). Seeing that he was concerned with the deduction process helps us to avoid such an error. In any case, Aristotle recognised that, while the conclusion of a given argument follows necessarily from its premises, this necessity might not be evident to a participant. He knew that the epistemic process of deduction produces knowledge, or makes evident, that a given sentence follows necessarily from other given sentences. He considered the product of this epistemic process to be an argumentation that includes a deductive chain of reasoning in addition to the premises and conclusion. He recognised using deduction rules in the epistemic process for establishing validity, and that this process can be applied in a purely mechanical and computational way. Furthermore, Aristotle distinguished (1) the subject matter of a given argument from (2) the use to which a given argument might be put from 3) the varying expertise of a participant. All these matters are distinct from (4) the formal matters underlying any of them. And precisely to examine these formal matters was his project in *Prior Analytics*. In this connection, then, we understand Aristotle to have distinguished two kinds of knowledge that cannot be otherwise: knowledge of what L is true or false, which pertains to sentences, and (2) knowledge of what is valid or invalid, which pertains to arguments." (pp. 110-111)

Gorge Boger, "The Modernity of Aristotle's Logic" in: Demetra Sfendoni-Mentzou et al. (eds.), *Aristotle and Contemporary Science. Vol. II*, Bern: Peter Lang 2001, pp. 97-112.

The modernity of Aristotle's logic

"Only recently have we been able to recover something of Aristotle's promethean accomplishments relating to logic. Indeed, we are recognising more and more that part of the history of modern mathematical logic is to have re-invented the wheel that Aristotle turned many years ago. It is astonishing that for .hundreds of years, perhaps dating to before the Port Royal Logic, Aristotelian logic, or

traditional logic, has been taught without a single reference to the process of deduction. This was the practice of R. Whately, W. S. Jevons, H. W. B. Joseph, J. N. Keynes, R. M. Eaton, and many others. It is still the practice in untold numbers of introductory textbooks on categorical logic to test a syllogism according to rules of quality, quantity, and distribution, and entirely to overlook the deduction process of chaining syllogisms, not to mention the glaring traditionalist error of taking a syllogism to be either a valid or invalid argument. Jan Łukasiewicz can be credited with being the first to shed light on the syllogistic by examining it with the theoretical apparatus of mathematical logic. But Łukasiewicz and his followers really only "improved" the traditionalist interpretation with a sophistication afforded by mathematical logic. Both lines of interpretation took Aristotle's presentation in *Prior Analytics* to be his own axiomatization of the syllogistic. While traditionalists awkwardly drew lines between sentences (or sentence patterns) in different syllogisms to indicate their logical relationships (their so-called reductions or analyses), axiomaticists such as Łukasiewicz cleverly turned a *συλλογισμός* into a logically true conditional proposition that could be processed by a propositional logic. In this way the axiomaticists aimed to elucidate the logical relationships among the syllogisms. Again, the epistemic process of deduction explicitly treated in *Prior Analytics* was overlooked. It was not until the early 1970s with the independent works of John Corcoran and Timothy Smiley that the case for Aristotle's reputation as a logician of consummate intelligence and originality was well argued. They established Aristotle to have been concerned with the deduction process just as many modern logicians are. Corcoran and Smiley also used mathematical logic to model Aristotle's syllogistic. However, instead of finding an axiomatization of a logic, they discovered a natural deduction system. But they remained puzzled by reduction, in part, we believe, because they did not think that Aristotle modelled his own system of deduction rules nor that he could envisage distinguishing syntax and semantics. Our interpretation builds on the work of Corcoran and Smiley, and now on that of Robin Smith whose 1989 translation of *Prior Analytics* has incorporated their findings. We believe, however, that Aristotle did model his own system. In particular, we see him as treating a *συλλογισμός* as a rule of deduction in *Prior Analytics* A.4-7, and that he himself was able

proof-theoretically to determine certain mathematical properties of his deduction system. He was able to refine the system by eliminating redundant rules, and he affirmed his system's completeness. These are Aristotle's own accomplishments, not merely those of modem logicians who, using mathematical logic, believe themselves to have discovered features of the syllogistic unknown to Aristotle. Indeed, modern logicians might wonder at their "having spoken" Aristotelian logic their whole lives, without any idea of it." (pp. 111-112)

Gorge Boger, "The Modernity of Aristotle's Logic" in: Demetra Sfendoni-Mentzou et al. (eds.), *Aristotle and Contemporary Science. Vol. II*, Bern: Peter Lang 2001, pp. 97-112.

Logic as Formal ontology

"There are several different conceptions of the nature of logic. Here I want to contrast an ontic conception with an epistemic conception. On one ontic conception logic investigates certain general aspects of 'reality', of 'being as such', in itself and without regard to how (or even whether) it may be known by thinking agents: in this connection logic has been called formal ontology. On one epistemic conception, logic amounts to an investigation of deductive reasoning per se without regard to what it is reasoning about; it investigates what has been called formal reasoning. On this view, logic is part of epistemology, viz. the part that studies the operational knowledge known as deduction. It has been said that one of the main goals of epistemically-oriented logic is to explicate the expression 'by logical reasoning' as it occurs in sentences such as: a deduction shows how its conclusion can be obtained by logical reasoning from its premise-set.

Relevant to the axiomatic method there would be two branches of epistemology: one to account for knowledge of the axioms and one to account for how knowledge of the theorems is obtained from knowledge of the axioms, in other words, one investigating induction and one investigating deduction. The latter is logic according to the epistemic conception.

On the ontic view of logic, on the other hand, logic is an attempt to gain knowledge of the truth of propositions expressible using only

generic nouns (individual, property, relation, etc.) and other 'logical' expressions. In the framework of *Principia Mathematica* those are propositions expressible using only variables and logical constants. *Principia Mathematica* is an excellent example of an axiomatic presentation of logic as formal ontology. Below are some typical laws of formal ontology.

Excluded middle: Given any individual and any property either the property belongs to the individual or the property does not belong tothe individual.

Noncontradiction: Given any individual and any property it is not the case that the property both belongs to the individual and does not belong to the individual.

Identity: Given any individual and any property, if the property belongs to the individual then the individual has the property.

Dictum de omni: Every property A belonging to everything having a given property B which in turn belongs to everything having another property C likewise belongs to everything having that other property C.

Dictum de nullo: Every property A belonging to nothing having a given property B which in turn belongs to everything having another property C likewise belongs to nothing having that other property C.

Commutation of Complementation with Conversion: Given any relation R the complement of the converse of R is the converse of the complement of R.

From this sample of logic as ontic science we can see how the focus is on ontology, or, as has been said by others, on the most general features of reality itself and not on methods of gaining knowledge. According to Russell *Introduction to mathematical philosophy,* 1919, 169, 'logic is concerned with the real world just as truly as zoology, though with its more abstract and general features.' These six laws are purely ontic in that they involve no concepts concerning a knowing agent or concerning an epistemic faculty such as perception, judgement, or deduction. This is not to deny that there is an epistemic dimension to logic as ontic science but only to affirm that the focus if ontic. Every science in so far as it is science has an

epistemic dimension. The epistemic differs from the ontic more as size differs from shape than as, say, animal differs from plant.

Logic as ontic science was referred to above as formal ontology. Logic as epistemic metascience may in like manner be called formal epistemology. It is important and interesting to note that both are called formal logic but for very different reasons. Some formal onticists justify the adjective formal by reference to the fact that its propositions are expressed exclusively in general logical terms without the use of names denoting particular objects, particular properties, etc. cf. Russell 1919, 197. Some formal epistemicists justify the adjective formal by reference to the fact that the cogency of an argumentation is subject to a principle of form and in particular to the following principles: (l) every two argumentations in the same form are either both cogent or both non-cogent, (2) every argumentation in the same form as a deduction is itself a deduction. In fact, some formal epistemicists such as Boole claimed, with some justification, that they were dealing with the forms of thought, i.e. with the forms of cogent argumentations. For more on cogency of argumentations and the principles of form see Corcoran 1989.

Formal onticists are often easy to recognize because of their tendency to emphasize the fact that formal ontology does not study reasoning per se. In fact, the formal onticists often think that the study of reasoning belongs to psychology and not to logic. For example, Łukasiewicz in his famous book on Aristotle's syllogistic makes the following two revealing remarks. Łukasiewicz 1957 pages 12 and 73, respectively. 'Logic has no more to do with thinking than mathematics. "[Aristotle's] system is not a theory of the forms of thought nor is it dependent on psychology; it is similar to a mathematical theory...'

There are significant differences among formal onticists. For example, even among those that emphasize the truth-preserving character of deduction some accept the view that it is consequences-conservative as well and some reject this view. For example, Łukasiewicz 1929, 16 explicitly rejects the view that deduction is a process of information extraction. He says that in deductive inference '...we may obtain quite new results, not contained in the premises'." (pp. 17-19)

From: John Corcoran: "The Founding of Logic. Modern Interpretations of Aristotle's Logic", *Ancient Philosophy*, 14, 1994 pp. 9-24.

(to be continued...)

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History of Logic

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Selected Bibliography on the Logic of Aristotle: General and Introductory Readings

Introductory readings

1. Allen, James. 1995. "The Development of Aristotle's Logic: Part of an Account in Outline." *Boston Area Colloquium in Ancient Philosophy* no. 11:177-205.

   "At the beginning of the history of logic stands the theory set out in the *Prior Analytics*. Studies of this theory 'from the point of view of modern formal logic' have made it possible to appreciate as never before Aristotle's achievement as a logician. But the theory of the *Prior Analytic*s is itself the outcome of a development in Aristotle's thinking whose starting points do not lend themselves to study from the same perspective. My object in this paper is to sketch an account of these starting points. In this way I hope also to throw some light on Aristotle's eventual invention or discovery of logic." (p. 177)

2. ———. 2007. "Aristotle on the Disciplines of Argument: Rhetoric, Dialectic, Analytic." *Rhetorica* no. 25:87-108.

   Abstract "According to an argument made by other authors, analytic—the formal logical theory of the categorical syllogism expounded in the Prior Analytics—is a relatively late development in Aristotle's thinking about argument. As a general theory of validity, it served as the master discipline of argument in Aristotle's mature thought about the subject. The object of this paper is to explore his early conception of the

relations between the argumentative disciplines. Its principal thesis, based chiefly on evidence about the relation between dialectic and rhetoric, is that before the advent of analytic dialectic played a double role. It was both the art or discipline of one practice of argumentation and the master discipline of argument to which other disciplines turned for their understanding of the fundamentals of argument."

3. Aubenque, Pierre. 1968. "La dialectique chez Aristote." In *Aristotle on Dialectic: the Topics. Proceedings of the third Symposium Aristotelicum*, edited by Owen, Guilym E. L., 9-31. Oxford: Clarendon Press.

4. Bäck, Allan. 2000. *Aristotle's Theory of Predication*. Leiden: Brill.

5. Barnes, Jonathan. 1959. "Aristotle's theory of demonstration." *Phronesis* no. 14:123-152.

   Reprinted in: J. Barnes, M. Schofield, R. Sorabji (eds.), A*rticles on Aristotle. Vol. 1: Science*, London: Duckworth 1975, pp. 65-87.

6. ———. 1996. "Grammar On Aristotle's terms." In *Rationality in Greek Thought*, edited by Frede, Michael and Striker, Gisela, 175-202. New York: Oxford University Press.

   "However that may be, Aristotelian syllogistic concerned itself exclusively with monadic predicates. Hence it could not begin to investigate multiple quantification. And that is why it never got very far. None the less, the underlying grammar of Aristotle's logic did not in itself block the path to polyadicity. The later Peripatetics were conservative creatures and they lacked logical imagination. Moreover, Aristotle himself had assured them that his syllogistic was adequate for all serious scientific needs. As for Aristotle, his service to logic is nonpareil, and it would be grotesque to chide him for lack of inventiveness. It is true that, in logical grammar, he did not climb above the level which he attained in the de Interpretatione. But the Analytics does not represent a fatal, or even a new, grammatical excursion. And the story of Aristotle's fall, like the story of the fall of Adam, is a myth." (pp. 201-202)

7. Bastit, Michel, and Follon, Jacques, eds. 2001. *Logique et métaphysique dans l'Organon d'Aristote*. Louvain: Peeters.

8. Bennekom, Riek van. 1986. "Aristotle and the Copula." *Journal of the History of Philosophy* no. 24:1-18.

   "How is it to be explained that Aristotle recognizes more than once the distinction between the copulative and the existential senses of "einai", but ignores this distinction in the crucial passage *Metaphysics* "D" 7 dealing with the ten different categories and the corresponding ten senses of "einai"? The author argues that Aristotle's fundamental conception of being was a fused one: "x is f" implies, and even states, "x exists"; he terms this principle: existence extraction license (eel). That eel leads to absurdities with negative "kafautou" predications and that it fits ill with the new ontological theory being developed in *Metaphysics* "H" 2 seems to have escaped Aristotle. The distinction between copulative and existential "einai" is applied by Aristotle only to "kata sumbebekos" predications, and an examination of *De interpretatione* 21a25ff shows that even here the tendency towards a fused concept of being prevails."

9. Berg, Jan. 1983. "Aristotle's theory of definition." In *Atti del convegno internazionale di storia della logica*, edited by Michele, Abrusci, Casari, Ettore and Mugnai, Massimo, 19-30. Bologna: CLUEB.

10. Berti, Enrico. 1968. "La dialettica in Aristotele." In *Aristotle on Dialectic: the Topics. Proceedings of the third Symposium Aristotelicum*, edited by Owen, Guilym E. L., 33-80. Oxford: Clarendon Press.

11. ———. 1995. "Does Aristotle's conception of dialectic develop?" In *Aristotle's Philosophical Development: Problems and Prospects*, edited by Wians, William, 105-130. Lanham: Rowman and Littlefield.

12. Bochenski, Joseph. 1951. "Non-analytical laws and rules in Aristotle." *Methodos* no. 3:77-79.

13. Boger, George. 2001. "The Modernity of Aristotle's Logic." In *Aristotle and Contemporary Science. Vol. II*, edited by

Sfendoni-Mentzou, Demetra, Hattiangadi, Jagdish and Johnson, David M., 97-112. Bern: Peter Lang.

"Below we gather five salient features of Aristotle's logical investigations in *Prior Analytics* A that reveal the mathematical nature of his studies: (1) He took logic to be a formal part of epistemology. (2) He treated syllogistic deduction metalogically, or metasystematically. (3) He explicitly formulated rules of natural deduction. (4) He modelled his syllogistic deduction system to demonstrate certain logical relationships among its rules. And (5) he distinguished logical syntax from semantics sufficiently to note the completeness of his logic. While each of these features is remarkable in itself, when they are viewed together they reveal the striking philosophical modernity of an ancient logician." (p. 100)

14. ———. 2004. "Aristotle's Underlying Logic." In *Greek, Indian and Arabic Logic. Handbook of the History of Logic: vol. 1*, edited by Gabbay, Dov and Woods, John, 101-246. Amsterdam: Elsevier.

15. Bolton, Robert. 1990. "The epistemological basis of Aristotelian dialectic." In *Biologie, logique et métaphysique chez Aristote*, edited by Devereux, Daniel and Pellegrin, Pierre, 185-236. Paris: Éditions du CNRS.

16. ———. 1994. "The problem of dialectical reasoning in Aristotle." *Ancient Philosophy* no. 14:99-132.

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    Special issue edited by Robert Bolton and Robin Smith.

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25. Chiba, Kei. 2010. "Aristotle on essence and defining-phrase in his dialectic." In *Definition in Greek Philosophy*, edited by Charles, David. New York: Oxford University Press.

26. Code, Alan. 1987. "Metaphysics and Logic." In *Aristotle Today. Essays on Aristotle's Ideal of Science*, edited by Matthen, Mohan, 127-150. Edmonton: Academic Printing & Publishing.

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30. Dancy, Russell M. 1975. *Sense and Contradiction: a Study on Aristotle*. Dordrecht: Reidel.

31. Deslauriers, Marguerite. 2007. *Aristotle on Definition*. Leiden: Brill.

32. Detel, Wolfgang. 2006. "Aristotle's logic and theory of science." In *A Companion to Ancient Philosophy*, edited by Gill, Mary Louise and Pellegrin, Pierre, 245-269. Malden: Blackwell.

33. Devereux, Daniel. 1990. "Comments on Robert Bolton's *The epistemological basis of Aristotelian dialectic*." In *Biologie, logique et métaphysique chez Aristote*, edited by Devereux, Daniel and Pellegrin, Pierre, 263-286. Paris: Éditions du CNRS.

34. Di Lascio, Ermelinda Valentina. 2014. "Aristotle: logic." In *The Routledge Companion to Ancient Philosophy*, edited by Warren, James and Sheffield, Frisbee C. C., 272-289. New York: Routledge.

35. Ebert, Theodor. 1977. "Zur Formulierung prädikativer Aussagen in den logischen Schriften des Aristoteles." *Phronesis* no. 22:123-145.

36. Evans, James David Gemmill. 1977. *Aristotle's Concept of Dialectic*. Cambridge: Cambridge University Press.

37. Fink, Jakob Leth, ed. 2012. *The Development of Dialectic From Plato to Aristotle*. Cambridge: Cambridge University Press.

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39. Gohlke, Paul. 1936. *Die Entstehung der Aristotelischen Logik*. Berlin: Junker und Dünnhaupt.

    "In this monograph Dr. Wilke attempts to distinguish within the text of the *Organon* the different strata which mark the stages of development in Aristotle's logic. This development, he believes, is essentially the history of Aristotle's discovery of the quantity of judgments and the ever increasing role of the particular proposition, which means the gradual emancipation of logic from its metaphysical (i. e. Platonic) background. In the development of the doctrine of modality Dr. Gohlke finds a second means of distinguishing different chronological strata and a third in the changing theory of method, particularly in the supposed alteration of Aristotle's attitude toward the object of demonstration."

    From: Harold Cherniss, review in *The American Journal of Philology*, 1938, 59, pp. 120-122

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41. Hintikka, Jaakko. 1993. "Commentary on Smith." *Proceedings of the Boston Area Colloquium in Ancient Philosophy* no. 9:286-296.

    Commentary on: R. Smith, *What use is Aristotle's Organon?* (1999).

    Reprinted in: Lloyd P. Gerson (ed.), *Aristotle. Critical Assessments*, Vol. I: *Logic and Metaphysics*, New York: Routledge 1999, pp. 20-27.

42. ———. 1995. "Commentary on James Allen *The development of Aristotle's logic: part of an account in outline*." *Boston Area Colloquium in Ancient Philosophy* no. 11:206-215.

43. Jacobs, William. 1979. "Aristotle and nonreferring subjects." *Phronesis.A Journal for Ancient Philosophy* no. 24:282-300.

    "It is a widely accepted view amongst scholars that Aristotle believed that the subject of an assertion might fail to refer. Two texts, *De interpretatione* XI 21 a 25-28 and *Categories* X 13 b 12-35, are generally cited as evidence for this belief. In this paper I argue that both passages have previously been misunderstood and that Aristotle did not accept the possible referential failure of the subject of an assertion. In section I, after first discussing the standard interpretations of both texts, I note the difficulties which result from these accounts. In section II I offer a brief general argument showing that Aristotle's own account of what an assertion is implies that it is impossible for the subject of an assertion to fail to refer. In section III I present my own analysis of each passage and show that when properly understood neither is in any way concerned with the problem of referential failure."

44. Johnson, Fred. 2004. "Aristotle's Modal Syllogism." In *Greek, Indian and Arabic Logic. Handbook of the History of Logic:*

vol. 1, edited by Gabbay, Dov and Woods, John, 247-307. Amsterdam: Elsevier.

45. Kullmann, Wolfgang. 2018. "Aristotle's gradual turn from dialectic." In *Dialectic after Plato and Aristotle*, edited by Bénatouil, Thomas and Ierodiakonou, Katerina, 296-315. Cambridge: Cambridge University Press.

46. Lear, Jonathan. 1980. *Aristotle and Logical Theory*. Cambridge: Cambridge University Press.

47. Leszl, Walter. 1970. *Logic and Metaphysics in Aristotle: Aristotle's Treatment of Types of Equivocity and Its Relevance to His Metaphysical Theories*. Padova: Antenore.

48. ———. 2004. "Aristotle's logical works and his conception of logic." *Topoi.An Internationale Review of Philosophy* no. 23:71-100.

    "I provide a survey of the contents of the works belonging to Aristotle's *Organon* in order to define their nature, in the light of his declared intentions and of other indications (mainly internal ones) about his purposes. No unifying conception of logic can be found in them, such as the traditional one, suggested by the very title *Organon*, of logic as a methodology of demonstration. Logic for him can also be formal logic (represented in the main by the *De Interpretatione*), axiomatized syllogistic (represented in the main by the *Prior Analytics)* and a methodology of dialectical and rhetorical discussion. The consequent lack of unity presented by those works does not exclude that both the set of works called *Analytics* and the set of works concerning dialectic (*Topics* and *Sophistici Elenchi*) form a unity, and that a certain priority is attributed to the analytics with respect to dialectic."

49. Liebersohn, Yosef Z. 2005. "Aristotle Between Logic and Rhetoric. On the Subdivisions of ἐνθύμημα in rhet. 1357 a 30-1357 b 25." *Elenchos* no. 26:65-77.

50. Lukasiewicz, Jan. 1979. "Aristotle on the Law of Contradiction." In *Articles on Aristotle. Vol. 3: Metaphysics*, edited by Barnes, Jonathan, Schofield, Malcolm and Sorabji, Richard, 50-62. London: Duckworth.

Translated by Jonathan Barnes.

Originally published as "Über den Satz des Widerspruchs bei Aristoteles", in: *Bulletin International de l'Académie des Sciences de Cracovie,* Cl. d'histoire et de philosophie, 1910.

Already translated into English by V. Wedin as "On the principle of contradiction in Aristotle"*,* in *The Review of Metaphysics* 24, 1970/71 pp. 485-509.

51. ———. 1993. *Über den Satz des Widerspruchs bei Aristoteles*. Hildesheim: Georg Olms.

Zur Modernen Deutung der aristotelischen Logik (Band 5).

Translated from the Polish *O zasadzie sprzecznosci u Arystotelesa* (1910) by Jacek Barski; with a preface by Joseph Bochenski.

Translated in Italian as: *Del principio di contraddizione in Aristotele,* a cura di Gabriele Franci e Claudio Antonio Testi; presentazione di Maurizio Matteuzzi, Macerata: Quodlibet, 2003.

Translated in French as: *Du principe de contradiction chez Aristote,* Paris: Édition Éclat, 2000

52. Lukasiewicz, Jan, and Negro, Camillo. 1968. *La sillogistica di Aristotele*. Brescia: Morcelliana.

Introduzione storica di Czeslaw Lejewski Sulla Scuola di Logica di Varsavia.

53. Maier, Heinrich. 1896. *Die Syllogistik des Aristoteles*. Tübingen: H. Laupp.

Vol. 1. Die logische Theorie des Urteils bei Aristoteles. Berichtigte Neuausgabe mit einem Anhang: Die Echtheit der aristotelischen Hermeneutik (1896); Vol. 2. Die logische Theorie des Syllogismus und die Entstehung der aristotelischen Logik: 1. Formenlehre und Technik des Syllogismus (1897); 2. Die Entstehung der aristotelischen Logik (1900).

Reprint: Hildesheim, Georg Olms, 1969-1970.

54. Malink, Marko. 2012. "Figures of prosleptic syllogisms in *Prior Analytics* 2.7." *Classical Quarterly* no. 62:163-178.

"In chaps. 2, 5-7 of his *Prior analytics*, Aristotle is concerned with circular proof. He gives an account of circular proofs within the framework of his syllogistic theory and discusses how they come about in the three figures of categorical syllogisms. The results of this discussion are summarized at the end of this section, at *APr*. 59 A 32-41. The summary contains several statements to the effect that certain circular proofs come about in the third figure. Some of these statements are problematic because the circular proofs in question are actually not in the third figure of categorical syllogisms ; in fact, these proofs are not categorical syllogisms at all, but what Theophrastus called prosleptic syllogisms (Aristotle, *Sch*. *Σ* 190 A 1-4 Brandis). Hence, the statements are incorrect if they are understood to refer to the third figure of Aristotle's categorical syllogisms. The passage can, however, be shown not to be spurious: the problematic statements in it refer not to the third figure of categorical syllogisms, but to the third figure of prosleptic syllogisms. On this interpretation, the statements can be regarded as genuine. They show that Aristotle was aware of a classification of prosleptic syllogisms into three figures, even though such a classification does not occur elsewhere in his writings. Thus, the passage appears to be the earliest evidence we have of figures of prosleptic syllogisms."

55. ———. 2015. "The Beginnings of Formal Logic: Deduction in Aristotle's *Topics* vs. *Prior Analytics*." *Phronesis* no. 60:267-309.

56. Martin, John M. 1997. "Aristotle's Natural Deduction Reconsidered." *History and Philosophy of Logic* no. 18:1-15.

57. Menne, Albert, ed. 1962. *Logico-Philosophical Studies*. Dordrecht: Reidel.

58. Menne, Albert, and Öffenberger, Niels, eds. 1982. *Über den Folgerungsbegriff in der aristotelischen Logik*. Hildesheim: Georg Olms.

Zur Modernen Deutung der aristotelischen Logik. Band 1.

59. ———, eds. 1985. *Formale und nicht-formale Logik bei Aristoteles*. Hildesheim: Georg Olms.

Zur Modernen Deutung der aristotelischen Logik. Band 2.

60. ———, eds. 1988. *Modallogik und Mehrwertigkeit*. Hildesheim: Georg Olms.

Zur Modernen Deutung der aristotelischen Logik. Band 3.

61. Mignucci, Mario. 1985. "Puzzles About Identity. Aristotle and His Greek Commentators." In *Aristoteles. Werk und Wirkung: Paul Moraux Gewidmet. Erster Band: Aristoteles und seine Schule*, edited by Wiesner, Jürgen, 57-97. Berlin: Walter de Gruyter.

"Aristotle's conception of identity is too large a subject to be analyzed in a single article. I will try to discuss here just one of the many problems raised by his views on sameness. It is not, perhaps, the most stimulating question one could wish to see treated, but it is a question about logic, where I feel a little more at ease than among the complicated and obscure riddles of metaphysics. My subject will be Aristotle's references to what is nowadays called 'Leibniz' Law' (*LL*): if two objects x and y are the same, they both share all the same properties.

(...)

First, I will consider Aristotle's statements about *(LL)* and the analyses he gives of some supposed counterexamples to this principle. Secondly, the interpretations of his view among his Greek commentators will be taken into account and their distance from the position of the master evaluated. As Professor Moraux has taught us, the study of the Aristotelian tradition often gives us the opportunity of understanding Aristotle's own meaning better." (pp. 57-58)

62. ———. 1996. "Aristotle's Theory of Predication." In *Studies on the History of Logic. Proceedings of the Third Symposium on the History of Logic*, edited by Ignacio, Angelelli and Cerezo, Maria, 1-20. Berlin, New York: Walter de Gruyter.

63. ———. 2000. "Parts, Quantification and Aristoteliam Predication." *The Monist* no. 83:3-21.

64. ———. 2007. "Aristotle on the existential import of propositions." *Phronesis* no. 51:121-138.

65. Moravcsik, Julius. 1967. "Aristotle on Predication." *The Philosophical Review* no. 76:80-96.

    See also: *Erratum: Aristotle on Predication*, The Philosophical Review, Vol. 76, No. 4 (Oct., 1967), p. 543.

    "In the *Topics, Categories,* and *De Interpretatione,* Aristotle is struggling with a variety of problems that span the fields of metaphysics and philosophy of language. Both the problems and the attempted solutions have much relevance to some of the main issues in contemporary British and American philosophy. Thus it is unfortunate that though there is a large number of ancient commentaries on these texts, little has been written on these matters in modern times that is of genuine philosophical significance. Professor Ackrill's new translation and notes' make a fine contribution toward remedying this deficiency. (...)

    It is impossible to write a complete review of Ackrill's book, for, not being able to assume familiarity with Aristotle's theories, the reviewer would have to cover simultaneously Aristotle's views, the quality of the new translation, and the quality of Ackrill's notes. As an alternative, the reviewer hopes to introduce the reader to this volume by selecting one of the key nest of problems that Aristotle discusses in these works and discussing Aristotle's views, the translation, and Ackrill's views in this limited context. Unfortunately, even this limited task is too large for the size of a paper to be expected under these circumstances. Nevertheless, this sketchy introduction might be of some value to those interested in the problems at hand."

66. ———. 2004. "Logic Before Aristotle: Development or Birth?" In *Greek, Indian and Arabic Logic. Handbook of the History of Logic: vol. 1*, edited by Gabbay, Dov and Woods, John, 1-25. Amsterdam: Elsevier.

67. Negro, Camillo. 1967. *La sillogistica di Aristotele come metodo della conoscenza scientifica*. Bologna: Patron.

68. Öffenberger, Niels, and G., Vigo Alejandro. 1997. *Südamerikanische Beiträge zur modernen Deutung der Aristotelischen Logik*. Hildesheim: Georg Olms.

    Zur Modernen Deutung der aristotelischen Logik. Band 7.

69. Öffenberger, Niels, and Skarica, Mirko, eds. 2000. *Beiträge zum Satz vom Widerspruch und zur Aristotelischen Prädikationstheorie*. Hildesheim: Georg Olms.

    Zur Modernen Deutung der aristotelischen Logik. Band 8.

70. Öffenberger, Niels, and Surdu, Alexandru, eds. 2004. *Rumänische Beiträge zur modernen Deutung der Aristotelischen Logik*. Hildesheim: Georg Olms.

    Zur Modernen Deutung der aristotelischen Logik. Band 9.

    "In keeping with the fundamental aims of the series *Zur modernen Deutung der Aristotelischen Logik* -- i.e. to make available articles otherwise difficult to trace -- the editors of this IXth volume present essays from Romania, together with a brief overview of the history of logic in Romania. Although the essays were published in two major international languages -- mainly in French, with some in German -- they appeared in Romanian journals which have a limited circulation in the West. Studies have been selected for their focus on major areas of Aristotelian logic: the theory of categories, syllogistics, logical principles and the theory of knowledge; an additional theme is the historical significance of Theophil Corydaleu's work. All these combine to give a comprehensive view of contemporary Aristotle scholarship in Romania."

71. Parry, William, and Hacker, Edward. 1991. *Aristotelian Logic*. New York: State University of New York Press.

72. Pasquale, Gianluigi. 2006. *Aristotle and the Principle of Non-contradiction*. Sankt Augustin: Academia Verlag.

    Traduzione italiana: *Il principio di non-contraddizione in Aristotele,* Torino: Bollati-Boringhieri, 2008.

Index: Introduction 9; I. The PNC as a law of reality and thought 17; II. The PNC as indemonstrable principle 69; Conclusion 111; Bibliography 119; Index of names 127-128.

"The aim of this study is to discuss the formulation of the principle of non-contradiction (PNC) based on the text of Aristotle. It does not deal with the whole Aristotle's *Metaphysics*. We take certain passages selectively from chapter 3 and chapter 4 of the *Metaphysics,* with a view to interpreting the PNC as a law of being.

Our discussion focuses mainly on how Aristotle regards the PNC as a law of reality and a law of thought. Then we shall see the possibility of knowing the PNC by way of intuitive understanding. This leads us to affirm that the PNC is a supreme principle that we cannot demonstrate. The only way Aristotle thinks it possible to speak about the principle in question is by way of confutation, using a dialectical argument: in order to proceed with the confutational proof, the opponent must say something which is meaningful for himself and for others. Aristotle distinguishes proper demonstration from a dialectical argument. We shall also try to specify the dialectical method that Aristotle uses to prove the PNC.

This study has two chapters. The first chapter deals with the PNC as a law of reality and thought. This has two parts: the first part deals with *Metaph*. IV, 3, 1005b 19-20; IV, 3, 1005b 26-27; IV, 6, 1011b 15-20 and the secand part analyses *Metaph*. IV, 3, 1005b 24-26; IV, 3, 1005b 28-31. These passages treat the PNC as a law of reality and thought respectively.

We shall interpret the PNC as a law of being from two points of view: first, based on the different types of opposition that Aristotle explains in the *Categories,* we shall see the meaning of «contradiction» that Aristotle understands in the formulation of PNC. Our conclusion will be that the greatest opposition that Aristotle has conceived in his whole work is the contradiction between being and non-being. The other oppositions such as contraries, privation and relatives, are oppositions that do not produce contradiction. As we shall see, the opposition between the relatives father and son, between privations vision and

blindness, and between the contraries white and black, could not be predicated at the same time of the same subject in the same respect. But they are different from the sense of contradiction that Aristotle conceived in the formulation of the PNC -- because they do not distinguish absolutely the two extreme existences being and non-being." (pp. 9-10)

73. Perreiah, Alan R. 1993. "Aristotle's axiomatic science: Peripatetic notation or pedagogical plan?" *History and Philosophy of Logic* no. 14:87-99.

    "To meet a dilemma between the axiomatic theory of demonstrative science in "Posterior analytics" and the non-axiomatic practice of demonstrative science in the physical treatises, Jonathan Barnes has proposed that the theory of demonstration was not meant to guide scientific research but rather scientific pedagogy. The present paper argues that far from contributing directly to oral instruction, the axiomatic account of demonstrative science is a model for the written expression of science. The paper shows how this interpretation accords with related theories in the "Organon", including the theories of dialectic in "Topics" and of deduction in "Prior analytics"."

74. Reeve, C. D. C. 1997. "Dialectic and philosophy in Aristotle." In *Method in Ancient Philosophy*, edited by Gentzler, Jyl, 227-252. New York: Oxford University Press.

75. Reinhardt, Tobias. 2018. "« Pithana » and « probabilia »." In *Dialectic after Plato and Aristotle*, edited by Bénatouil, Thomas and Ierodiakonou, Katerina, 218-253. Cambridge: Cambridge University Press.

76. Rijk, Lambertud Marie de. 2002. *Aristotle: Semantics and Ontology. Volume I: General Introduction. The Works on Logic*. Leiden: Brill.

    From the Preface: "In this book I intend to show that the ascription of many shortcomings or obscurities to Aristotle resulted from persistent misinterpretation of key notions in his work. The idea underlying this study is that commentators have wrongfully attributed anachronistic perceptions of

`predication', and statement-making in general to Aristotle. In Volume I, what I consider to be the genuine semantics underlying Aristotle's expositions of his philosophy are culled from the *Organon*. Determining what the basic components of Aristotle's semantics are is extremely important for our understanding of his view of the task of logic -- his strategy of argument in particular.

In chapter 1, after some preliminary considerations I argue that when analyzed at deep structure level, Aristotelian statement-making does not allow for the dyadic 'S is P' formula. An examination of the basic function of `be' and its cognates in Aristotle's philosophical investigations shows that in his analysis statement-making is copula-less. Following traditional linguistics I take the `existential' or hyparctic use of `be' to be the central one in Greek *(pace* Kahn), on the understanding that in Aristotle hyparxis is found not only in the stronger form of `actual occurrence' but also in a weaker form of what I term `connotative (or intensional) be' (1.3-1.6). Since Aristotle's `semantic behaviour', in spite of his skilful manipulation of the diverse semantic levels of expressions, is in fact not explicitly organized in a well-thought-out system of formal semantics, I have, in order to fill this void, formulated some semantic rules of thumb (1.7).

In chapter 2 I provide ample evidence for my exegesis of Aristotle's statement-making, in which the opposition between `assertible' and `assertion' is predominant and in which `is' functions as an assertoric operator rather than as a copula (2.1-2.2). Next, I demonstrate that Aristotle's doctrine of the categories fits in well with his view of copula-less statement-making, arguing that the ten categories are `appellations' ('nominations') rather than sentence predicates featuring in an `S is P' formation (2.3-2.4). Finally, categorization is assessed in the wider context of Aristotle's general strategy of argument (2.5-2.7).

In the remaining chapters of the first volume (3-6) I present more evidence for my previous findings concerning Aristotle's `semantic behaviour' by enquiring into the role of his semantic

views as we find them in the several tracts of the *Organon,* in particular the *Categories De interpretatione* and *Posterior Analytics*. These tracts are dealt with *in extenso,* in order to avoid the temptation to quote selectively to suit my purposes."

77. ———. 2002. *Aristotle: Semantics and Ontology*. *Volume II: The Metaphysics, Semantics in Aristotle's Strategy of Argument*. Leiden: Brill.

From the Preface to the first volume: "The lion's part of volume two (chapters 7-11) is taken up by a discussion of the introductory books of the *Metaphysics* (A-E) and a thorough analysis of its central books (Z-H-O). I emphasize the significance of Aristotle's semantic views for his metaphysical investigations, particularly for his search for the true *ousia*. By focusing on Aristotle's semantic strategy I hope to offer a clearer and more coherent view of his philosophical position, in particular in those passages which are often deemed obscure or downright ambiguous.

In chapter 12 1 show that a keen awareness of Aristotle's semantic modus operandi is not merely useful for the interpretation of his metaphysics, but is equally helpful in gaining a clearer insight into many other areas of the Stagirite's sublunar ontology (such as his teaching about Time and Prime matter in *Physics).*

In the Epilogue (chapter 13), the balance is drawn up. The unity of Aristotelian thought is argued for and the basic semantic tools of localization and categorization are pinpointed as the backbone of Aristotle's strategy of philosophic argument.

My working method is to expound Aristotle's semantic views by presenting a running commentary on the main lines found in the *Organon* with the aid of quotation and paraphrase. My findings are first tested (mainly in Volume II) by looking at the way these views are applied in Aristotle's presentation of his ontology of the sublunar world as set out in the *Metaphysics,* particularly in the central books (ZHO). As for the remaining works, I have dealt with them in a rather selective manner, only to illustrate that they display a similar way of philosophizing and a similar strategy of argument. In the second volume, too,

the exposition is in the form of quotation and paraphrase modelled of Aristotle's own comprehensive manner of treating doctrinally related subjects: he seldom discussed isolated problems in the way modern philosophers in their academic papers, like to deal with special issues tailored to their own contemporary philosophic interest."

78. Sainati, Vittorio. 1968. *Storia dell' "Organon" aristotelico. I: Dai "Topici" al "De Interpretatione"*. Firenze: Le Monnier.

    Nuova edizione a cura di Mauro Mariani, Pisa, Edizioni ETS, 2011.

79. ———. 1973. *Storia dell' "Organon" aristotelico. II: L'analitica. Parte prima. La crisi epistemologica della Topica*. Firenze: Le Monnier.

    Ristampato con il titolo: *Dalla Topica all'Analitica* in *Teoria*, 2, 1993 pp. 1-117.

80. ———. 1993. "Aristotele. Dalla Topica all'Analitica." *Teoria.Rivista di Filosofia* no. 2:1-117.

    Saggio scritto nel 1973.

81. Sisson, Edward. 1939. "The Copula in Aristotle and Afterwards." *Philosophical Review* no. 48:57-64.

82. Smith, Robin. 1993. "What use is Aristotle's *Organon*?" *Proceedings of the Boston Area Colloquium in Ancient Philosophy* no. 9:261-285.

    Reprinted in: Lloyd P. Gerson (ed.), *Aristotle. CriticalAassessments*. Vol. I: *Logic and Metaphysics,* New York: Routledge 1999, pp. 1-19.

83. ———. 1993. "Aristole on the Uses of Dialectic." *Synthese* no. 96:335-358.

84. Solmsen, Friedrich. 1929. *Die Entwicklung der aristotelischen Logik und Rhetorik*. Berlin: Weidmannsche Buchhandlung.

    Nachdruck: Hildesheim, Georg Olms, 2001.

85. Sorbi, Luca. 1999. *Aristotele: la logica comparativa*. Firenze: Olschki.

Due volumi: I (1999); II (2002).

86. Striker, Gisela. 1998. "Aristotle and the uses of logic." In *Method in Ancient Philosophy*, edited by Gentzler, Jyl, 209-226. New York: Oxford University Press.

    "Aristotle, as we all know, invented formal logic. Over the last fifty years or so, scholars have learned to recognize that what he presented in the first few chapters of the Prior Analytics (An. pr.) is the real thing -- a system of formal logic, whether or not the inspiration for the discovery of the syllogism had anything to do with Platonic division. We no longer hear about the magical force of the middle term or the alleged demonstrative power of first figure syllogisms as opposed to, say, the superficial subtleties of Stoic logic. Although Aristotle's syllogistic covers only a small part of' the field of modern mathematical logic, what he offered contained all the elements of a formal deductive system. He introduces the system of syllogistic moods by defining its technical terms, stating and justifying the primitive rules, and then providing formally correct proofs of the derivative rules. In other words, he developed a complete system of natural deduction, limited indeed by the assumption that all propositions must be simple subject-predicate sentences, but otherwise flawless. (1)

    (...)

    Aristotle was interested both in logic as a theory and in its more humdrum uses in philosophical, or indeed everyday, argument, and more than half of the text of the Prior Analytics is concerned with the uses of logic in argument, rather than with either the exposition of a formal system or what we would calf logical theory. This is what one should expect, since Aristotle invented formal logic for the purposes of his general theory of argument, not just as a formal theory of deductive proof or an 'underlying logic' for demonstrative science. (5) In order to show how the perspective of a general theory of argument differs from that of logical theory, I will argue that although syllogistic can be shown to be complete in the modern logician's sense, it was not considered by its author to be complete in the sense relevant to his project. A deduction system is complete in

the modern sense if it allows one to deduce all (and only) the valid formulae.

What Aristotle has in mind when he set out to show that 'every deductive argument (sullogismos) is one of the (syllogistic) figures' (A23 40b20-22) was the claim that every valid deductive argument can be formulated as one or more syllogisms in the narrow sense. This, as Aristotle recognized, is not the case (A 44. 50b2-3). However, I will also argue that he thought syllogistic captured at least a necessary component of every valid deductive argument, and perhaps that it was indeed sufficient as an account of the logical form of scientific demonstration. Finally, I will illustrate the role of formal syllogistic in the theory of argument by a few examples from the second half of book A and from book B." (pp. 210-211)

(1) This summarizes the conclusion of J. Corcoran, 'Aristotle's Natural Deduction System', in idem (ed.), Ancient Logic and its Modern Interpretations (Dordrecht: Reidel. 1974), p. 122-3.

(5) Corcoran 'Aristotle's Natural Deduction System', p. 98.

87. Theron, Stephen. 2002. "The interdependence of semantics, logic, and metaphysics as exemplified in the Aristotelian tradition." *International Philosophical Quarterly* no. 42:63-91.

Abstract: "A general metaphysical account of logic, meaning, and reference that developed from the Greeks through the medievals and up into modern times can be called Aristotelian. 'Copernican' claims (Kant, Frege), radically to replace this paradigm as quasi-'Ptolemaic', actually participated in the prolonged decline of scholasticism, after Aquinas in particular. We need to recognize, or to remember, the priority of being to truth and not to conflate them. We need to explicate the origin of thinking (abstraction) as at one remove from immediate sense-experience. Syllogistic logic then emerges as a true causal account of reasoning in general; it is not some primitive attempt to outline a formal logical system. An account of suppositio as controlling the analogous uses of our finite store of words in reference to an infinite reality itself shaped by criss-cross patterns of likenesses, governs the general picture supplied here."

88. Thompson, Manley. 1953. "On Aristotle' Square of Opposition." *The Philosophical Review* no. 62:251-265.

89. Viano, Carlo Augusto. 1955. *La logica di Aristotele*. Torino: Taylor.

90. ———. 1983. "La proposizione in Aristotele." In *Atti del convegno internazionale di storia della logica*, edited by Michele, Abrusci, Casari, Ettore and Mugnai, Massimo, 3-18. Bologna: CLUEB.

91. Vuillemin, Jules. 1967. *De la logique à la théologie. Cinq études sur Aristote*. Paris: Flammarion.

    Nouvelle version remaniée et augmentée par l'auteur editée et prefacée par Thomas Benatouil - Louvain-La-Neuve, Peeters, 2008.

92. Wedin, Michael. 1978. "Aristotle on the existential import of singular sentences." *Phronesis* no. 23:179-196.

93. ———. 1990. "Negation and Quantification in Aristotle." *History and Philosophy of Logic* no. 19:131-150.

    "Two main claims are defended. The first is that negative categorical statements are not to be accorded existential import insofar as they figure in the square of opposition. Against Kneale and others, it is argued that Aristotle formulates his O statements, for example, precisely to avoid existential commitment. This frees Aristotle's square from a recent charge of inconsistency. The second claim is that the logic proper provides much thinner evidence than has been supposed for what appears to be the received view, that is, for the view that insofar as they occur in syllogistic negative categoricals have existential import. At most there is a single piece of evidence in favor of the view -- a special case of *echthesis* or the setting out of a case in proof."

94. Weidemann, Hermann. 1980. "In Defence of Aristotle's Theory of Predication." *Phronesis.A Journal for Ancient Philosophy* no. 25:76-87.

95. ———. 1989. "Aristotle on inferences from signs (*Rhetoric* I 2, 1357 b 1-25)." *Phronesis* no. 34:343-351.

96. Weil, Eric. 1975. "The Place of Logic in Aristotle's Thought." In *Articles on Aristotle. Vol. 1 Science*, edited by Barnes, Jonathan, Schofield, Malcolm and Sorabji, Richard, 88-112. London: Duckworth.

    Originally published in French as "La Place de la logique dans la pensée aristotélicienne", *Revue de métaphysique et de morale*, 56, 1951, pp. 283-315; reprinted in E. Weil's *Essais et conférences, I*, Paris: Vrin, 1970, pp. 44-70.

97. Wieland, Wolfgang. 1967. "Zur Deutung der Aristotelischen Logik." *Philosophische Rundschau* no. 14:1-27.

98. Williams, C. J. F. 1985. "Aristotle's Theory of Descriptions." *The Philosophical Review* no. 94:63-80.

    "Aristotle has a doctrine, or series of doctrines, of accidental predication, accidental being, accidental unity and accidental sameness, which scholars have recently illuminated by reference to problems in the philosophy of logic. (See references below to papers by Gareth Matthews, Nicholas White and Alan Code.) But they have not so far found a single key to the understanding of these doctrines. The key can, I believe, be found by comparing Aristotle's doctrines with Russell's Theory of Descriptions. Russell's theory is couched in the formal mode of speech: it is concerned with distinguishing amongst expressions which rank grammatically as subjects of sentences those which alone are true logical subjects.

    Aristotle's theory is couched for the most part in the material mode: he speaks of accidental unities or beings as though they were a subclass of entities, in a way which has allowed Gareth Matthews recently to talk of this doctrine as a doctrine of "kooky objects."(1)" (p. 63)

    (1) Gareth B. Matthews, "Accidental Unities," in *Language and Logos*, edited by M. Schofield and M. Nussbaum (Cambridge University Press, 1982) pp. 223-240. One may compare the way in which the phenomena of

referential opacity are spoken of in terms of "intentional objects."

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101. Xenakis, Jason. 1957. "Aristotle on Truth-Value." *The New Scholasticism* no. 3:538-547.

    See also: J. Xenakis, *Aristotle on Truth-Value: A Corrigendum*, The New Scholasticism, 32, 1958, p. 269.

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History of Logic

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Semantics and Philosophy of Language in Aristotle's *De Interpretatione*

Introduction

"The central theme of the *De interpretatione* is the nature of contradiction between assertions. This is a crucially important theme for dialectic, whose regular tasks include that of establishing the contradictory of a proposed thesis, and that of replying to a dilemmatic question by choosing between the affirmation and the negation of a given thesis.(4) The inquiry into language as such, which occupies the first four chapters, is subordinated to this goal.

One apparent obstacle to such a view of the treatise is the (highly suspect) transmitted title, Περὶ ερμηνείας, which should probably be understood in the sense "On language" (cf. *De anima* II 8, 420b19-21, where ερμηνεία functions as a synonym of διάληκτος). A second obstacle is the opening announcement: "First we must determine what a name is, and what a verb is, then what are a negation, an affirmation, an assertion, and a sentence (λόγος)". This programme attaches no special importance to contradiction: affirmation and negation merely appear in the middle of the agenda.(5) In fact though, these two obstacles may helpfully cancel each other out. All we need is the simple hypothesis that the original, lost title of the work (or lecture course) already specified contradiction as the principal theme. There is in fact good reason to think that the authentic title was *On affirmation and negation*.(6) In that case the opening sentence was unambiguously understood as specifying the series of definitions required as a *preliminary* to that central theme.

Later, when the authentic title was lost, we need only suppose that an early editor was misled by the programmatic opening sentence into identifying language itself as the work's main theme, and inventing its current title, "On language".

As regards the progression in the opening chapters from "name" (δνομα) and "verb" (ρήμα) to "sentence" (λόγος), even this should not really be seen as an investigation of language as such. In ignoring all components of statements other than "names", "verbs", and the negation sign, Aristotle continues and reflects the project in Plato's *Sophist* 260-264 of investigating statements *qua* bearers of truth and falsity. (Even the treatment of negation represents the legacy of the *Sophist:* Aristotle follows Plato (257b-c) in regarding "not" as negating only the word which follows, (7) in contrast with Stoic logic, which uses it to negate an entire proposition). This is a further sign that the dominant theme is a specific one, the relation between certain kinds of assertion, rather than language in general." (pp. 88-89)

Notes

(4) My understanding of this and many other aspects of the *De int.* has been transformed by a recently completed Cambridge doctoral thesis, soon to be published: C.W.A. Whitaker, An *analysis of Aristotle's* De interpretatione [published in 1996 as: *Aristotle's De interpretatione. Contradiction and dialectic.* Oxford: Clarendon Press]. He shows that the treatise is to be read in conjunction with the *Topics* much more than with the *Analytics.*

(5) The agenda itself does not observe a strictly linear sequence. The first pair, δνομα/ρήμα, does correspond to chapters 2 and 3 respectively. But ἀπόφασις καὶ κατάφασις καὶ ἀπόφανσις καὶ λόγος precisely reverses the order followed in chapters 4-6, starting with the two species, then moving to their genus and finally to the genus of their genus. On this, see Montanari (1984, I: 25-31).

(6) I suggest this because (a) the ancient commentators knew a work by Theophrastus entitled Περὶ καταφάσεως καὶ ἀποφάσεως, which they said covered the same themes as *Int.* (Theophrastus frr. 71G, 72A, 79, 8 lB FHSG; cf. schol. in Ar. *De int.* 94b14-17 Brandis, in Bekker (1961, vol.4), and (b) Theophrastus' other works

corresponding to the *Organon* all had identical titles to the matching Aristotelian texts: he wrote a *Categories,* a *Topics,* a *Prior Analytics* and a *Posterior Analytics* (frr. 1, 2, 71F, 100B, 104, 112B, 113B, 117, 124A, 127A, 127B FHSG). (Despite frr.frr. 71A and 71E (FHSG), it seems most unlikely that Theophrastus wrote a work actually entitled Περὶ ἑρμηνε'ας). An alternative but less plausible hypothesis is that of Maier (1900: 70-1) that it was Theophrastus himself who, finding the Aristotelian treatise already untitled, invented the title Περὶκαταφάσεως καὶ ἀποφάσεως. But it is hard to believe that Aristotle's long-term close collaborator on logic and dialectic was ignorant of its authentic title. The likelier story is that it was only after Theophrastus' death that the inauthentic title was invented to fill a gap in the MSS.

(7) This is well demonstrated by Whitaker [1996] *cit*.

From: David Sedley, Aristotle's *De interpretatione* and Ancient Semantics, in: Giovanni Manetti (ed.), Knowledge Through Signs. Ancient SemioticTtheories and Practices, Turnhout: Brepols, 1996, pp. 87-108.

"The results so far are as follows. The semantic theory of the *De interpretatione* places itself at the service of Aristotle's study of contradiction between assertions, and reflects a Platonic debate on the question how beliefs and assertions come to be true or false. It is from this perspective, and not for their own sake, that the theory also addresses itself to the minimum semantic components of assertions, names and verbs. Therefore the semantic passage in chapter 1 is to be thought of as prefixed to the entire work, especially the final chapter, and not specially to chapters 1-4" p. 100

From: David Sedley, Aristotle's *De interpretatione* and Ancient Semantics, in: Giovanni Manetti (ed.), Knowledge Through Signs. Ancient SemioticTtheories and Practices, Turnhout: Brepols, 1996, pp. 87-108.

Abbreviation: FHSG = Fortenbaugh, Huby, Sharples and Gutas (eds.), *Theophrastus of Eresus: Sources for His Life, Writings Thought and Influence*, Leiden: Brill 1992 (two volumes).

An overview of the De interpretatione (Peri hermeneias)

ORDER OF THE *PERI HERMENEIAS.*

"Since the enunciation is the principal subject of the *Peri Hermeneias* the treatise is divided according to the consideration of the enunciation and its parts.(1) After a preliminary chapter on signification and different ways of signifying, (2)Aristotle treats first the principles of the subject i.e., the principles of the enunciation. These are of two kinds: material and formal. The material (or, as St. Thomas refers to them, "quasi material" (3) principles or integral parts of the enunciation are the nom and the verb, the former signifying the substance of a thing and the latter signifying an action or a passion proceeding from a thing. (4) Aristotle defines the noun as a vocal sound which signifies by convention, without time, no part of which signifies separately. (5) "Vocal sound" is the matter or subject on which the signification of the noun is imposed; it distinguishes the noun from sounds not emitted by animals. "Which signifies" distinguishes the noun from nonsense words. "By convention" manifests that this signification of a noun proceeds arbitrarily from the human will; the noun is distinct from sounds which are naturally significant, such as groans and cries. "Without time" distinguishes the noun from the verb, and this last phrase, "no part of which signifies separately," distinguishes the noun from speech *(oratio)* of which it is a part. The verb is defined in the same way, except that it signifies with time, since it signifies action. It is moreover, distinguished from the participle in that it is always a sign that something is predicated of another. The formal principle of the enunciation is speech, which is its genus.(6) The genus of the enunciation is then called its formal principle, because the more universal *in praedicando* since it is not of itself contracted to this or that species, is as a form including the species. A genus is logically superior to the species contained under it; since the species are as subjects of which the genus is predicated, the genus is their formal principle.

Having treated the principles of the subject, Aristotle now takes up the subject, i.e., the enunciation, in the rest of the book. This falls into two sections, the first is on the enunciation absolutely

considered, (7) the second is on the different kinds of enunciations. (8) The absolute consideration of the enunciation comprises three parts: its definition, (9) its division, (10) and its property of opposition.(11)

The enunciation is defined as speech in which the true or false is found.(12) This definition distinguishes the enunciation from incomplete speech *(orationes imperfectae)* as well as from questions, commands, prayers, and salutations which do not absolutely signify concepts in which the true or false is found.(13) The first division is into the enunciation which is simply one because what it signifies is one and the enunciation which is one only by conjunction because it signifies many. The latter, called a composite enunciation, is one only *secundum quid; simpliciter* it is many.(14) The second division is into the species of the enunciation: the affirmation and the negation. This division is primarily of the simple enunciation, but can also be applied *ex consequenti* to the composite enunciation.(15)

These divisions are followed by a treatment of opposition between the subjective parts of the enunciation, i.e., between affirmation and negation. First, Aristotle shows how enunciations are opposed to each other,(16) and, secondly, he answers a difficulty about whether in future singular enunciations in contingent matter one of the opposed enunciations must be true or false.(17) To show how enunciations are opposed to each other he takes up, first of all, the opposition of affirmation and negation absolutely considered, i.e., without reference to differences arising from the subject. This opposition of affirmation and negation is called contradiction.(18) In this connection, St. Thomas points out that affirmation and negation divide the enunciation on the part of its very form or mode of enunciating, whereas the true and the false divide it in comparison to things, e.g., "The crow is white" is affirmative in its mode of enunciating, but false; "The crow is not white" is negative and true.

...Philosophus assumit duplicem diversitatem enunciationis: quarum prima est ex ipsa forma vel modo enunciandi, secundum quod dictum est quod enunciatio vel est affirmativa, per quam scilicet enunciatur aliquid esse, vel est negative per quam significatur aliquid non esse; secunda diversitas est per comparationem ad rem, ex qua dependet veritas et falsitas intellectus et enunciationis. Cum enim

enunciatur aliquid esse vel non esse secundum congruentiam rei, est oratio vera; alioquin est oratio falsa.(19)

Next, Aristotle shows how enunciations are furthermore opposed by reason of their subjects.(20) This involves a new division of enunciations according to the quantity of the subject, i.e., according as something is predicated of many or of one only. Since a subject is either singular or universal, and since a predicate is said of a universal either universally, particularly, or indefinitely, there are four kinds of enunciations: singular, universal, particular, and indefinite.(21) Then, combining the qualities of affirmation and negation with the quantity of the subject, Aristotle shows that an affirmative universal and a negative universal are opposed as contraries, e.g., "Every man is white" and "No man is white."(22) However, when nothing is predicated universally of a universal subject, there cannot be an opposition of contrariety; therefore indefinite enunciations cannot be opposed as contraries.(23) A particular affirmative cannot properly be said to be opposed to a particular negative, because opposition demands the same subject in both enunciations, but a particular enunciation is opposed as a contradictory to the universal of the opposite quality, e.g., "Some man is white" is the contradictory of "No man is white."(24) Next, the author considers how these opposed affirmations and negations are related to truth and falsity: contraries cannot be simultaneously true, etc.(25)

After distinguishing the different modes of opposition, Aristotle shows that there is only one negation opposed to every affirmation, e.g., "Some man is not white" is the only negation of "Every man is white," because it alone removes the very universality of the universal enunciation.(26) Finally, Aristotle takes up the problem of whether one of the opposites must be determinately true .or false in all kinds of enunciations or not.(27) To treat this question it is necessary to observe that enunciations can be divided according to time into present, past, and future and according to their matter into necessary, impossible, and possible or contingent.(28) For enunciations in present or past time, either a universal or its contradictory particular is necessarily true and its opposite is false, in any kind of matter, e.g., "Some man is not white" is necessarily true, if "Every man is white" is false. This is also true for singular

enunciations which are opposed as contradictories, e.g., if "This man is white" is true, "This man is not white" is necessarily false. From the truth of a particular affirmation, however, the falsity of its negative cannot be inferred, e.g., "Some man is white" and "Some man is not white" can both be true. But for enunciations in future time a distinction must be made according to the matter of the enunciation. Future enunciations in necessary and impossible matter are determinately true or false in the same way as enunciations in present and past time. Likewise, in contingent matter, universals are false and particulars are true, as for present and past enunciations. It is for singular enunciations in future time that a problem arises, for, although a future singular enunciation in necessary matter is determinately true or false, it does not seem to be so in contingent matter.(29) The answer to this problem and the reasons for the answer take up the rest of this chapter in Aristotle and the rest of the first book of St. Thomas's commentary.

The remainder of the *Peri Hermeneias* (30) is devoted to the enunciation as it is diversified by the addition of something. First of all, something can be added to a part of the enunciation, i.e., to the subject or to the predicate. Sometimes such an addition does not take away the unity of the enunciation, as when the subject or predicate is rendered infinite by the addition of a negative.(31) Aristotle first takes up the simplest kind of enunciation which consists only of a noun and the verb "is," e.g., "Socrates is." (32) Since only the subject can be made infinite in this kind of enunciation, only two affirmations can be formed from it: "Socrates is" and "Non-Socrates is." There are also the two corresponding negations: "Socrates is not" and "Non-Socrates is not." These enunciations are said to be *de secundo adjacente,* (33) because "is" is the second diction in the enunciation; "is" signifies that "Socrates" really exists. There are also enunciations *de tertio adjacente* (34) in which "is" is not the principal predicate but serves to connect the principal predicate with the subject, e.g., "Socrates is white." In such enunciations, the predicate as well as the subject can be made infinite. If an enunciation is constructed from a finite noun, the verb "is," and a predicate which can be either finite or infinite, four enunciations are possible: "Man is just" with its negation, "Man is not just," and "Man is non-just" with its negation, "Man is not non-

just." (35) If, on the other hand, the subject is an infinite noun, four enunciations are also possible: "Non-man is just" with its negation, "Non-man is not just" and "Non-man is non-just" with its negation, "Non-man is not non-just." (36) No more than these twelve enunciations are possible. Since the subject of each can be singular, universal, particular, or indefinite, a total of forty-eight enunciations is possible from the point of view taken here. (37) Enunciations whose verbs are adjectival, (38) such as "Socrates runs," are affected by an addition to a part of the enunciation in the same way as simple enunciations, i.e., *de secundo adjacente*. This is true, despite the fact that from the point of view of what is signified such enunciations are the equivalent of enunciations *de tertio adjacente:* "Socrates runs" is equivalent to "Socrates is running."

Sometimes an addition takes away the unity of the enunciation. (39) An enunciation is multiple, if what is signified is multiple, even though the enunciation may appear to be simple. An enunciation can be multiple in four ways: (a) when the subject or predicate is one noun which is imposed on several things, which combine into one, but not insofar as they are one (b) when the several which combine into one are the subject or predicate insofar as they are distinct actualities; (c) when one noun is imposed of several things which do not combine into one; and (d) when the several which do not combine into one are the subject or predicate.(40) After distinguishing the multiple enunciations, Aristotle takes up their consequences.(41) He proposes first the problem of why some predicates are true of a subject both when the predicates are taken separately and whey they are joined, while others are true only separately, e.g., from the fact that Socrates is a man and is white it follows that Socrates is a white man but from the fact that he is good and is a musician it does not follow that Socrates is a good musician. (42) The second problem is whether from ay enunciation whose predicate includes several notions it is legitimate to infer several enunciations each having one of the notions for its predicate e.g., from "Socrates is a white man" it follows that he is white and that he is a man, but from "Socrates is a good musician" it does not follow that he is good. (43)

Secondly, an addition can be made, not merely to a part of the enunciation, but to its very composition. Such an addition is a mode,

and it distinguishes the modal enunciation from the *de inesse* enunciation. There are four of these modes: possible, contingent, impossible, and necessary.(44) The introductory paragraphs of Cajetan's commentary explain the distinction between the modal and the *de inesse* enunciations, which mode make an enunciation modal, the parts of the modal enunciation, and it definition.(45) The text of Aristotle covers the opposition of modals by reason of affirmation and negation(46) as well as their consequences. Thus, to the affirmation, "That man is white is possible," is opposed the negation, "That man is white is not possible."(47) A modal is negative only by addition of a negative to the mode, regardless of whether or not the dictum is negative.(48) The following is an example of the consequence of equipollent modals: that which is necessary to be is, consequently, no possible not to be, not contingent not to be, and impossible not to be.(49) Cajetan concludes this section with some paragraphs on the quantity peculiar to modals and their opposition by virtue of their quantity.(50)

Lastly, Aristotle treats the opposition of enunciations deriving from an addition made to a simple enunciation.(51) In this section, he asks whether the contrary of an affirmative enunciation is the negation of the same predicate or the affirmation of the contrary predicate, e.g., is the contrary of "Every man is just" "No man is just" or "Every man is unjust" ?

DIVISIONS OF THE ENUNCIATION

Six ways of dividing the enunciation can be gathered from the *Peri Hermeneias:* by reason of unity, quality, quantity, time, matter, and expression or non-expression of the mode of composition.

The *first* division is into the enunciation that is one (una *simpliciter)* and that which is composite (una *conjunctione).* The former is sometimes called categorical, and the latter hypothetical.(52) This is an essential division of the enunciation, because it is a division on the part of the copula.

The *second* is into affirmation and negation, which St. Thomas frequently asserts is the division of the enunciation into its species.

Quae quidem est divisio generis in species, quia sumitur secundum differentiam praedicati ad quod fertur negatio; praedicatum autem

est pars formalis enunciationis; et ideo hujusmodi divisio dicitur pertinere ad qualitatem enunciationis, qualitatem, inquam, essentialem, secundum quod differentia significat *quale quid*.(53)

The *third* division is by reason of a difference found in the subject of the enunciation, according as it is said of many or only of one. St. Thomas says this division pertains to the quantity of the enunciation, for quantity follows matter, and the subject is as matter in the enunciation.(54) But when the subject is a universal (i.e., it can be said of many) something can be predicated of it in three ways: universally, if the predicate belongs to the entire multitude in which the universal is found, e.g., "Every man is an animal" ; particularly, if the predicate is said to belong to an indeterminate individual that falls under the universal, e.g., "Some man is white"; or indefinitely, when something is predicated of a universal without any sign of universality or particularity. Thus from the point of view of quantity, the enunciation is divided into singular, universal, particular, and indefinite.(55)

The *fourth* division of the enunciation is according to time, i.e., into past, present, and future. As the third division was on the part of the subject, this is on the part of the verb, because every enunciation must have a verb or a form of a verb and must, therefore, consignify present past, or future time.(56) Both the third and fourth divisions are accidental because they are according to a part of the enunciation.

The *fifth* division of the enunciation is according to matter, i.e., according to the relationship of predicate to subject. If the predicate is in the, subject per se, the enunciation is said to be in necessary matter, e.g. "Man is an animal," or "Man is capable of laughter." If it is per s repugnant that the predicate be in the subject, the enunciation is said to be in impossible or remote matter, e.g., "Man is a horse." If the predicate is neither per se repugnant to the subject nor per se contained it, the enunciation is said to be in possible or contingent matter.(57)

The *sixth* and last division of the enunciation is into the *de inesse* and the modal enunciation, the former merely stating that the predicate, is or is not in the subject, the latter stating the mode in which the predicate does or does not belong to the subject, i.e.,

necessarily, impossibly, possibly or contingently.(58)The extremes of this division are the expression o the non-expression of the mode of composition of predicate with subject."

Notes

(1) "Principaliter tamen modum scientiae considerantis subjectum et partes subjecti, de quibus per principia propria probat passiones." St. Thomas, In *Peri Hermenias*, p.377a.

(2) Aristotle, *Peri Herm.*, chap.1; St. Thomas, In *Peri Herm.*, lect.1-3.

(3) lect.4, n.1.

(4*) Ibid.;* the noun and the verb are treated in Aristotle, chaps. 2, 3; St. Thomas, lect. 4, 5.

(5) It is important to note that *nomen* or noun includes both the noun substantive and the noun adjective. This is not only true in logic, but is also in accordance with the usage of the older grammarians. Thus, in "Man is white" both "man" am "white" are nouns.

(6) Aristotle, chap. 4, 16b27-35; St. Thomas, lect. 6.

(7) Chap. 4, 17a1-chap. 9.

(8) Chaps. 10-14; in the commentary of St. Thomas, the first is treated in lessons seven to fifteen of what he calls the first book; all the rest in the commentaries of St. Thomas and Cajetan is called the second book.

(9) Chap. 4, 17a1-8.

(10) Chaps. 5-6, 17a26.

(11) Chap. 6, 17a27-chap. 9.6

(12) "Enunciatio est oratio, in qua verum vel falsum est." St. Thomas, lect.7, n.2.

(13) *Ibid.,* n.4.

(14*) Ibid.,* lect.8, n.13.

(15) *Ibid.,* n.19.

(16) Chap. 6, 17a27-chap. 8; St. Thomas, lect.9-12.

(17) Chap. 9; St. Thomas, lect.13-15.

(18) St. Thomas, lect.9, n.8.

(19) *Ibid.,* n.2.

(20) Aristotle, chap.7, 17a37-17b22; St. Thomas, lect.10, 11, nn.1-5.

(21) St. Thomas, lect.10, nn.10, 14, 15, 16.

(22) *Ibid.,* n.18.22

(23) *Ibid.,* n.19.

(24) *Ibid.,* lect.11, nn.2, 3.

(25) Aristotle, chap.7, 17b23-37; St. Thomas, lect.11, nn.6-11.

(26) Chap.7, 17b38-chap.8; St. Thomas, lect.12.

(27) Chap.9; St. Thomas, lect.13-15.

(28) St. Thomas, lect.13, n.3.

(29) *Ibid.,* nn.4, 5, 6.

(30) Aristotle, chaps.10-14; the second book of the commentaries.

(31) Chap.10; St. Thomas and Cajetan, II, lect.1-4.

(32) St. Thomas, lead.

(33*) Ibid.,* lect.2, n.2.

(34*) Ibid.*

(35) Cajetan, lect.3, nn.1-8.

(36*) Ibid.,* n.9.

(37*) Ibid.,* n.10.

(38) *Ibid.,* nn.12-16.

(39) Aristotle, chap.11; Cajetan, lect.5-7.

(40) Cajetan, lect.5, n.4.

(41) 20b32-21a33; Cajetan, lect.6, 7.

(42) Cajetan, lect.6.

(43*) Ibid.,* lect.7.

(44) Aristotle, chaps.12, 13; Cajetan, lect.8-12.

(45) lect.8, nn.1-6.

(46) Chap.12; Cajetan, lect.8 n.7, lect.9.

(47) Chap.13; Cajetan, lect.10-12, n.9.

(48) Cajetan lect.9, n.5.

(49) *Ibid.,* lect.12, n.7.

(50) *Ibid.,* nn.10-13.

(51) Chap.14; Cajetan, lect.13, 14.

(52) John of Saint Thomas, *Cursus philosophicus* (ed. Reiser, 3 vols.; Rome: Marietti, 1930), T.I, p.25.

(53) *In I Peri Herm.,* lect.10, n.10.

(54) *Ibid.*

(55) *Ibid.,* n.13-16.

(56) *Ibid.,* lect.13,

(57) *Ibid.*

(58) Cajetan, *In II Peri Herm.*, lect.8, n.2.

From: Henri DuLac, "The 'Peri Hermenias'. Its Place in Logic and Its Order", *Laval Théologique et Philosophique* 5, 1949, pp. 161-169.

Onoma and rhema in the De interpretatione

"3.2. The expression of thought in speech

3.2.1. As we saw in 2.4.3, one of the words that Plato uses for giving verbal expression to what one holds true in one's mind is the verb *apophainesthai.* This verb, with *gnomon* or *doxan as* the expressed or unexpressed object, was familiar to every Greek and had the quite ordinary meaning of making known one's opinion. It is this word that plays a central role in Aristotle's treatment of the expression of

thought in speech, at least *in De interpretatione*. Together with the noun *apophansis,* it becomes a more or less technical term for the speech act of making known to others what one holds true in one's mind, of asserting that something is the case. This speech act is either an affirmation or a denial: *a kataphasis is an apophansis* in which it is asserted that one thing belongs to another, *an apophasis is an apophansis* in which one thing is separated from another *(De int. 17 a* 25). Both *kataphasis* and *apophasis* are species of the genus *phasis:* they are forms of saying *(phanai)* that something is or is not the case.

All these nouns suffer from a process-product ambiguity. Sometimes they indicate the activity of making known one's opinion by means of affirming or denying that something is the case. But they may also designate the utterance which is produced in the course of that activity. So *an apophansis is* defined as a significant spoken sound about whether something does or does not hold *(De int. 17* a 23). The two species of the genus *phasis, kataphasis* and *apophasis,* are defined *as logos kataphatikos* and *logos apophatikos, as* an affirmative or negative utterance *(Cat.* 12 b 8). Each is *a logos apophantikos,* an utterance used in the activity of revealing one's thought *(De int. 17 a* 8).

It is this utterance, as used for a special purpose, that is the typical unit of the *legein-level,* the Platonic *logos.* In contrast with other sorts of expressions which do not yet admit of truth or falsity, *a kataphasis* or *apophasis* and *a logos apophantikos* are the kind of units that are rightly called true or false *(Cat.* 2 a 7; *De int.* 17 a 3, 20 a 35).

3.2.2. The other sorts of expressions, which do not yet admit of truth or falsity and are for that reason incomplete and defective, are the units of Plato's *onomazein-level,* the *onomata* and *rhemata.* By uttering *an onoma* or *a rhema* one cannot reveal anything by one's utterance in such a way as to be making a statement *(De int. 17 a* 17). This 'not yet'-character of *onomata* and *rhemata is* a point to which Aristotle remarkably often returns.

In *Cat. 1* a 16 he distinguishes between expressions whose utterance involves a combination *(symploke)* and expressions that are uttered without combination. As examples are given: 'Man runs', 'Man wins';

'Man', 'Ox', 'Runs', 'Wins'. The expressions formed without any combination designate something belonging to one of the categories, and none of them is either true or false *(Cat*. 2 a 8, 13 b 10).

In *De int*. 16 a 9 a parallel is drawn between the mental sphere and the verbal sphere. In the mental sphere two kinds of thoughts are found, those

unaccompanied by truth or by falsity and those that necessarily have one or the other. In the verbal sphere *onomata* and *rhemata* which are pronounced without any addition -- for instance, 'Man', 'White' -- are like thoughts that are formed without any combination; they are not yet true or false. Even a word such as 'Goat-stag' does not yet signify anything true or false. It does so only when 'is' or 'is not' is added.

That the *symploke* must be of a special kind is shown by *De int* 16 b 1. When 'is' or 'is not' is added to a genitive or dative case (Philo's' or 'to-Philo), the combination does not yet yield a truth or falsehood. The oblique cases cannot play the role of naming the subject in a statement-making utterance.

Further examples of the 'not yet'-terminology are *De int*. 16 b 19 and 17 a 9. Verbs uttered by themselves signify something but they do not yet signify whether something is the case or not (Compare *De int*. 16 b 28: a word like 'Man' signifies something but not that something is the case or is not the case). The definition *(logos)* of man, without 'is' or 'was' or 'will be' or something of that kind, is not yet a statement-making utterance.

These passages are sufficient proof that Aristotle, probably inspired by Plato, is fully aware of the incomplete and defective character of *onomata* and *rhemata*. Measured against the relative independence of utterances by means of which expression is given to a belief that something is the case, and which therefore admit of truth or falsity, the meaning of *onomata* and *rhemata* is imperfect. A composite unit of the *legein-level,* which has the complete sense of a true or a false thought, is formed only when the open place accompanying each separate *onoma* or *rhema* is occupied by a proper complement.

Aristotle defines *onomata* and *rhemata* as spoken sounds significant by convention none of whose parts is significant in separation *(De*

int. 16 a 20, 16 b 6; *Poetics* 1457 a 10, 14). The difference between the two is that *an onoma* signifies without any reference to time, whereas *a rhema* additionally signifies time. Moreover, the *rhema is* a sign of something said of something else, the subject. The verb *legein* which Aristotle uses in this connection indicates both the predicative and the assertive function of the *rhema;* if someone says 'Callias runs', the component 'runs' is a sign that the speaker connects the activity of running with Callias, but also that he holds that this predicate actually belongs to Callias, at the time indicated. As for cases like 'Callias is running' or 'Man is just', where the word 'is' occurs as a third element, there the verb 'is' by itself is nothing, but it additionally signifies some combination *(synthesis)* which cannot be thought without the components *(De int* 16 b 25). This *synthesis,* of which the spoken sounds 'is' or 'is not' are the appropriate sign, is the mental activity of bringing together or separating two concepts which, at the same time, is an act of assenting to the combination, or of dissenting from it. Aristotle does not seem to distinguish between merely conceiving of a certain combination, in a neutral *state* of mind, and actually accepting or rejecting it; for him *a synthesis* is always a mental assertion. That the copula 'is' has this assertive force is confirmed by *Met*. 1017 a 31; although Aristotle speaks there of an emphatic use of Is' and 'is not', in the sense of 'Socrates *is* educated, he really is so', there is reason to believe that this emphatic use is only a strengthening of what is normally present in all cases. For *in De int*. 21 b 31 it is said that in utterances of the form 'Man is white', 'Man is not white' the parts 'is' and 'is not' determine the true; this presumably means that they lend assertive force to these utterances (The passage is, however, far from clear).

De int. 16 b 20 is also interesting because it is in these lines that we find the first trace of a distinction that later came to be known as the distinction between categorematic and syncategorematic words. Although verbs by themselves do not yet signify whether something is the case or not and therefore do not possess the degree of completeness and independence which is characteristic of the units of the *legein-level,* it is still true that most of them have a meaning of their own in the sense that both the speaker and the hearer, in pronouncing or hearing the word, will have a definite thought in

their minds, a thought that has some kind of self-sufficiency. The copula 'is', on the contrary, is not accompanied by any such distinct and relatively self-sufficient thought; it only adds a certain nuance to the meaning of the words to which it is joined. For this additional way of signifying Aristotle uses the word *prossemainein*. This verb also occurs *in De int* 20 a 13, in connection with 'every' and 'no'; these words additionally signify nothing other than that the affirmation or negation is about the name taken universally. Thus we have here the beginning of a trichotomy: expressions signifying that something is the case; verbs and nouns, which do not yet signify that something is the case but have some meaning of their own; and words like 'is', 'every', 'no', which do not signify *(semainein)* in either of those ways but only contribute to the meaning of other words." pp. 26-29

(...)

"3.6. Summary

This chapter clearly shows that the treatment of problems concerning acts and attitudes of holding something true and their objects with which Plato had made a modest but hopeful beginning in *Sophist* 261-264 was considerably extended and refined by Aristotle's efforts. By way of conclusion I shall give a synopsis of what we have found out about his conception of the bearers of truth and falsity.

In the first place that is true or false which is thought or believed to be the case. This bearer of truth or falsity may be designated by such expressions *as doxa, hypolepsis, doxazomenon (doxaston), hypolambanomenon (hypo-lepton),* or by *a hoti-clause* or an accusative and infinitive phrase. In so far as a thought or belief is expressed in words it is perhaps also referred to as the *pragma* that underlies an affirmation or negation; but Aristotle does not seem to make a clear terminological distinction between the thing believed or asserted and that which is actually the case in reality.

Although it is not denied that *logos* sometimes stands for that which is asserted, in the contexts that are most relevant to our subject the word usually has the sense of utterance. Utterances that are used to make statements are the second category of bearers of truth and

falsity, designated by such expressions *as logos apophantikos, logos kataphatikos, logos apophatikos, apophansis, kataphasis, apophasis,* and *protasis*. It is probable that Aristotle in speaking of utterances commonly has in mind what would nowadays be called utterance-tokens. There are, however, some passages in which the bearer of truth or falsity must be taken to be an utterance-type of a certain kind.(*)

As some of the terms for that which is thought or believed and for the utterances used to express it are also employed for the acts or attitudes of judging and believing and for the acts of uttering words with a special intention, the qualifications 'true' and 'false' can easily come to be applied to those acts and attitudes as well. Such cases are, however, exceptional and at any rate derivative." pp. 43-44

Notes

(*) For the problem of the so-called future contingencies see Dorothea Frede, *Aristoteles and die 'Seeschlacht*. *Das Problem der Contingentia Futura in De interpretatione 9*, Gottingen, 1970.

From: Gabriel Nuchelmans, *Theories of Proposition. Ancient and Medieval Conceptions of the Bearers of Truth and Falsity*. Amsterdam: North-Holland 1973.

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History of Logic

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Annotated bibliography on Aristotle's *De Interpretatione* (*Peri Hermeneias*)

Studies in English

1. Ademollo, Francesco. 2010. "The Principle of Bivalence in *De Interpretatione* 4." *Oxford Studies in Ancient Philosophy* no. 38:97-113.

   Abstract: "In *De int*. 9 Aristotle argues that some declarative sentences are neither true nor false. This raises the problem of how we should understand the words of ch. 4, which introduces the declarative sentence as 'that in which being true or being false holds'. In this paper I remove the contradiction by arguing that in ch. 4 Aristotle does not intend to claim that *all* declarative sentences are either true or false, but rather that *only* they are either true or false, unlike other kinds of sentence; I defend the soundness of this interpretation on the linguistic and textual level; and I show how we can make good philosophical sense ot it."

2. Albritton, Rogers. 1957. "Present Truth and Future Contingency." *The Philosophical Review* no. 66:29-46.

   "Mr. Taylor refers, in his footnotes, to a recent article(1) in which Miss G. E. M. Anscombe denies that what he calls "Aristotle's opinion" was Aristotle's opinion. Her translation and commentary do not appear to have troubled Taylor's conviction that this opinion is maintained in the De Interpretatione. I had thought, like him, that it was. I am now

inclined to think that this was a mistake. Miss Anscombe has a strong case. Since Taylor says nothing in defense of his interpretation of Aristotle, I will not discuss the question in commenting on his article.2 Instead, I will treat the thesis of the article, and the arguments that he paraphrases from Aristotle, as Taylor's own, without pressing upon him the language of his direct quotations from the Oxford translation of the *De Interpretatione*." (p. 29)

(1) "Aristotle and the Sea Battle," Mind, n.s., LXV (1956), 1-15.

3. Anscombe, G. E. M. 1956. "Aristotle and the Sea Battle. *De Interpretatione* Chapter IX." *Mind* no. 65:1-15.

Revised reprint in: J. M. E. Moravcsik (ed.), *Aristotle: A Collection of Critical Essays,* London: Macmillan, 1968, pp. 15-33 and in: *The Collected Philosophical Papers of G.E.M. Anscombe,* Vol. 1: *From Parmenides to Wittgenstein*, Oxford: Blackwell, 1981, pp. 44-55.

"Aristotle's point (as we should put it) is that "Either p or not p" is always necessary; this necessity we are familiar with. But - and this is from our point of view the right way to put it, for this is a novelty to us - that when p describes a present or past situation, then either p is necessarily true, or ~ p is necessarily true; and here "necessarily true" has a sense which is unfamiliar to us. In this sense I say it is necessarily true that there was not - or necessarily false that there was - a big civil war raging in England from 1850 to 1870; necessarily true that there is a University in Oxford; and so on. But "necessarily true" is not simply the same as "true"; for while it may be true that there will be rain tomorrow, it is not necessarily true. As everyone would say: there may be or may not. We also say this about things which we don't know about the past and the present. The question presents itself to us then in this form: does "may" express mere ignorance on our part in both cases?

Suppose I say to someone: "In ten years' time you will have a son; and when he is ten years old he will be killed by a tyrant." Clearly this is something that may be true and may not. But equally clearly there is no way of finding out. (Unless indeed

you say that waiting and seeing is finding out; but it is not finding out that it will happen, only that it does happen).

Now if I really said this to someone, she would either be awestruck or think me dotty; and she would be quite right. For such a prediction is a prophecy.

Now suppose that what I say comes true. The whole set of circumstances - the prophecy together with its fulfilment - is a miracle; and one's theoretical attitude (if one has one at all) to the supposition of such an occurrence ought to be exactly the same as one's theoretical attitude to the supposition that one knew of someone's rising from the dead and so on." (p. 53 of the reprint)

4. Åqvist, Lennart. 2003. "Future Contingents and Determinism in Aristotle's *De Interpretatione* IX: Some Logical Aspects of the So-Called Second Oldest Interpretation." *Logique et Analyse* no. 46:13-48.

   Abstract: "Dealing with the famous Chapter IX of Aristotle's *De Interpretatione*, the paper proposes a formal reconstruction of the so-called Second-Oldest Interpretation, which (i) is based on the indeterminist logic DARB [*] of historical necessity [Åqvist & Hoepelman (1981)]

   and which (ii) is inspired by the seminal work done by the scholars van Eck (1988) and von Kutschera (1986). It must be emphasized that the point of view from which *De Int*. IX is studied here is not so much that of a strict philologist engaged in Aristotelian scholarship

   as rather that of a modern philosophical logician concerned about systematic combinations of tense and modality. However, both points of view are of course respectable and justified in the case of *De Int*. IX, and, in the opinion of the present author, there ought to be more cross-fertilization between them."

   [* The purpose of this paper is to develop and to investigate some properties ofa system of so called deontic tense logic, i.e. a logic which combines tense operators, or temporal modalities, with operators expressing obligation and permission. (...) "We

call the proposed system DARB, where "D" suggests "deontic" and "ARB" the Latin *arbor* (meaning "tree")", Åqvist & Hoepelman (1981), p. 187].

References

Åqvist, L. & Hoepelman, J. (1981): Some Theorems About a Tree System of Deontic Tense Logic. In R. Hilpinen (ed.), *New Studies in Deontic Logic*. Dordrecht: Reidel, 1981, pp. 187-221.

van Eck, J.A. (1988): Another Interpretation of Aristotle's *De Interpretatione* IX: A support for the so-called second oldest or `mediaeval' interpretation. *Vivarium* XXVI, 1 (1988), 19-38. This commentary also contains translations into English of various important passages in *De Int*. IX.

von Kutschera, F. (1986): Zwei Modallogische Argumente für den Determinismus: Aristoteles und Diodor. *Erkenntnis* 24 (1986), 203-217.

5. Arens, Hans, ed. 1984. *Aristotle's Theory of Language and Its Tradition. Texts from 500 to 1750*. Amsterdam: Benjamins.

   Selection, translation and commentary by Hans Arens.

   Contents: Preface 1; 1. The extraordinary fate of *Peri hermeneias* 6; 2. Aristotle's text (*Peri hermeneias* 16a1 - 17a7) 16; 3. Commentary to Aristotle 24; 4. Ammonius Hermeiu: Commentary to Aristotle's *Peri hermeneias* 58; 5. Commentary to Ammonius 124; 6. Anicius Manlius Severinus Boethius: Commentaries to Aristotle's *Peri hermeneias. Second edition*. 159; 7. Commentary to Boethius 205; 8. Peter Abaelard: *Glosses on Peri hermeneias* 231; 9. Commentary to Abaelard 303; 10. Albertus Magnus: *Perihermeneias*. Paraphrase 339; 11. Commentary to Albert 376; 12. Thomas Aquinas: *Exposition of Aristotle's Perihermeneias* 397; 13. Commentary to Thomas 434; 14. Martinus de Dacia: *Quaestions concerning Peri hermeneias* 458; 15. Commentary to Martin 471; 16. Johannes a S.Thoma: *Artis logicae prima pars* 484; 17. Commentary to John of St.Thomas 507; 18. James Harris, an Aristotelian of the 18th century 514; References 523; Concordance 527; Index of Persons 530-532.

"It is a very small particle of the philosophic and scientific cosmos that bears Aristotle's name, in fact, it is little more than one page of the whole corpus that I am going to consider, that one page out of 1500 where, in the frame of his logic, he formulates his general views on language. Yet, here, in the first four chapters of Peri hermeneias, he is not primarily interested in language, which is a natural - and therefore self-evident - instrument of expression and communication: he considers it only as the indispensable means of forming a proposition, which is part of a syllogism. The linguistic theory sketched here without any pretence to originality would not claim our serious attention and careful examination if those 48 Greek words in ch. 1 had not proved of such incredibly far-reaching influence in the development of linguistic thought. This influence was rendered possible by the steady tradition of the text, and this book is intended as its documentation. As far as I know there exist no modern translations of all the old commentaries I present, and so I hope to do some pioneer work in the field. As the list in ch. 1 shows, I offer only a selection: the works of eminent authors available in modern editions.

Up to Martinus de Dacia the material consists of explanations of the Philosopher's words, and it is obvious that the same words must often lead to the same explanations, the more so as the explainers did not want to criticize him, but to prove him right. This attitude was bound to lead to many parallelisms between the different texts. I could not omit all those repetitions if I did not want to present mere fragments to the reader. Fortunately the writers are different personalities with different styles and ways of handling the matter so that the reader does not only get acquainted with the medieval ways of thinking and argumentation, but also with the different forms of that sort of literature: the commentary, the exposition, the glosses,the paraphrase, and the questions. At the same time he can follow the development of the scholastic method. And with all the burden of formalism, traditionalism, and dependence on authority which the authors carry along, they have ideas of their own - more or less, of course - and all these chapters add up to a book on linguistic logic or the logic of language, which

makes an interesting section in the history of linguistics, being a museum of past views on language. And my serious advice is to wander through it and see what is there, so as to avoid presenting thoughts as new and progressive which are in fact very old - it is always a poor sight and a little ridiculous too.

I had to content myself with presenting the Greek and Latin material in English and adding my comment where I thought it necessary or at least desirable. I am not giving a philosophical exegesis, but an interpretation from the linguistic point of view. The *grammatica speculativa* and the *grammaire générale* or universal grammar could not be included, though I end with the latter (James Harris). From Aristotle on, the translation is always more or less an interpretation, sometimes not really possible, because there is no exact equivalent, for instance, of *onoma* and *rhema*. And the interpretation is a hazardous enterprise because of the distance of time (1500 years between us and our first commentator) and the lack of an elaborate terminology, which manifests itself in the polysemy of the essential terms, especially in the Latin commentaries, for instance: *forma, vox, intellectus, ratio*. And, also from Aristotle on, one often cannot be sure that the text is correct or whether by an error of the author, of the scribe, of the editor or, lastly, of the printer, there is something wrong with it - sometimes the only thing one knows (or thinks one knows). For all these reasons, and because I am neither an expert medievalist nor a logician, I can, despite several revisions of my text, not guarantee that my translation is always correct." (From the Preface)

6. Bäck, Allan. 1992. "Sailing through the Sea Battle." *Ancient Philosophy* no. 12:133-151.

   Abstract: "I wish to present a simple resolution of the problem of the sea battle treated in Aristotle's *On Interpretation* 9. Though my model is simple, the task is not. I am going to have to battle with the text and to wade through a sea of secondary literature. Let me, then, first present the solution, and then face these labors. I shall conclude with some reflections about certain problems that my solution makes."

7. Bluck, Richard. 1963. "On the Interpretation of Aristotle, *De interpretatione* 12-13." *Classical Quarterly* no. 13:214-222.

   "Chapters 12 and 13 of the *De Interpretatione* present some puzzles, which it is my purpose to try to solve. The latest commentator, Professor Jaakko Hintikka, attempts in *Acta Philosophica Fennica* XIV (1962), 5-22, to abolish the difficulties by taking certain verbs in an unusual way. He suggests that in these chapters ακολουθεἰν, which is usually taken to denote logical consequence, sometimes expresses simply compatibility (2Ib35-22a1, 22b11-I4, 22b17-22), sometimes equivalence (22a14 and 33, 22b22 ff., 23a18 ff.), and that at 22a38 ff., 22b30, and 23a17 ἔπεσθαι, which again is usually taken to denote consequence, in fact expresses compatibility. I propose to counter Hintikka's arguments and to maintain that both verbs express consequence; but as my main purpose is to give my own explanation of the general trend of Aristotle's remarks, I shall take the passages discussed by Hintikka in the order in which they occur in Aristotle's text.

   The root of the difficulties that arise is what appears, at least at first sight, to be a confusion about the meaning of 'possible' (δυνατὸν), which may mean 'contingent' or may include what is necessary. For convenience I shall keep in my translations to the rendering 'possible', and where necessary discuss the meaning of the word in the commentary that follows. Where either of the above-mentioned verbs occurs, I shall translate as though it expresses consequence, since I wish to show that good sense can thus be obtained." (p. 214)

8. Bobzien, Susanne. 2007. "Aristotle's *De Interpretatione* 8 is about Ambiguity." In *Maieusis. Essays in Ancient Philosophy in Honour of Myles Burnyeat*, edited by Scott, Dominic, 301-321. New York: Oxford University Press.

   "My goal in this paper is to shows that contrary to the prevalent view, in his *De Interpretatione* 8, Aristotle is concerned with homonymy; more precisely, with homonymy of linguistic expressions as it may occur in dialectical argument. The paper has two parts. In the first I part argue that in *Soph. el.* 175 b 39 - 176 a 5, Aristotle indubitably deals with homonymy in

dialectical argument; that *De Interpretatione* 8 is a parallel to *Soph. el.* 175 b 39 - 176 a 5; that *De Interpretatione* 8 is concerned with dialectical argument; that, hence, *De Interpretatione* 8, too, deals with homonymy in dialectical argument. In the second part I discuss objections that have been put forward against the view that *De Interpretatione* 8 is about homonymy and shows that they do not succeed." (p. 301)

9. Bolonyai, Gábor. 2005. "Aristotle on Sentence Types and Forms of Speech." *Acta Antiqua Academiae Scientiarum Hungaricae* no. 45:143-152.

   Summary: "According to *Hermeneutics* ch. 4, the analysis of non-assertive sentences such as wishes, commands, etc. belongs to rhetoric or poetics. They are, however, examined neither in the Rhetoric, nor in the Poetics, where in ch. 20 their treatment is explicitly excluded from the art of poetry and referred to that of delivery or performance. In this paper an explanation is given for this discrepancy, based on an interpretation of Aristotle's rejection of Protagoras' criticism of Homer."

   "Non-assertive sentences are first mentioned by Aristotle in chapter 4 of his *Hermeneutics*. Before addressing the logical analysis of sentences, he makes a distinction between sentences that are apt for logical examination and sentences that are not.

   The criterion of distinction is their capacity of being true or false. Assertions and negations do have this aptitude, while other types of sentences have a meaning, but can be neither true nor false." (p. 143)

10. Bosley, Richard. 1978. "In Support of an Interpretation of *On Int.* 9." *Ajatus* no. 37:29-40.

11. Brandon, E. P. . 1978. "Hintikka on ἀκολουθεῖν." *Phronesis.A Journal for Ancient Philosophy* no. 23:173-178.

    "Hintikka has argued (1) that the term ἀκολουθεῖν, usually translated in logical contexts as 'follow from', is in fact less definite, sometimes possessing a wider sense of 'going together with', 'accompanying', 'being compatible with', 'conforming with', sometimes a stronger sense of 'logically equivalent with'.

These claims were originally used to clear up some difficulties in Aristotle's *De Interpretatione* 12-13, but they have subsequently been employed in an attempt to obtain a consistent interpretation of Pappus' remarks about the geometrical method of analysis and synthesis.(2)

It is not my intention to query the general claim that ἀκολουθεῖν and its cognates have a less definite meaning in ordinary Greek than 'to follow logically from'. What I do wish to show, however, is that Hintikka does not give sufficient grounds for disputing the traditional understanding of this term in the discussion of modal notions in the *De Interpretatione*. (3)" (p. 173)

(1) In 'On the Interpretation of De Interpretatione 12-13' originally published in *Acta Philosophica Fennica* 1962, reprinted with revisions as chapter III of his *Time and Necessity* (Oxford, 1973). All page references to this later version.

(2) J. Hintikka and U. Remes, *The Method of Analysis* (Dordrecht, 1974) passim, esp. ch. II.

(3) Thus my argument has no immediate consequences for the understanding of Pappus. It may be noted, however, that, as Hintikka and Remes show, the method of analysis Pappus seeks to characterise is in fact largely deductive, so that it would not be wildly irresponsible to suggest that the part of his characterisation that involves an 'upward' movement through ἀκολουθα somewhat misleading. Cf. Mueller's review of Hintikka and Remes, *Journal of Philosophy* 73 (1976) 158-62.

12. Brekle, Herbert E. 1970. "A Note on Aristotle's *De Interpretatione* 20b-21a." *Folia Linguistica* no. 4:167-173.

"This contribution is intended to be a discussion of a few passages of Aristotle's *de interpretatione* (20b-21a) where the Philosopher deals with the notion of 'simplicity of a proposition' and with certain relations holding between several types of predicates contained in a proposition. It is the aim of these remarks to clarify — as far äs possible — Aristotle's view of the problems just mentioned and, secondly, to venture an

explanation of one of the questions raised in terms of modern linguistics." (p. 167)

13. Burrell, David. 1964. "Aristotle and 'Future Contingencies'." *Philosophical Studies* no. 13:37-52.

14. Butler, Ronald J. 1955. "Aristotle's Sea Fight and Three-Valued Logic." *Philosophical Review* no. 64:264-274.

    "Certainly the most formidable threat to the law of excluded middle in recent times came with the development of many-valued logics, and notably with Lukasiewicz's three-valued system." (p. 264)

    (...)

    "It becomes diagrammatically apparent that the introduction of "½" has to some extent modified the significance of both "1" and "0".

    The Harvard logician, Professor Donald Williams, supports this conclusion concerning the truth-values in Lukasiewicz's system. "Lukasiewicz," he writes, "seems to have believed at one time that we should abandon the ordinary meanings of 'true,' 'false' and 'not' in favour of something which does fit his three-valued logic, but he did this because he thought he had independent arguments, essentially Aristotle's, against the admission of truth about the future." (4)

    Nevertheless, when Aristotle discussed the application of the principle of excluded middle to contingent propositions about the future, I do not think he was suggesting that the usual meanings of "true," "false," and "not" should be modified in any way (nor, indeed, that the law of excluded middle, when formulated in a certain way, is subject to any exceptions at all). Aristotle's problem is that if "it is an irrefragable law that of every pair of contradictory propositions . . . one must be true and the other false," then "all that is or takes place is

    the outcome of necessity" (18b 26). (5) But determinism he could not accept, because there are real alternatives concerning the future, events which have a "potentiality in either direction"

(19a 10). If this were not so, "there would be no need to deliberate or to take trouble,

on the supposition that if we were to adopt a certain course, a certain result would follow, while, if we did not, the result would not follow" (18b 32). Instead of abandoning the law, however, he attempted so to formulate it that its application to the future is consonant with his view that some future events are not predetermined. Accordingly he concluded that "everything must either be or not be, whether in the present or in the future, but it is not always possible to distinguish and state determinately which of these alternatives must necessarily come about" (19a 27)." (p. 266)

(4) D. C. Williams, "The Sea Fight Tomorrow," *Structure, Method and Meaning*, ed. by P. Henle et al. (New York, 1951), p. 285.

(5) *De Interpretatione*, ch. IX. All quotations are from the Oxford translation, ed. by Sir David Ross.

15. Butler, Travis. 1997. "The Homonymy of Signification in Aristotle." In *Aristotle and After*, edited by Sorabji, Richard, 117-126. London: Institute of Classical Studies, University of London.

16. Cahn, Steven M. 1967. *Fate, Logic and Time*. New Haven: Yale University Press.

17. Carson, Scott. 2000. "Aristotle on Existential Import and Non Referring Subjects." *Synthese* no. 124:343-360.

Abstract: "Much contemporary philosophy of language has shown considerable interest in the relation between our linguistic practice and our metaphysical commitments, and this interest has begun to influence work in the history of philosophy as well.(1) In his *Categories* and *De interpretatione,* Aristotle presents an analysis of language that can be read as intended to illustrate an isomorphism between the ontology of the real world and how we talk about that world. Our understanding of language is at least in part dependent upon our understanding of the relationships that exist among the enduring πράγματα that we come across in our daily

experience. Part of the foundations underlying Aristotle's doctrine of categories seems to have been a concern, going back to the Academy, about the problem of

false propositions: language is supposed to be a tool for communicating the way things are, and writers in antiquity were often puzzled by the problem of how we are to understand propositions that claim that reality is other than it is.(2) Aristotle's analysis of propositions raises a particular problem in this regard: if the subject of a proposition does not refer to anything, how can the proposition be useful for talking about a state of the world?

The problem falls into two separate but related parts: propositions whose subjects are singular terms and hence make claims about some particular thing, and propositions whose subjects are general terms and hence make claims about classes. In this paper I will explain Aristotle's treatment of each kind, focusing in particular on what has widely been perceived as a problem in his treatment of singular terms. My discussion of his treatment of general terms will be more brief, but will show that his treatment of them is consistent with his treatment of singular terms."

(1) An interesting treatment of this topic that illustrates how such concerns intersect with issues in the history of philosophy can be found in Diamond (1996), Introduction II (pp. 13–38). Whittaker (1996) also touches on these themes.

(2) On the treatment by ancient philosophers of the problem of falsehood see Denyer (1991).

References

Denyer, N.: 1991, *Language, Thought and Falsehood in Ancient Greek Philosophy*, Routledge, London.

Diamond, C.: 1996, *The Realistic Spirit: Wittgenstein, Philosophy, and the Mind,* MIT Press, Cambridge, MA.

Whittaker, C.: 1996, *Aristotle's De Interpretatione: Contradiction and Dialectic*, Clarendon Press, Oxford.

18. ———. 2003. "Aristotle on Meaning and Reference." *History of Philosophy Quarterly* no. 20:319-337.

19. Charles, David. 1994. "Aristotle on Names and Their Signification." In *Language*, edited by Everson, Stephen, 37-73. Cambridge: Cambridge University Press.

    Revised and reprinted as Chapter 4: *The Signification of Names* in: D. Charles, *Aristotle on Meaning and Essence,* New York: Oxford University Press 2000, pp. 78-109.

    "Aristotle's discussion of names (*onomata*) and their meaning or signification (semainein) is part of his general account of linguistic signification, definition and thought. This is still a somewhat neglected area or study.

    (...)

    My starting-point will be Aristotle's discussion of the signification of names and 'name-like expressions' in the *Posterior Analytics* (*An. Post.*) and *de Interpretatione* (*Int.*). While be comments on these issues elsewhere (for example in the *Topics*, *Categories* (*Cat.*). *Metaphysics* (*Met.*), *Physics* (*Phys.*) and *Poetics*), *de lnterpretatione* and the *Posterior Analytics* suggest the basis for a relatively systematic view, which is clearly connected with his account of definition and thought (*noein*). It may well be that at other times Aristotle held other views on the same topics. But I shall focus mainly on *de Interpretatione* and the *Analytics*, and not attempt an overall survey of all his writings on these issues. The account which he offers there is a striking one which plays a major role in shaping his discussion of other central issues.

    ln this paper, l shall outline Aristotle's discussion of accounts of what names signify in the *Analytics* (section 2). and of names and similar expressions in *de Interpretatione* (3). This sketch will bring into sharper perspective his discussion of empty names and existence (4). and of permissible substitutions in knowledge (and belief contexts (5). Prom this vantage-point, I shall seek to articulate some of Aristotle's views on the interconnections between signification, thought and definition (6). In the final sections (7) and (8) I shall make a few remarks

about the role his account of signification plays in motivating certain of his other views, and about the philosophical problems which it faces. These final sections do not attempt an exhaustive treatment of the issues they raise, but aim merely to suggest avenues for further Investigation." (pp. 37-38)

20. Cleveland, Timothy. 2005. "Was Classical Logic Sunk in Aristotle's Sea Battle?" *Southwest Philosophical Studies* no. 27:28-34.

21. Craig, William Lane. 1988. *The Problem of Divine Foreknowledge and Future Contingents from Aristotle to Suarez*. Leiden: Brill.

    Capter I. *Aristotle*, pp. 1-58.

    Summary: "In summary, we have seen that in chapter 9 of *De interpretatione* Aristotle argues that if one grants that the Principle of Bivalence holds for all future singular propositions, then fatalism results. For the semantic relation between propositions and corresponding reality is such that if a proposition is true, then necessarily reality must correspond to it, and if it is faise, then necessarily reality must fail to correspond to it. Hence, if a future singular proposition has a truth value, future reality must eventuate according as the proposition is true or false. Because contradictions cannot exist in reality, the relevant state of affairs and its opposite cannot both be actualized; so when the time of the event arrives, one or the other state of affairs must be realized. Hence, in an antiphasis of future singular propositions, both cannot be true, nor can both be false. But both can be indeterminate, in that they lack a truth value. Hence, not all future singular propositions are true or false.

    The joker in this deck, if we may call it that, would seem to be Aristotle's view of truth as correspondence.(137) It might be thought that a future singular proposition must be true if it corresponds to what will in fact be, and if not, then it is false. Accordingly, future-tense propositions must be as bivalent as past- or present-tense statements. But Aristotle apparently thought that if reality were as yet undetermined, then corresponding propositions were also indeterminate as regards

their truth value. Ackrill explains that Aristotle held to "a rather crude realistic correspondence theory of truth, and we might well expect him to think that if the state of affairs now is such that it is not settled whether x will or will not occur, then 'X will occur' is not now either true or false: there is not yet anything in the facts for it to correspond or fail to correspond with." (138) On such a view, the only future singular propositions which could now have a truth value would be ones about things which will happen necessarily as part of an everlasting cyclical process. In their case, although there is no future state of affairs now existent with which a proposition may correspond, nevertheless there are in the present the conditions which make the future realization of the state of affairs a necessity, and hence a future singular proposition may be truly asserted of it. But future contingent singular propositions have as yet no truth value. On the basis of the presently existing conditions all that may be truly said of a contingent future singular is "It is going to be." But in such a case, the truth of the proposition says nothing about the eventual actualization of the event-it may or may not occur. Aristotle does not explicity say that future contingent singular propositions become true or false; but he says they are not already true or false. Technically speaking, they do not become true or false; it is the present-tense version of the statements that comes to possess a truth value. It is not unlikely that this distinction did not concern Aristotle, but he does not in any event commit himself clearly to saying the future-tense versions come to be true or false. (139) When the time of the event arrives, then exactly one of the states of affairs is actualized and in the antiphasis one of the propositions becomes actually true in its present-tense version. Since future contingent singular propositions are not antecedently true or false, the argument for fatalism based on antecedent truth and the necessity of the semantic relation fails." (pp. 57-58)

(137) See Lukasiewicz, *Aristotle's Syllogistic*, p. 156; Ross, *Aristotle*, p. 26; Taylor, "Future Contingencies," 3, 16; Frede, *Aristoteles und die "Seeschlacht*," p. 66; McKim, "Fatalism and the Future," p. 103; Dickason, "Sea Fight," p. 20-1; White, "Fatalism and Causal determinism," pp. 233-6.

(138) Ackrill, *Aristotle's "De lnterpretatione,"* pp. 140-1.

(139) Frede, *Aristoteles und die "Seeschlacht,"* p. 72-3.

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l)ickason, Anne. "Aristotle, the Sea Fight, and the Cloud." *Journal of the History of Philosophy* 14 (1976): 11-22.

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White, Michael J. "Fatalism and Causal Determinism: an Aristotelian Essay." *Philosophical Quarterly* 31 (1981): 231-41.

22. Crivelli, Paolo. 2001. "Empty terms in Aristotle's logic." *Proceedings of the Boston Area Colloquium in Ancient Philosophy* no. 17:237-269.

23. ———. 2004. *Aristotle on Truth*. Cambridge: Cambridge University Press.

Contents: Acknowledgments IX; Notes on the text X; List of abbreviations of titles of Aristotle's works XI; Introduction 1; Part I. Bearers of truth or falsehood 45; 1. States of affairs. thoughts. and sentences 45; 2. Truth conditions for predicative assertions 77; 3. Truth conditions for existential assertions 99; Part II. 'Empty' terms 129; 4. Truth as correspondence129; 5. 'Vacuous' terms and 'empty' terms 152; Par III. Truth and time 183; 6. Truth and change 183; 7. Truth and determinism in *De Interpretatione* 9 198; Appendix I. *Metaph*. Theta 10 1051b 1: the text 234; Appendix 2. *Metaph*. Theta 10 1051b 2-3: the text 238; Appendix 3. *Int*. 7, 17b 16-18: the text 239; Appendix 4. The two place relations in Aristotle's definition of truth 254; Appendix 5. Aristotle's theory of truth for predicative assertions: formal presentation 258; Appendix 6. The failure of Bivalence for future-tense assertions formal presentation 266;

References 284; Index of names 313; Index of subjects 319; Index of passages 321.

24. ———. 2009. "Aristotle on Signification and Truth." In *A Companion to Aristotle*, edited by Anagnostopoulos, Georgios, 81-100. Malden: Wiley-Blackwell.

    "Aristotle discusses signification and truth in passages from several works, mainly the *Categories, de Interpretatione, Sophistici Elenchi, de Anima,* the *Metaphysics,* and the *Poetics*. Signification and truth are not the main topic of these works: their discussions of these subjects are asides. This study reconstructs some views on signification and truth to which Aristotle can be plausibly taken to be committed by his scattered remarks." (p. 81)

25. Dancy, R. M. . 1975. *Sense and Contradiction. A Study in Aristotle*. Dordrecht: Reidel.

    Appendix I. *De interpretatione* 14 143-152.

    "Ammonius (in *De int*. 251.27ff.) suspected that this chapter was either not by Aristotle or a dialectical exercise. The only visible reason for doubting its authenticity is that some of what it says conflicts with things said elsewhere in Aristotle, and that is not much of a reason. So let us take it as genuine (cf. Ackrill, *Cat. & De int*. p. 153).

    In any case, the chapter contains some astounding confusions. So either Aristotle is genuinely confused, or Ammonius' second alternative is right, and he is just trying out arguments. For present purposes, it does not matter which alternative we take." (p. 143)

    Appendix II. *De interpretatione* 11. 21a. 25-27 153-155.

    "Among too many other things, Aristotle is concerned in *De int*. 11 with patterns of inference in which the cancellation of a term yields a conclusion: it follows from 'this is a pale man' that this is pale, and that it's a man (21a18-20), but not from 'this is a dead man' that this is a man (a21-24). He says of the uncancelled term in the conclusion that it is used 'simply' (απλὸς a5, etc.): an alternative paraphrase might be 'on its

own'. Thus if you went (illicitly) from 'Socrates is a good cobbler' to 'Socrates is good', you would be concluding that Socrates is good simply, or that 'good' on its own applies to Socrates (cf. 20b35-36, 21a14-15).

We can represent this device (which, I think, is almost purely syntactic) with a linguist's boundary marker: your conclusion would be 'Socrates is good#'." (p. 153)

26. De Cuypere, Ludovic, and Willems, Klaas. 2008. "Meaning and Reference in Aristotle's Concept of the Linguistic Sign." *Foundations of Science* no. 13:307-324.

    Abstract: "To Aristotle, spoken words are symbols, not of objects in the world, but of our mental experiences related to these objects. Presently there are two major strands of interpretation of Aristotle's concept of the linguistic sign. First, there is the structuralist account offered by Coseriu (*Geschichte der Sprachphilosophie. Von den Anfängen bis Rousseau*, 2003 [1969], pp. 65-108) whose interpretation is reminiscent of the Saussurean sign concept.

    A second interpretation, offered by Lieb (in: Geckeler (Ed.) *Logos Semantikos: Studia Linguistica in Honorem Eugenio Coseriu* 1921-1981, 1981) and Weidemann (in: Schmitter (Ed.) *Geschichte der Sprachtheorie* 2. *Sprachtheorien der abendländischen Antike*, 1991), says that Aristotle's concept of the linguistic sign is similar to the one presented in Ogden and Richards's (*The meaning of meaning: A study of the influence of language upon thought and of the science of symbolism*, 1970 [1923]) semiotic triangle. This paper starts off with an introductory outline of the so-called *phýsei-thései* discussion which started during presocratic times and culminated in Plato's *Cratylus*. Aristotle's concept of the linguistic sign is to be regarded as a solution to the stalemate position reached in the *Cratylus*. Next, a discussion is offered of both Coseriu's and Lieb's analysis. We submit that Aristotle's concept of the linguistic sign shows features of both Saussure's and Ogden and Richards's sign concept but that it does not exclusively predict one of the two. We argue that Aristotle's concept of the linguistic sign is based on three different relations which

together evince his teleological as well empiricist point of view: one internal (symbolic) relation and two external relations, i.e. a likeness relation and a relation *katà synthéken*."

27. De Rijk, Lambertus Marie. 1987. "The Anatomy of the Proposition. *Logos* and *Pragma* in Plato and Aristotle." In *Logos and Pragma. Essays on the Philosophy of Language in Honour of Professor Gabriel Nuchelmans*, edited by de Rijk, Lambertus Marie and Braakhuis, Henk Antonius, 27-61. Nijmegen: Ingenium Publishers.

    "Introductory

    This study is written in honour of a scholar who, among many other things, has laid the solid basis for the study of what may be considered the kernel of the semantics of the statement-making utterance, viz. the definition of the bearers of truth and falsity.

    In the first section I present a survey of Plato's semantics of the statement-making expression and a number of key notions involved. Next, I explore Aristotle's views of the matter, starting with a discussion of Aristotle's notion of *pragma* including that of being *qua* truth and not-being *qua* falsehood. In search for the nature of Aristotle's *logos,* I discuss this notion as it occurs on the *onomazein* level as well as the way in which it acts on the *legein* level. Next, I investigate the important notions of *synthesis* and *dihaeresis* and the role of *einai* as a monadic functor and *qua* syncategorematic container of categorial being. Finally, I attempt to present a characterization of Aristotle's statement-making utterance.

    (...) p. 27

    "Epilogue

    We may summarize what we have found as follows:

    1 For Plato,

    1.1 a *logos* is a composite expression consisting of a name *(onoma)* and an attribute *(rhêma)* which as such is not yet a statement-making utterance

1.2 a logos represents a state of affairs *(pragma),* i.e. an actual combination of some participata *(dynameis)* in the outside world

1.3 a *logos eirêmenos is* a statement-making utterance; it asserts that the pragma represented by the logos is actually the case.

2 For Aristotle,

2.1 a *logos* is a composite expression consisting of an *onoma* and *a rhêma* which represents both a notional and an ontological state of affairs. It may be characterized as a 'statable complex'

2.2 a *pragma is* a state of affairs either *ontologically:* state of affairs being part of the outside world or *semantically:* state of affairs conceived of and expressed by a logos

2.3 a *logos apophantikos* ('statement-making utterance') is a logos actually stated (either asserted or denied)

2.4 a logos may as such be used either on the *onomazein* level or on the *legein* level (qua *logos apophantikos*). Similarly, *phasis* (*kataphasis, apophasis*) may be used on either of these levels

2.5 *synthesis* is either synthesis1, = the act of uniting an onoma and a rhêma into a logos (on the *onomazein* level) or synthesis2 = the assertion of such a union accomplished in *a logos apophantikos,* (on the *legein* level), while *dihairesis* is always the denial of such a union (on the *legein* level)

2.6 the *esti* forming part of *a logos apophantikos is* not a copula, properly speaking. Rather, it is a sign of (it consignifies, to speak with *De interp*. 3,16b24-5) synthesis2. The onoma and rhêma are already united to make up a logos ('statable complex') by synthesis, and, then, the *esti* rather than acting as a dyadic copulative functor, is merely a monadic sign of the 'statable complex' being actually stated

2.7 The propositional structure found in the *logos apophantikos* may be described as follows:

linguistically: a logos expressing categorial being (i.e. syncategorematic being implemented by one or more of the ten categories of being) is stated (either affirmatively or negatively) by means of the monadic functor 'be' or 'not be'

semantically: the pragma represented by the logos is said to be (or not to be, respectively) part of the outside world (or: 'be (not) the case')." pp. 53-54 (notes omitted).

28. ———. 1996. "On Aristotle's Semantics in *De Interpretatione* 1-4." In *Polyhistor. Studies in the History and Historiography of Ancient Philosophy Presented to Jaap Mansfeld on his Sixtieth Birthday*, edited by Algra, Keimpe, Horst, Pieter van der and Runia, David, 115-134. Leiden: Brill.

    "By and large, in *De interpretatione* Aristotle is concerned with our capability to speak about all that presents itself to our mind. From chapter 4 onwards, he deals with the statement-making expressions (affirmation and negation), which are the main tools for conveying our thoughts about things. This discussion is prepared (chapters 1-3) by some important observations concerning the basic elements of such expressions, viz. *onoma* and *rhema*. The present contribution contains some comments on Aristotle's view of the proper nature of statement-making as put forward in *De interpretatione*. First, I would like to highlight Aristotle's, what Sir David Ross has called `frankly 'representative' view of knowledge' by discussing the terms *omoioma* and *pragma*. Next, I will discuss what is meant by a term's 'time-connotation', and finally I will examine the semantics of *onoma, rhema* and *logos*." (p. 115)

29. ———. 2002. *Aristotle: Semantics and Ontology. Volume I: General Introduction. The Works on Logic*. Leiden: Brill.

    From the Preface: "In this book I intend to show that the ascription of many shortcomings or obscurities to Aristotle resulted from persistent misinterpretation of key notions in his work. The idea underlying this study is that commentators have wrongfully attributed anachronistic perceptions of `predication', and statement-making in general to Aristotle. In Volume I, what I consider to be the genuine semantics

underlying Aristotle's expositions of his philosophy are culled from the *Organon*. Determining what the basic components of Aristotle's semantics are is extremely important for our understanding of his view of the task of logic -- his strategy of argument in particular.

In chapter 1, after some preliminary considerations I argue that when analyzed at deep structure level, Aristotelian statement-making does not allow for the dyadic 'S is P' formula. An examination of the basic function of `be' and its cognates in Aristotle's philosophical investigations shows that in his analysis statement-making is copula-less. Following traditional linguistics I take the `existential' or hyparctic use of `be' to be the central one in Greek (*pace* Kahn), on the understanding that in Aristotle hyparxis is found not only in the stronger form of `actual occurrence' but also in a weaker form of what I term `connotative (or intensional) be' (1.3-1.6). Since Aristotle's `semantic behaviour', in spite of his skilful manipulation of the diverse semantic levels of expressions, is in fact not explicitly organized in a well-thought-out system of formal semantics, I have, in order to fill this void, formulated some semantic rules of thumb (1.7).

In chapter 2 I provide ample evidence for my exegesis of Aristotle's statement-making, in which the opposition between `assertible' and `assertion' is predominant and in which `is' functions as an assertoric operator rather than as a copula (2.1-2.2). Next, I demonstrate that Aristotle's doctrine of the categories fits in well with his view of copula-less statement-making, arguing that the ten categories are `appellations' ('nominations') rather than sentence predicates featuring in an `S is P' formation (2.3-2.4). Finally, categorization is assessed in the wider context of Aristotle's general strategy of argument (2.5-2.7).

In the remaining chapters of the first volume (3-6) I present more evidence for my previous findings concerning Aristotle's `semantic behaviour' by enquiring into the role of his semantic views as we find them in the several tracts of the *Organon,* in particular the *Categories De interpretatione* and *Posterior*

Analytics. These tracts are dealt with *in extenso,* in order to avoid the temptation to quote selectively to suit my purposes."

30. Deretic, Irina. 2013. "What do "Affections in the soul" Resemble? Aristotle's model of the linguistic sign." *Arhe* no. 10:143-150.

31. Di Mattei, Steven. 2006. "Rereading Aristotle's *De interpretatione* 16a3-8: verbal propositions as symbols of the process of reasoning." *Ancient Philosophy* no. 26:1-21.

32. Dickason, Anne. 1976. "Aristotle, the Sea Fight, and the Cloud." *Journal of the History of Philosophy*:11-22.

    "Since nearly the time Aristotle wrote, interest has waxed and waned in his early work, *De lnterpretatione* ix; (1) recent controversy was sparked in 1951, when D. C. Williams discussed the problem of the sea fight in relation to modem logic, and although the flurry of journal articles has quieted down, the problems are not yet solved. One reason for this is that in this passage there is not only the difficulty of evaluating whether Aristotle is correct, but there is the added intrigue of trying to decipher just what it is that he is saying, or even with what issue he is primarily concerned. Many commentators believe he is supporting a correspondence theory of truth by denying the law of the excluded middle for future tense propositions; others believe he is concerned more with metaphysical contingencies and the threat of fatalism than with logical difficulties. Still others take the main point to be about the relation of tensed sentences to infinite past or future truth; and a few come full circle, interpreting Aristotle as not denying the excluded middle at all, only examining the question of whether the future will be like the past.

    In general, all of these fit into one of two broad areas of interpretation; either they are concerned with the distinction between 'necessarily (p or not p)" and "necessarily p or necessarily not p," or with the distinction between "necessarily (p is true or not p is true)" and "necessarily (p will be true or not p will be true)."(2) Because of these different readings of Aristotle it is not enough for us simply to present the text and

then examine different conclusions about it. Instead, we will consider the most important commentaries, tracing

the development of recent criticism as well as establishing the uniqueness of each position, and then draw our own conclusions based on these interpretations and our own reading of the text. (3) Due to the volume of material on the sea fight, not all commentaries can be discussed here; some, e.g., Albritton (4) and Ryle, (5) are omitted because they do not focus enough on Aristotle, while others, e.g., Strang (6) e and McKim (7), are not covered because their basic arguments are found elsewhere." (pp. 11-12 note 3 omitted. The authors summarized are: D. C. Williams, Linsky, Butler, Anscombe, Ackrill, Hintikka, and Frede.)

(1) The problem of the universal applicability of the excluded middle was debated by the Stoics and Epicureans, and specific commentaries on De lnterpretatione have come down to us from Ammonius and Stephanus. Both Alexander of Aphrodisias and Simplicius wrote commentaries on other Aristotelian works, and these often include remarks relevant to the problems of the sea fight.

(2) D. C. Williams, "Professor Linsky on Aristotle," *Philosophical Review*, 63 (April, 1954), 253.

(4) R. Albritton, "Present Truth and Future Continguency," *Philosophical Review*, 66 (January, 1957), 29-46.

(5) Gilbert Ryle, "It Was to Be," *Dilemmas* (Cambridge: The University Press, 1954).

(6) C. Strang, "Aristotle and the Sea Battle," *Mind*, LXIX (October, 1960), 447-465.

(7) V. R. McKim, "Fatalism and the Future: Aristotle's Way Out," R*eview of Metaphysics*, 25 (September, 1971), 80-111.

References

Leonard Linsky, "Professor Donald Williams on Aristotle," *Philosophical Review,* 63 (April, 1954), 250.

33. Du Lac, Henri. 1949. "The 'Peri Hermenias'. Its Place in Logic and Its Order." *Laval Théologique et Philosophique* no. 5:161-169.

"Aristotle and St. Thomas commonly divide logic according to the three operations of the human intellect, because logic is the art which directs man in the very act of reasoning that he might proceed in good order, with ease, and without error. (1) The first two acts of the mind are properly called acts of intellect rather than of reason, because they are not acts of discourse. The first act is the understanding of what is indivisible or incomplex, and is therefore called simple apprehension. By this act the intellect grasps the essence of a thing. The *Predicaments* of Aristotle treats the part of logic pertaining to this operation. The second act of the intellect is that of composition or division, in which truth or falsity is found. Aristotle treated what pertains to this act in the *Peri Hermeneias*. The third operation of the mind is properly called an act of reason, because in it the mind moves from a knowledge of a known truth to a knowledge of a truth previously unknown. This is the act of discourse, that is, of going from one to another. The remaining books of the *Organon* treat of what pertains to this act - the *Prior Analytics,* the *Posterior Analytics,* the *Topics,* and the *Sophistic Refutations*. Just as the first of these acts is ordered to the second, and the second to the third, so the *Predicaments* is ordered to the *Peri Hermeneias* and the latter to the *Prior Analytics* and the books that follow." (p. 161)

(1) St. Thomas, *Expositio in Libros Posteriorum Analytitcorum*, I, lect. 1 (ed. Leonina), nn. 1, 4.

34. Fine, Gail. 1984. "Truth and Necessity in *De interpretatione* 9." *History of Philosophy Quarterly* no. 1:23-47.

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    "The discussion of the Principle of Non-Contradiction (PNC) in Aristotle's *Metaphysics* Γ is usually taken to include three 'versions' of the principle: an ontological, psychological, and logical one. In this article I develop an interpretation of *Metaphysics* Γ3 and a parallel text, *De interpretatione* 14, in order to show that these texts are concerned with two related but different principles: a version of the Principle of Identity, and a corollary to this, which concerns the ability to accept two 'opposite' items at the same time. I argue that these principles must be considered separately in order to properly understand Aristotle's remarks about PNC in *Metaphysics* Γ, and in order to defend his approach in these remarks against certain objections raised against the discussion in *Metaphysics* Γ by Jan Łukasiewicz in his seminal study *Über den Satz des Widerspruchs bei Aristoteles*. The main result of my interpretation is to distinguish in the discussion of PNC in *Metaphysics* Γ three principles: one concerning linguistic items (words and statements), one concerning thoughts (δόξαι), and one concerning objects or states of affairs." (p. 53)

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    In fact, Aristotle resorts to a mental conception of meaning, distinguishing linguistic meanings in a given language from non-linguistic mental contents in relation to actual things: while the former are not the same for all, the latter are shared by everyone. Aristotle

    is not a modern logician, like Boole, Frege, or Russell, in so far as a mental conception of meaning does not reveal an abstract semantics for a syntactic language."

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    Abstract: "In *De Interpretatione* 6-9, Aristotle considers three logical principles: the principle of bivalence, the law of excluded middle, and the rule of contradictory pairs (according to which of any contradictory pair of statements, exactly one is true and the other false). Surprisingly, Aristotle accepts none of these without qualifi cation. I off er a coherent interpretation of these chapters as a whole, while focusing special attention on two sorts of statements that are of particular interest to Aristotle: universal statements not made universally and future particular statements. With respect to the former, I argue that Aristotle takes them to be indeterminate and so to violate the rule of contradictory pairs. With respect to the latter, the subject of the much discussed ninth chapter, I argue that the rule of contradictory pairs, and not the principle of bivalence, is the

focus of Aristotle's refutation. Nevertheless, Aristotle rejects bivalence for future particular statements."

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    Abstract: "This article deals with the communicational aspects of Aristotle's theory of signification as laid out in the initial chapters of the *De Interpretatione* (*Int*.). We begin by outlining the reception and main interpretations of the chapters under discussion, rather siding with the linguistic strand. We then argue that the first four chapters present an account of verbal communication, in which words signify things via thoughts. We show how Aristotle determines voice as a conventional and hence accidental medium of signification: words as 'spoken sounds' are tokens of thoughts, which in turn are signs or natural likenesses of things. We argue that, in this way, linguistic expressions may both signify thoughts and refer to things. This double account of signification also explains the variety of ontological, logical and psychological interpretations of the initial chapters of Int."

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    "A few sentences near the beginning of De interpretatione (16a3-8) constitute the most influential text in the history of semantics. The text is highly compressed, and many translations, including the Latin translation in which it had its

greatest influence, have obscured at least one interesting feature of it. In this paper I develop an interpretation that depends on taking seriously some details that have been neglected in the countless discussions of this text.

The sentence with which De interpretatione begins, and which immediately precedes the text I want to examine, provides (as Ackrill remarks 1) the program for Chapters 2-6.

... we must settle what a name is [Chapter 2] and what a verb is [Chapter 3], and then what a negation [Chapters 5 and 6], an affirmation [Chapters 5 and 6], a statement [Chapters 4 and 5] and a sentence [Chapters 4 and 5] are. (16a1-2) (2)

But Aristotle says "First we must settle what a name is ...", and that is what he does in Chapter 2. The remainder of Chapter 1, then, may be thought of as preparatory to the main business of those chapters. And since their main business is to establish definitions, it is only natural to preface them with a discussion of the defining terms. At the beginning of Chapter 2, for instance, Aristotle defines 'name' in these terms: 'spoken sound', 'significant by convention', 'time', and 'parts significant in separation'. These terms continue to serve as defining terms beyond Chapter 2, and the remainder of Chapter 1 (16a3-18) is devoted to clarifying them. The special task of the text I am primarily concerned with is the clarification of the proximate genus for the definitions in Chapters 2-6: "spoken sound significant by convention" (3)." (p. 3)

(1) In the notes to his translation (J. L. Ackrill, Aristotle's Categories and De Interpretatione, Clarendon Press, Oxford, 1963; reprinted with corrections, 1966), p. 113.

(2) I am using Ackrill's translation, the only one in English that shows an understanding of the text.

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    Abstract: "Regarding the famous Sea Battle Argument, which Aristotle presents in *De Interpretatione* 9, there has never been a general agreement not only about its correctness but also, and mainly, about what the argument really is. According to the most natural reading of the chapter, the argument appeals to a temporal concept of truth and concludes that not every statement is always either true or false. However, many of Aristotle's followers and commentators have not adopted this reading. I believe that it has faced so much resistance for reasons of hermeneutic charity: denying the law of universal bivalence seems to be overly disruptive to logical orthodoxy – the kind of logical orthodoxy represented by what we now call classical propositional logic, much of which Aristotle clearly supports in many texts. I intend to show that the logical-semantic theses that the traditional reading finds in *De Interpretatione* 9 are much more conservative than they may seem to be at first glance. First, I will show that they complement, and do not contradict in any way, the orthodox definitions of the concepts of truth and statement that Aristotle advances in other texts. Second, by resorting in an anachronistic vein to concepts and methods peculiar to contemporary logic, I will show that a trivalent modal semantics conforming to those theses can be built for a standard formal language of the classical propositional calculus. It is remarkable that reasonable concepts of logical truth and logical consequence that may be defined on the basis of this trivalent modal semantics are coextensive with their orthodox counterparts, the concepts of tautology and tautological consequence of classical bivalent and extensional semantics."

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    See Chapter Five: *Language and signs in Aristotle,* pp. 70-91.

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"Boethius' commentaries on *de Interpretatione* provided the Middle Ages with their introduction to the theory of meaning. Boethian semantics is developed on the basis of the distinction made by Aristotle in *De Interpretatione* 1, between the signification of terms and that of affirmations and negations – defined, remember, as the species of simple assertions. On this account of them affirmations signify mental states in which the mental items signified by their component significant terms are combined and negations signify mental states in which they are separated. Missing in the theory is an account of compound propositions showing how their meanings are obtained from the meanings of their components. Such an account requires a notion of unasserted propositional content. With it we may also locate what is common to different speech acts and explain how it is that they differ. The relevant differences are the differences in what we now call their force." (p. 211)

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    Abstract: "There are (at least) two persistent exegetical puzzles in *De Interpretatione* 9: (1) What exactly is the content of the determinist argument Aristotle deals within this text? and (2)

How does Aristotle go about rebutting his determinist opponent's thesis? This article takes another look at *De Interpretatione* 9, and it proposes answers for both of these questions. In particular, it argues for two things. First, in this difficult chapter Aristotle considers, among other things, an argument for logical fatalism. According to this argument, if the Rule of Contradictory Pairs applies unrestrictedly to all future singular statements, then every future state of affairs is now necessitated. And second, Aristotle undermines the fatalist's position by showing that his opponent commits a grave mistake: he fails to acknowledge

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    "Studies of ancient semantics are inclined to concentrate on the significations of individual words. But most ancient thinkers are likely to be misrepresented by such an approach. In Aristotle's classic treatment of the subject, I shall argue, the primary signifier is the sentence, and individual words are considered only secondarily, in so far as they contribute to the sentence's function. Moreover, this emphasis is to be found elsewhere in the Platonic tradition of which, in this respect, Aristotle is a part - not just in Plato himself, but also in the Stoics. In fact only the Epicureans, among ancient thinkers, can be seen to make individual word-meaning primary.

    This difference, if it can be established, should not cause surprise, since it merely reflects the general metaphysical outlook of the thinkers in question. Plato, Aristotle and the Stoics are teleologists, who regard the whole as ontologically prior to the part: the part can only be fully understood by reference to its function within the whole. (1) Epicurus by contrast is an atomist. He standardly treats parts as discrete items which, in coming together, generate larger complexes - be they atoms forming phenomenal bodies, or humans forming societies - but which in no sense have that as their pre-existing

nature or function. Even bodily parts like hands and tongues came into being before any functions - including their communicative functions - were found for them. (2) On this same anti-teleological model, Epicurus regards the central core of language as an original set of naturally uttered "names" (probably nouns, adjectives and verbs), correlated to individual objects or contents of experience, and only at a later stage supplemented and inflected into a full-scale language. (3)

In developing this contrast, I shall concentrate primarily on Aristotle's *De interpretatione,* whose opening chapters became in antiquity a *locus classicus* on signification. This is not because I believe that the *De interpretatione* must have directly influenced any of the other thinkers in the story. While we cannot positively exclude the possibility of its influence in the fourth and third centuries, perhaps even on Plato himself, I see no clear signs of it. The reason for my choice is that the *De interpretatione* is, if I am right, the most seriously misunderstood text in ancient semantics. If I can make out my case with regard to it, it will provide a valuable perspective on the other philosophers in question." (pp. 87-88)

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Annotated bibliography on Aristotle's *De Interpretatione* (*Peri Hermeneias*)

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"Décrire les effets de cette formalité sans formalisme, ce serait sans doute reprendre l'examen de toute la syllogistique aristotélicienne. Je me propose ici d' étudier une incidence particulière avec quelque détail : le problème que posent le sens et l'usage de la proposition particulière, notamment en rapport avec le rôle qu'elle joue dans les procédures par lesquelles est démontrée la non-concluance des couples de prémisses autres que ceux des modes syllogistiques valides. J'espère en effet montrer que les textes relatifs à ces questions manifestent une modification significative de l'attitude d'Aristote, et qu'ils permettent de saisir sur le vif le travail du logicien, d'abord victime des équivoques du langage naturel, prenant ensuite de ces équivoques une conscience progressive, sous la poussée interne des problèmes eux-mêmes, et parvenant enfin à les maîtriser. Au terme de cette évolution, la proposition particulière abandonne celles de ses connotations usuelles qui perturbent son maniement logique, et n'est plus définie que par sa place dans un système d'oppositions, avec toutes les conséquences que cela comporte."

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Résumé: "Après avoir rappelé les principales concordances et divergences entre la terminologie logique latine avant et après Boèce, on examine deux choix propres soit à l'auteur du « Peri hermeneias » (PH) transmis sous le nom d'Apulée, soit à la première tradition logique de langue latine : celui de « pars » (« particula ») et celui de « formula » (« forma » chez Martianus Capella), choix auquels Boèce substituera « terminus » et « figura », pour rendre le notion de « terme » (ὅρος chez Aristote) et celle de « figure (du syllogisme) » (σχῆμα chez Aristote). Dans chaque cas, on passe en revue la distribution des emplois dans le PH et chez Martianus, en signalant les attestations antérieures ou postérieures à ces traités. On s'interroge enfin sur les raisons possibles du choix effectué par l'auteur du PH et maintenu ou modifié par Martianus Capella."

11. Delcomminette, Sylvain. 2007. "L'un, l'être et le nécessaire dans le « De interpretatione » d'Aristote." *Elenchos. Rivista di studi sul pensiero antico* no. 28:41-78.
12. Denooz, Joseph. 1996. "L'étendue du lexique chez Aristote." In *Aristotelica Secunda. Mélanges offerts a Christian Rutten* , edited by Motte, André and Denooz, Joseph, 81-90. Liège: Université de Liège. Faculté de Philosophie et Lettres.
13. Fédier, François. 1985. "Interprétations." In. Paris: Press Universitaires de France.
14. Gourinat, Jean-Baptiste. 2009. "Le *De interpretatione* entre logique classique et logique non-classique." In *Interpréter le De Interpretatione* , edited by Husson, Suzanne, 163-192. Paris: Vrin.
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17. Husson, Suzanne, ed. 2009. *Interpréter le De Interpretatione* . Paris: Vrin.

    Table des matières: Jonathan Barnes: Avant-propos 7; Suzanne Husson: Introduction 11; Pierre Aubenque: Sens et unité du traité aristotélicien *De l'interprétation* 37; Maddalena Bonelli: Alexandre d'Aphrodise et le *De interpretatione* 51; Cristina Viano: Aristote contre les astrologues. Olympiodore sur le *De interpretatione,* chap. 9 69; Ali Benmakhlouf: La similitude entre les verbes et les noms dérivés 89; Irène Rosier-Catach: Sur le verbe substantif, la prédication et la consignification - *Peri hermeneias* 16 b 20-25 dans les traductions et les commentaires en latin 97; Jonathan Barnes: Le *De interpretatione* dans la philosophie moderne 141; Jean Baptiste Gourinat: Le traité *De l'interprétation* entre logique classique et logique non-classique 163; Bibliographie 193; Index des sources 205; Index des noms 211; Index des notions 215-222.

    "Pendant les années 2003-2005 les membres du Centre Léon Robin ont décidé de consacrer leurs heures de travail commun à une étude du *De interpretatione*. Chaque mois, un samedi matin a été consacré à une séance close où nous avons lu ensemble le texte d'Aristote; chaque mois, un vendredi après-midi s'est tenue une conférence publique sur le thème: "Le *De interpretatione* et sa réception". Le présent livre en rassemble, sous une forme revue, une sélection.

    Inutile de dire que le livre ne donne pas une histoire de la fortune du *De interpretatione:* une telle histoire remplirait deux volumes chacun de cinq cents pages. Inutile de dire que le livre n'offre pas de récit continu: les recueils de conférences ne sont pas comme cela. Mais il vaut la peine de dire que le livre possède une certaine cohérence, qu'il possède une unité thématique.

    Après une introduction générale de la main de Suzanne Husson qui a édité le recueil, le premier chapitre, écrit par Pierre Aubenque, ancien directeur du Centre Léon Robin, discute de la nature et de la spécificité du traité aristotélicien; ensuite, six chapitres présentent six échantillons, les résultats de six sondages pris dans l'histoire du *De interpretatione*. Deux des

sondages ont été faits sur l'Antiquité, deux sur le Moyen Âge, deux sur l'époque moderne. Les échantillons font ressortir l'influence du traité sur l'histoire des sujets qu'il a abordés: sur la théorie des parties du discours, par exemple, ou sur la conception de la signification. Ils font également ressortir l'influence du traité sur des sujets apparemment éloignés de ses propres intérêts: sur les attaques contre l'astrologie, par exemple, ou sur le développement d'une logique qui reconnaît plus de deux valeurs de vérité. Ils démontrent comment ce ne furent pas seulement les doctrines professées dans le traité qui déterminèrent la pensée de ses lecteurs mais aussi les détails-parfois même des variantes textuelles ..." (p. 9)

18. ———. 2009. "Note sur le texte grec du *Peri hermeneias* 16b 20-25 et sa tradition." In *Interpréter le De Interpretatione* , edited by Husson, Suzanne, 133-140. Paris: Vrin.

19. ———. 2009. "Introduction." In *Interpréter le De Interpretatione* , edited by Husson, Suzanne, 11-35. Paris: Vrin.

20. Joja, Athanase. 1969. "La théorie de la modalité dans le *De interpretatione* ." *Revue Roumaine des Sciences Sociales.Série de Philosophie et Logique* no. 13:323-342.

21. Judson, Lindsay. 1988. "La bataille navale d'aujourd'hui. *De interpretatione* 9." *Revue de Philosophie Ancienne* no. 6:5-37.

22. Lallot, Jean. 1988. "Origines et développement de la théorie des parties du discours en Grèce." *Langages* no. 92:11-23.

    Résumé : "Cet article a un double propos, historique et méthodologique. Après avoir (1) esquissé brièvement ce qu'on pourrait appeler la « préhistoire » de la théorie des parties du discours en Grèce — préhistoire qui s'achève avec Platon — , puis (2) rappelé les étapes du développement qui nous conduit, au seuil de l'ère chrétienne, à une liste de huit parties (nom, verbe, participe, article, pronom, préposition, adverbe, conjonction), j'examinerai (3), chez le grand grammairien alexandrin du 2e siècle de notre ère, Apollonius Dyscole, quels sont les critères et les principes mis en oeuvre dans les opérations de classement grammatical des mots de la langue grecque. Une question retiendra plus spécialement mon

attention dans cette dernière partie : dans les cas où un même signifiant semble pouvoir légitimement prétendre à figurer dans plus d'une classe, que fait le grammairien grec ? quel discours tient-il ? pour justifier quelle décision ?"

"2. D'Aristote aux grammairiens : l'inventaire des parties du discours

Après le coup d'envoi platonicien, les contributions décisives au développement de la théorie sont celles d'Aristote (2.1.), des Stoïciens (2.2.) et des grammairiens d'Alexandrie (2.3) Je me limiterai ici, faute de place, à des indications brèves sur ces apports successifs, en renvoyant chaque fois le lecteur à des exposés plus détaillés : sur l'ensemble de cette histoire, on pourra se reporter à Steinthal *1890-91, Robins *1966, Pinborg *1975.

2.1. Aristote

La réflexion aristotélicienne sur la langue est dispersée dans l'ensemble de son oeuvre : bonne étude synthétique de McKeon 1946-47. Pour les parties du discours, les deux textes principaux sont les chap. 2 à 4 du *De interpretatione* (voir le commentaire d'Ackrill, Oxford 1968) et le chap. 20 de la *Poétique* (voir Pagliaro *1955, Morpurgo-Tagliabue 1967 et Dupont-Roc & Lallot *1980).

Aristote fait fond sur l'analyse platonicienne du logos en *onoma* + *rhëma* . Il précise la définition du verbe en en faisant un mot « qui signifie en plus le temps » (*prossëmainon khronon, De int* . 16 b 6) et enrichit l'inventaire des « parties de l'expression » (*mere lexeôs* , *Poét*. 1456 b 20) de deux nouvelles unités : la « conjonction » (*sundesmos*) et l'« articulation » (*arthron*) (3). Le texte où ces derniers termes sont définis (*Poét*. 1456 b 37 sqq.) étant très confus, il n'est pas possible d'établir de manière sûre quelles classes de mots ils désignaient au juste. Quoi qu'il en soit, les termes eux-mêmes manifestent l'attention portée par Aristote aux mots qui, d'une façon ou d'une autre (conjonctive, prépositive, anaphorique...), remplissent dans le discours une fonction connective.

Un autre apport important d'Aristote à la théorie linguistique est le concept de « cas » (*ptôsis*). Aristote désigne par là, tant pour le verbe que pour le nom, toute forme qui s'écarte, pour le nom, du nominatif (exprimant la fonction sujet) et pour le verbe, de l'indicatif présent (prédicat par excellence de la proposition assertive).

Fondée sur des critères à la fois morphologiques et sémantico-logiques, la notion de « cas » était appelée à jouer un rôle important dans la description de la morphologie nominale." (p. 15)

(3) Il y a doute sur l'authenticité de l'attestation de *arthron* chez Aristote. D'après les témoignages (reflétant sans doute la même source) de Denys d'Halicarnasse, *De comp. verb* . ch. 2, et de Quintilien, *Inst. or* . I 4.18, Aristote ne distinguait que trois parties du discours :

nom, verbe et conjonction. Aujourd'hui encore la question reste controversée.

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Pagliaro A. (1965) : « II capitolo linguistico délia Poetica di Aristotele », *Nuovi saggi di critica semantica* , Firenze, d'Anna, 77-131.

Pinborg J. (1975) : « Historiography of linguistics : Classical Antiquity : Greece », *Current Trends in Linguistics* 13, 69-126, The Hague-Paris, Mouton [section 2.7.2].

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Steinthal H. (1890-91) : Geschichte der Sprachwissenschaft bei den Griechen und Römern mit besonderer Rücksicht auf die Logik, Berlin [I, 260-266, 297 sqq. ; II, 209-327].

23. Monteil, Jean-François. 2001. "Une exception allemande: la traduction du *De Interpretatione* par le Professeur Gohlke: la note 10 sur les indéterminées d'Aristote." *Revues de Études Anciennes* no. 103:409-427.

    Professor Paul Gohlke (*) is the only translator to fully respect Aristotle's own conception of indeterminates. He was the first to perceive the linguistic problem raised by the indeterminate negative. All the other translators of *De Interpretatione* mistakenly render Aristotle's indeterminates, which are particulars, as universals. The origin of this mistake lies in one of the two Arabic translations."

    (*) *Kategorien und Hermeneutik* , Paderborn, Ferdinand Schöningh, 1951

24. ———. 2004. " La transmission d'Aristote par les Arabes à la chrétienté occidentale. Une trouvaille relative au *De interpretatione* ." *Revista Espanola de Filosofia Medieval* no. 11:181-195.

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27. Purnelle, Gérald. 1996. "La proportion des conjonctions de subordination dans six oeuvres d'Aristotle." In *Aristotelica Secunda. Mélanges offerts a Christian Rutten* , edited by Motte, André and Denooz, Joseph, 91-102. Liège: Université de Liège. Faculté de Philosophie et Lettres.

28. Sedley, David. 2004. "Aristote et la signification." *Philosophie Antique* :5-25.

    Resumé : "Aristote dit au début du *De interpretatione* que les mots symbolisent des pensées, qui, à leur tour, ressemblent aux choses. Le présent article soutient qu'Aristote parle alors principalement de la signification des phrases entières et au mieux de façon secondaire de la sémantique des mots individuels. Cette proposition est défendue en attirant l'attention sur un changement dans la signification de « signe » et des termes apparentés ; changement qui a lieu au cours du premier chapitre, qui nous permet de séparer la manière dont les mots « signifient » des pensées (déclaratives, interrogatives, etc.) en les exprimant, de la manière plus étroitement sémantique dont on dit par conséquent qu'ils signifient des choses. La déclaration initiale célèbre d'Aristote ne trouve pas son application principale dans la grammaire rudimentaire des noms et des verbes qui suit dans les chapitres 2-3, mais plus loin dans le traité et surtout dans le chapitre 14, où elle est invoquée pour établir, dans la perspective de la dialectique, que la relation entre une phrase et sa négation est la plus forte de toutes les contrariétés. On explique aussi l'insistance d'Aristote, dans ce même traité, sur le caractère conventionnel de la langue : car, dans des chapitres 8 et 11, c'est à cause du caractère conventionnel de la langue et de l'échec qui en résulte de toute tentative pour le langage de correspondre systématiquement à la distinction des choses entre elles, que ce qui est, d'un point de vue grammatical superficiel, une phrase simple peut s'avérer constituer en réalité deux ou plusieurs phrases, autrement dit, signifier (c'est-à-dire exprimer) deux ou plusieurs pensées différentes. L'importance primordiale accordée par Aristote à la signification des phrases entières s'explique ainsi par le rôle du *De interpretatione* en tant qu'ouvrage subordonné à la dialectique, discipline pour laquelle la relation entre les paires d'affirmations contradictoires est fondamentale. En outre, en le comparant avec le lekton stoïcien, on montre que la prépondérance accordée par Aristote à la phrase entière reflète le cadre téléologique de sa pensée."

29. Teixidor, Javier. 1996. "L'introduction au *De interpretatione* chez Proba et Paul le Perse." In *Symposium Syriacum VII. Uppsala University, Department of Asian and African Languages, 11-14 August 1996* , edited by Lavenant, René, 293-301. Roma: Pontificio Istituto Orientale.

Repris dans J. Teixidor, *Aristote en syriaque. Paul le Perse, logicien du VIe siècle* , Paris: Éditions du CNRS 2003, pp. 99-121.

30. Vachon, Maxime. 2015. "L'unité du dernier chapitre du *Peri Hermeneias* : traduction et commentaire d'Aristote, *De l'interprétation* , 14." *Laval Théologique et Philosophique* no. 71:305-320.

Resumé : "L'objectif de cet article est de montrer l'unité du chapitre 14 du *Peri Hermeneias* , chapitre dans lequel Aristote retourne au fondement de l'échange dialectique, à savoir la *doxa* . Je montre ainsi que ce chapitre expose progressivement les trois conditions sémantiques que des points de vue doivent respecter pour être contraires : le sujet doit être le même, l'objet doit aussi être le même, mais le mode de prédication doit être contradictoire."

31. Verbeke, Gérard. 1956. "Ammonius et saint Thomas. Deux commentaires sur le *Peri hermeneias* d'Aristote." *Revue Philosophique de Louvain* no. 54:228-253.

32. ———. 1991. "Interprétation et langage dans la tradition aristotélicienne." In *Historia philosophiae Medii Aevi. Studien zur Geschichte der Philosophie des Mittelalters* , edited by Mojsisch, Burkhard and Pluta, Olaf, 1029-1045. Amsterdam: R. Grüner.

A la lumière des analyses qui précèdent, qu'en est-il maintenant du titre *peri hermeneias* ? Ce titre correspond-il au contenu de l'ouvrage?

La question posée ne vise pas directement l'authenticité Aristotélicienne de la formule: il est vrai cependant, qu'un titre qui ne traduirait pas bien le contenu du traité, aurait peu de chances d'avoir été rédigé par le Stagirite. Par contre, il est

probable que l'ouvrage ait reçu un certain titre de la part de son auteur et si le titre traditionnel correspond au contenu de l'écrit, il peut très bien remonter à l'auteur lui-même. Quoi qu'il en soit de la question d'authenticité, nous croyons pouvoir conclure que le titre donné recouvre bien le contenu du traité, dont le sujet principal est l'énonciation catégorique et ses composants. En se basant sur les analyses de Boèce et d'Ammonius, on peut dire que tous ces éléments correspondent à l'idée d'interprétation telle qu'elle est expliquée dans le traité:

1. L'énonciation y est conçue comme l'interprétation d'un contenu de pensée. Toutefois si le langage se rapporte directement à un objet pensé, il se réfère indirectement au réel: il en résulte que le discours énonciatif est aussi une interprétation de la réalité. Il l'est à un double niveau: le contenu particulier de chaque énonciation se rapporte à un sujet déterminé du monde et en exprime certaines caractéristiques; on peut donc le considérer comme un acte d'interprétation. Par ailleurs, il y a la structure même du jugement, qui, elle aussi, est une interprétation à un niveau plus fondamental de la physionomie du réel.

2. Les noms et les verbes constituent à leur tour un acte d'interprétation. Selon Aristote, la signification des mots est conventionnelle: elle est le résultat de la vie en communauté, où les hommes sont amenés à se mettre d'accord sur des notions fondamentales de la vie morale et sociale. Ammonius croit que le sens des mots n'est pas purement artificiel, mais qu'il est adapté à la nature des choses. Quoi qu'il en soit, le fait d'appliquer au réel des noms et des verbes est un acte d'interprétation. Exprimer le réel dans les catégories du langage implique toujours un acte interprétatif.

La doctrine aristotélicienne sur la nature du langage justifie donc le titre de *peri hermeneias."* .

33. Vidal-Rosset, Joseph. 2009. *Les paradoxes de la liberté* . Paris: Ellipses.

Chapitre 3: Le problème des futurs contingents 17; 3.1 La solution d'Aristote 17; 3.1.1 Bivalence et fatalisme logique 17; 3.1.2 La position d'Aristote est-elle cohérente ? 21; 3.1.3

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"Aristote entend répondre au raisonnement de ceux qui, comme Diodore Kronos, adoptent ce que l'on appelle « le fatalisme logique» sans pour autant nier ni la logique, ni l'intuition du sens commun. C'est la raison pour laquelle il expose [*] dans un premier temps l'argument du fatalisme logique, puis, après avoir souligné les raisons pour lesquelles il ne rejette pas la loi classique du tiers exclu, il apporte son analyse et sa solution au problème logique des futurs contingents. On verra que la solution d'Aristote consiste à donner préciser la signification du terme de « vérité » relativement à notre compréhension naturelle du temps et des modalités. En fait, c'est parce que l'idée de Jacques le Fataliste selon laquelle « tout est écrit sur le grand rouleau » est inacceptable, qu'il est nécessaire de comprendre la cohérence de nos principes logiques avec notre représentation du temps et de l'action dans le temps.

Examinons dans un premier temps, avec Aristote, l'argument du fatalisme logique. Celui-ci, comme il apparaît clairement à la lecture des premières lignes du chapitre IX, est directement dérivé de l'application universelle du principe de bivalence à toutes les propositions, quel que soit le sujet et le temps de celles-ci. Le principe de bivalence n'est pas nommé comme tel par Aristote, mais c'est bien ce principe auquel il fait référence pour expliquer l'argument du fatalisme logique." (p. 19)

[*] Aristore, *De l'interprétation* 9, 19a23-19a37-.

34. Vuillemin, Jules. 1983. "Le chapitre IX du *De interpretatione* d'Aristote : vers une réhabilitation de l'opinion comme connaissance probable des choses contingentes." *Philosophiques* no. 10:15-52.

35. ———. 1988. "Le chapitre IX du *De Interpretatione* et la connaissance probable." In *Aristote aujourd'hui* , edited by

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"Questo saggio studia l'analisi logica delle frasi negative nelle due tradizioni più importanti della logica greca, la tradizione analitica aristotelica e la tradizione dialettica nel suo esito stoico.

La prima parte del lavoro è un esame dell'asserzione negativa in Aristotele, con particolare riferimento al *De interpretatione*. La seconda studia l'uso preposto della negazione di frase nella tradizione dialettica e la teoria stoica al riguardo. In appendice è dato un commento del Papiro Parigino 2, la cui preparazione mi ha spinto a occuparmi più in generale della negazione stoica e quindi del complesso di problemi legati alla teoria logica della negazione proposizionale nel pensiero greco. Riporto anche il testo e la traduzione, che si fondano sulla nuova edizione del papiro, a cura di Cristina Donnini e di Serena Funghi, pubblicata a parte nel presente volume. Il frammento testimonia l'uso dialettico della negazione preposta e documenta inoltre un tipo particolare di ambiguità relativo a tale uso e discusso in logica stoica come ambiguità κατὰ διάστασιν o di divisione." (Nota liminare)

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   Indice: Presentazione 7; PARTE PRIMA Gli orientamenti della critica moderna 11; I. Il *De interpretatione* 9 nei recenti studi sulla logica di Aristotele 11; II. Il contenuto del *De interpretatione* 9 24; III. Caratteri della storiografia novecentesca sul *De interpretatione* 9 29; IV. Interpretazione

‘tradizionale’ e interpretazione ‘non-standard’ 32; V. Genesi polemica del *De interpretatione* 9 37; VI. L’interpretazione ‘tradizionale’ 43; 1. Lukasiewicz e la logica a tre-valori 44; 2. Le interpretazioni ‘filologiche’ 48; 3. ‘Lettura analitica’ del *De interpretatione* 9 52; 4. Logica temporale e logica atemporale di fronte al *De interpretatione* 9 54; 5. Determinismo e fatalismo 62; VII. L’interpretazione ‘non-standard’ 66; VIII. Un’interpretazione ‘anomala’ 71; PARTE SECONDA Schede bibliografiche 79: Indice dei nomi 185-188.

"Il presente volume fornisce un panorama pressoché completo del materiale, relativo al *De interpr*. 9 di Aristotele, pubblicato tra il 1930 e il 1973.

Sono stati presi in esame gli studi specifici sull’argomento, quelli sulla logica aristotelica, le storie generali di storia della logica, gli studi sullo stoicismo e infine tutta una serie di lavori in cui il riferimento ad Aristotele è occasionato dalla trattazione dei temi del determinismo e del fatalismo o di alcuni problemi di logica e di epistemologia.

Alle indicazioni bibliografiche tratte da l’*Année Philologique* si aggiungono pertanto quelle ricavate, nel corso del lavoro, da varie riviste e quelle desunte dagli studi presi in esame.

Si è cercato di semplificare il più possibile il simbolismo, in modo che il volume fosse immediatamente utilizzabile anche da coloro che non fossero esperti di logica formale." (Presentazione , p. 7).

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"Nel capitolo 9 del *De interpretatione* Aristotele discute un’argomentazione che fa parte del cosiddetto determinismo logico, in quanto stabilisce un nesso tra la necessità di tutte le

cose e la verità/falsità delle proposizioni. Si tratta, come è noto, di un testo molto problematico, che ha suggerito interpretazioni molto diverse sia dell'intero capitolo sia dei principali punti (1). Le principali questioni sulle quali gli interpreti si sono trovati in disaccordo sono sostanzialmente le seguenti:

1) quale sia esattamente l'argomentazione; 2) se Aristotele ne accetti o meno la validità; 3) quale sia la «soluzione» aristotelica; 4) se Aristotele ha ragione o meno nel derivare dal determinismo logico il fatalismo, l'affermazione cioè che per l'uomo è inutile prendere decisioni ed agire, poiché in ogni caso accadrà ciò che è necessario che accada." (p. 59)

(1) 1 Cfr. Celluprica [1977]. Per ulteriore bibliografia cfr.: Weidemann [1994], Gaskin [1995], Whitaker [1996], Zadro [1999].

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"Si mostra come i termini aristotelici "rhema" e "logos", tradizionalmente tradotti con "verbo" e "discorso", abbiano in realtà il valore più ampio di "predicato" (in senso sintattico) e "combinazione di parole", rispettivamente."

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In den Schriften, die Aristoteles zugeschrieben und im Corpus Aristotelicum (CA) zusammengefaßt werden, gibt es so manche Stelle, die wegen der Knappheit ihrer Formulierung oder wegen Zweifeln an der Überlieferung des Textes schwer zu interpretieren ist und daher immer wieder zu neuen Deutungsversuchen anregt. Zu diesen Stellen gehört zweifellos die zweite Hälfte des Kapitels 3 der dem "Organon" zugerechneten Schrift "De Interpretatione".

Dazu hat Hans Wagner 1971 eine Interpretation veröffentlicht (1). Mit dieser Interpretation Wagners möchte ich mich hier auseinandersetzen und mit zwei weiteren Interpretationsvorschlägen: dem von Wolfram Ax (2), der einen Gegenvorschlag zu dem wichtigsten Punkt der Interpretation Wagners darstellt, und zu dem Vorschlag von Hermann Weidemann (3), der auf einer Auseinandersetzung mit den Deutungen von Wagner und Ax beruht.

Die Auseinandersetzung mit diesen drei Auslegungen wird mich, vereinfacht gesagt, zur traditionellen Auslegung zurückführen, von der sich Wagner distanziert, auf die Ax wieder zurückkommt, und von der Weidemann wieder weggeht; mein Zurückkommen auf die traditionelle Auslegung wird allerdings mit einigen Präzisierungen dieser Auslegung verbunden sein." (p. 227)

1) Hans Wagner: AristoteIes, *De Interpretatione* , 3.16b 19-25, in: *Philomathes. Studies and Essays in the Humanities in Memory of Philip Merlan* , ed. by R. B. Palrner and R. Harnerton-Kelly, The Hague 1971, p. 95-115. Dieser Aufsatz

liegt inzwischen in einem Zweitdruck vor in: Hans Wagner: *Kritische Philosophie. Systematische und hist. Abhandlungen* , Würzburg 1980, S. 201-212. Ich gebe hier jedesmal zuerst die Seiten nach dem Erstdruck an, dann die nach dem Zweitdruck.

2) Zum isolierten ῥῆμα in AristoteIes' *de interpretatione* 16b 19-25, in: *Arch. f. Gesch. d. Philos* . 61 (1979), S. 271-279.

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Abstract: "Die von Aristoteles in *De Int* . 7 eingeführte „indefinite Aussage“ verweist nach meiner Deutung auf ein Universale, welches anteilig an widersprüchlichen akzidentellen Prädikaten teilhat. Dem korrespondiert auf semantischer Ebene die graduelle Wahrheit beider Widerspruchsglieder. In gleicher Weise ist für Aristoteles auch die Aussage, daß ein Individuum zu einem Zeitpunkt seiner kontingenten

Zukunft so-und-so bestimmt sein wird, nach *De Int* . 9 offenbar als graduell-wahr einzustufen. Das Einzelne kann hinsichtlich seiner kontingenten Zukunft nämlich noch nicht betrachtet werden, sofern es faktisch wäre, sondern nur, sofern es zeitübergreifend ein Universale exemplifiziert. In diesem Zusammenhang werden zugleich fundamentale Bezüge zwischen indefiniter Aussage einerseits und Aristotelischer Modallogik, Statistik und Wissenschaftstheorie andererseits deutlich."

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Estudos en Español

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   Resumen: "Se estudia el problema de los futuros contingentes que Aristóteles expuso en *De interpretatione* 9, así como su implicación con otros conceptos capitales de su filosofía, como « sustancia », « verdad » y « dialéctica ». Se muestra que, para Aristóteles, este problema no tiene solución dentro de un marco formal, sino que su resolución radica en la noción de « verdad material ». En efecto, no debemos entender que Aristóteles plantea la resolución del problema en un contexto puramente lógico, ya que entonces daría la impresión de que adoptó arbitrariamente una postura indeterminista. En realidad, Aristóteles insiste en la existencia de determinados problemas que no tienen sentido al margen de la comprobación fáctica."
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Estudos em Português

1. Buarque, Luise. 2021. "A retórica do capítulo IX do tratado Da Interpretação." *Journal of Ancient Philosophy* no. 15:190-206.

Abstract: "This paper analyses the argumentative strategy of the ninth chapter of the treatise *De Interpretatione* in the light of Aristotle's *Rhetoric*. The subject of the 'future events' developed in chapter IX brings up themes that are proper not only to philosophical thought, but also to political practice, forensic rhetoric, deliberative rhetoric and even tragic poetry. In this paper, it is argued that Aristotle uses the dialectical method and certain rhetorical techniques to touch the various discussions related to the subject addressed. He erects a hypothetical adversary and a thesis to refute, condensing some positions that were probably scattered in the most diverse textual and oratory sources of his time. Moreover, he builds the thesis of his hypothetical opponent from premises established in previous chapters of his own treatise. With this, he can simulate the defense of his opponent's thesis before demolishing it. Thus, according to the hypothesis defended here, the philosopher does not in fact commit himself to the arguments presented between 18a35 and 18b25, but only simulates the defense of the reasoning which he will soon refute. In addition, it is also concluded that chapter IX is part of the argumentative chain of the treatise, having as a peculiar characteristic, not the theme or nature of the arguments exposed, but the rhetorical method it employs."

2. da Silva Difante, Édison Martinho , and da Silveira, Gefferson Silva 2013. "Consideraçoes acerca do par contraditiorio de proposiçoes no *De Interpretatione*." *Seara Filosófica* no. 7:99-109.

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   Resumo: "Defende-se aqui que Aristóteles aceitava a tese da necessidade (no sentido de irrevogabilidade) do passado, que a

usou no *De Interpretatione 9* como ponto de partida para a sua resposta anti-determinista ao problema dos futuros contingentes e que, em reacção a isso, Diodoro Crono procurou mostrar que se podem extrair consequências deterministas da necessidade do passado, se lhe forem acrescentados outros princípios modais."

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History of Logic

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Bibliography on the Ancient and Medieval Commentaries on Aristotle's *De Interpretatione*

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1. Adamson, Peter. 2006. "The Arabic Sea Battle: al-Fārābī on the Problem of Future Contingents." *Archiv für Geschichte der Philosophie* no. 88:163-188.

   Abstract: "Ancient commentators like Ammonius and Boethius tried to solve Aristotle's "sea battle argument" in *On Interpretation* 9 by saying that statements about future contingents are "indefinitely" true or false. They were followed by al-Farabi in his commentary on *On Interpretation*. The article sets out two possible interpretations of what "indefinitely" means here, and shows that al-Farabi actually has both conceptions: one applied in his interpretation of Aristotle, and another that he is forced into by the problem of divine foreknowledge. It also explains the relevance of al-Farabi's remarks as a link between the non-statistical modal theories of Philo and Avicenna."

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   Premessa

   Parte Prima: Carmela Baffioni, Lo šarḥ li-kitābi Arisṭūṭālīs fī'l-'ibāra: traduzione e interpretazione del cap. 9

Parte seconda: Mauro Nasti De Vincentis: Interpretazione di al-Fārābī e interpretazione «farabiana». A proposito del commento di al-Fārābī a *De interpretatione* 9

Appendice alla Parte seconda:: Emanuela Galanti: Necessità e onnitemporalità in alcuni testi aristotelici.

3. Bechtle, Gerald. 2005. "Connaissance divine et contingence humaine dans le commentaire d'Ammonius au *De interpretatione*. Théologisation d'un traité aristotélicien logique dans la philosophie tardo-antique." In *Signe et prédiction dans l'Antiquité : actes du colloque international interdisciplinaire de Créteil et de Paris, 22-23-24 mai 2003*, edited by Kany-Turpin, José, 97-109. Saint-Etienne: Publications de l'Université de Saint-Etienne.

4. Black, Deborah. 1992. "Aristotle's *Peri hermeneias* in Medieval Latin and Arabic Philosophy: Logic and the Linguistic Arts." In *Aristotle and His Medieval Interpreters*, edited by Bosley, Richard and Tweedale, Martin, 25-83. Calgary: University of Calgary Press.

   Supplementary volume 17 to Canadian Journal of Philosophy.

   "This paper compares the views of a number of Arabic and thirteenth-century Latin commentators on Aristotle's *Peri Hermeneias* on the status of logic as a linguistic art and its relation to grammar. The discussion considers the commentators' general positions on the logician's treatment of linguistic topics, and their attempts to reconcile the dual claim of logic to be both a linguistic and a rational art. These general principles are then traced through the treatment of a number of particular themes in the *Peri Hermeneias's* linguistic sections: The definition of the noun,the cases of the noun, and the indefinite or infinite noun (i.e., of the form non-X). The article concludes that, although there are basic differences between the Latin and Arabic traditions stemming from the presence in the Latin world of a philosophical theory of grammar, authors in both traditions are adamant that a balance must be maintained between the linguistic and rational characterizations of logic."

5. Braakhuis, Henk Antonius, and Kneepkens, Corneille Henri, eds. 2003. *Aristotle's Peri hermeneias in the Latin Middle Ages. Essays on the Commentary Tradition*. Groningen: Ingenium Publishers.

   Table of Contents V; Preface VII; Introduction IX-XLI; Yukio wakuma: William of Champeaux and the *Introductiones* 1; Sten Ebbesen: *Questions* and *Sophismata*: tracking Peter of Auvergne 31; Alan Perreiah: Orality and literacy in the *De interpretatione* tradition 51; Robert Andrews: The *Modistae* and John Duns Scotus's *Quaestiones super Perihermeneias* 67; Claude Panaccio: Debates on mental language in the early Fourteenth century 85; Joël Biard: Le statut des énoncés dans les commentaires du *Peri hermeneias* de Gautier Burley 103; M. Kaufmann: The discussion on the nature of the concept in Ockham's *Perihermeneias* Commentary 119; Mieczyslaw H. Markowski: Der Kommentar des Peter Wysz von Polen zu *De interpretatione* des Aristoteles 135; Gino Roncaglia: Mesino de Codronchi's discussion on *Syncategoremata* and mental language in his *Quaestiones on De interpretatione* 149; Irène Rosier: Variations médiévales sur l'opposition entre signification "ad placitum" et signification naturelle 165; L. M. de Rijk: The logic of indefinite names in Boethius, Abelard, Duns Scotus and Radulphus Brito 207; Judith Dijs: Radulphus Brito's use of *Intentio* in *Quaestio* 9 of his *In Peri hermeneias* 235; Christian Strub: *Propositio una / multiplex* in Abelard: a note on the relationship of dialectic and grammar 257; Joke Spruyt, The semantics of complex expressions in John Duns Scotus, Peter Abelard and John Buridan 275; F. Beets: Theories of prediction from Boethius to Thomas Aquinas 305; Allan Bäck: Aquinas on predication 321; Andrea Tabarroni, The 10th Thesis in Logic condemned at Oxford in 1277 339; C. H. Kneepkens, Aristotle's transposition and the Twelfth-century commentaries on *De interpretatione*, 20b1-12: an exploratory study 363; Simo Knuuttila: Truth and falsity as modal notions: some medieval comments on *De interpretatione*, 12, 22a13 413; Elizabeth Karger: John Buridan's theory of the logical relations between general modal formulae 429; Indices 445; Index

locorum 447; Index nominum 462; Index rerum 468; Manuscripts mentioned 483; Bibliography 485-509.

"The majority of the twenty essays of the present volume were originally delivered at the Xth European Symposium on Medieval Logic and Semantics held at Nijmegen, 22 - 26 June, 1992, that was devoted to the tradition of Aristotle's *Peri hermeneias* in the Latin Middle Ages. Circumstances made it impossible to publish the proceedings immediately after the symposium. Since the editors were, nevertheless, aware that the material presented was extremely important for further studies on the history of medieval logic, semantics and philosophy of language, they decided, some time ago, to ask the contributors to update, revise or rewrite their essays in preparation for the publication of this collection. Although some authors have partially drawn on material found in this collection for publications elsewhere, most of the information contained in these essays remains new, including the many detailed descriptions and editions of unedited works that will constitute a greatly appreciated resource in the study of medieval philosophy." (From the Preface)

6. Diebler, Stéphane. 2002. "Les canons de Proclus: problèmes et conséquences de l'interprétation syriano-proclienne du *De interpretatione*." *Dionysius* no. 20:71-94.

   "Ammonius' commentary on the third section of Aristotle's *De interpretatione* offers insight into the hermeneutical and logical debates of the 5th-cent. Neoplatonic school in Athens. These debates reveal one of the rare cases of a theory that was developed by Proclus in contradiction to that of his teacher Syrianus, and in the course of which the authoritative status of *De interpretatione* as a carefully composed, syntagmatic work was itself put into question. Ammonius was concerned to establish the coherence of Int. 19 B 19-20 B 12. According to his interpretation, this section falls into two further sections, arranged around two types of logical sequences : the first section (19 B 19-20 A 6) is explained according to an interpretation that derives from Syrianus ; the second (20 A 20-20 B 13) recalls the canons of Proclus."

7. Eck, Job van. 1988. "Another Interpretation of Aristotle's *De interpretatione* IX. A Support for the So-Called Second Oldest or "Mediaeval" Interpretation." *Vivarium.An International Journal for the Philosophy and Intellectual Life of the Middle Ages and Renaissance* no. 26:19-38.
8. Fernández Garrido, María Regla. 1996. "Los comentarios griegos y latinos al « De interpretatione » aristotélico hasta Tomás de Aquino." *Emerita.Boletín de Lingüística y Filología Clásica* no. 64:307-323.
9. Furlani, Giuseppe. 1922. "Aristoteles, *de interpretatione*, 16a, 6-7, nach einem syrisch erhaltenen Kommentar." *Zeitschrift für Semitistik und verwandte Gebiete* no. 1:34-37.
10. García Cuadrado, José Angel. 2012. "La *consignificatio verbal* (Per hermeneias 16b 8-10): Ammonio, Boecio y Tomás de Aquino." *Revista Española de Filosofía Medieval* no. 19:87-100.
11. Gaskin, Richard. 1993. "Alexander's Sea Battle: A Discussion of Alexander of Aphrodisias *De Fato*." *Phronesis* no. 38:75-94.
12. Groneberg, Michael. 2002. "Ammonios und die Seeschlacht. Seels Entlarvung des Aktualismus der Neuplatoniker." *Freiburger Zeitschrift für Philosophie und Theologie* no. 49:236-250.
13. Gyekye, Kwame. 1977. "Al-Farabi on the Problem of Future Contingency." *Second Order* no. 6:31-54.
14. Hasmaoui, Chantal. 2003. "La tradition des commentaires grecs sur le *De interpretatione* (*Int.*)." In *Dictionnaire des philosophes antiques. Supplément*, edited by Goulet, Richard, 122-173. Paris: CNRS Éditions.
15. Hissette, Roland. 1989. "Des editions du XVIe siècle a Guillaume de Luna? À propos d'un commentaire d'Averroès." *Bulletin de philosophie médiévale* no. 31:168-182.
16. ———. 1990. "Guillaume de Luna - Jacob Anatoli - Jacob Mantinus. À propos du commentaire moyen d'Averroes sur le

„De interpretatione“." *Bulletin de philosophie médiévale* no. 32:142-158.

17. Hugonnard-Roche, Henri. 2005. "Scolies syriaques au *Peri Hermeneias* d'Aristote." In *Scientia in margine. Études sur les marginalia dans les manuscrits scientifiques du Moyen Âge à la Renaissance*, edited by Jacquart, Danielle and Burnett, Charles F., 27-55. Genève: Droz.
18. ———. 2011. "Du commentaire a la reconstruction: Paul le Perse interprete d'Aristote (sur une lecture du *Peri Hermeneias*, à propos des modes et des adverbes selon Paul, Ammonius et Boece)." In *Interpreting the Bible and Aristotle in Late Antiquity: The Alexandrian Commentary Tradition between Rome and Baghdad*, edited by Lössl, Josef and Watt, John W., 207-224. Burlington: Ashgate.
19. Isaac, Jean. 1953. *Le Peri hermeneias en Occident de Boèce à Saint Thomas. Histoire littéraire d'un traité d'Aristote*. Paris: Vrin.
20. Jacobi, Klaus. 1985. "Diskussionen über unpersönliche Aussagen in Peter Abaelards Kommentar zu *Peri Hermeneias*." In *Mediaeval Semantics and Metaphysics*, edited by Bos, Egbert Peter, 1-63. Nijmegen: Ingenium Publishers.
21. Kneepkens, Corneille Henri. 1994. "From Eternal to Perpetual Truths: A note on the Mediaeval History of Aristotle, *De interpretatione*, ch. 1 16a18." *Vivarium.An International Journal for the Philosophy and Intellectual Life of the Middle Ages and Renaissance* no. 32:161-185.
22. Knuuttila, Simo. 2003. "Truth and Falsity as Modal Notions: Some Medieval Comments on *De interpretatione* 12, 22a13." In *Aristotle's Peri hermeneias in the Latin Middle Ages. Essays on the Commentary Tradition*, edited by Braakhuis, Henk Antonius and Kneepkens, Corneille Henri, 413-427. Groningen: Ingenium Publishers.
23. ———. 2010. "Medieval Commentators on Future Contingents in *De Interpretatione* 9." *Vivarium.An International Journal for the Philosophy and Intellectual Life of the Middle Ages and Renaissance* no. 48:75-95.

Abstract: "This article considers three medieval approaches to the problem of future contingent propositions in chapter 9 of Aristotle's *De interpretatione*. While Boethius assumed that God's atemporal knowledge infallibly pertains to historical events, he was inclined to believe that Aristotle correctly taught that future contingent propositions are not antecedently true or false, even though they may be characterized as true-or-false. Aquinas also tried to combine the allegedly Aristotelian view of the disjunctive truth-value of future contingent propositions with the conception of all things being timelessly present to God's knowledge. The second approach was formulated by Peter Abelard who argued that in Aristotle's view future contingent propositions are true or false, not merely true-or-false, and that the antecedent truth of future propositions does not necessitate things in the world. After Duns Scotus, many late medieval thinkers thought like Abelard, particularly because of their new interpretation of contingency, but they did not believe, with the exception of John Buridan, that this was an Aristotelian view."

24. Magee, John. 1989. *Boethius on Signification and Mind*. Leiden: Brill.

    Contents: Acknowledgements IX; Sigla X; Abbreviations and Editions XI; Introduction 1; I. Aristotle: *Peri Hermeneias* I, 16a3-9; 7; II. Boethius' Translation 49; III. Orandi Ordo 64; IV. Cogitabilis Oratio 93; Afterword 142; Bibliography 150; Index Locorum 155; Index Nominum et Rerum 162-165.

    "The present work is divided into four chapters, taking as its starting point the lines of Aristotle's *Peri Hermeneias* around which Boethius' theory of signification turns. The first chapter of the study plunges in *medias res*, and for that the reader's patience is requested. The Greek text is both difficult and compressed, and necessarily brings into consideration questions of the history of transmission and commentary, as well as numerous aspects of Aristotle's thought both in this and in other works. But since Boethius translated either all or part of the *Peri Hermeneias* before commenting upon it, and then revised the translation for the second commentary; and since in his translation, as in all translations, there is an element of

"commentary" upon the meaning of the original, it has been thought necessary to come to a clear understanding of what Aristotle wrote before proceeding to the translation and commentaries. After careful examination of the Greek passage and of the questions it poses, there follows in the second chapter an analysis of Boethius' Latin translation of the same, and of the interpretation implicitly contained therein." (pp. 1-2)

25. ———. 2010. "On the Composition and Sources of Boethius' Second *Peri hermeneias* Commentary." *Vivarium* no. 48:7-54.

Abstract: "The paper is in three parts, prefaced by general remarks concerning Boethius' logical translations and commentaries: the text of the *Peri Hermeneias* as known to and commented on by Boethius (and Ammonius); the organizational principles behind Boethius' second commentary on the *Peri Hermeneias*; its source(s). One of the main purposes of the last section is to demonstrate that the *Peri Hermeneias* commentaries of Boethius and Ammonius are, although part of a common tradition, quite independent of one another, and special consideration is given to the question of how Boethius interpreted and shaped the doxographical material concerning Aspasius, Herminus, and Alexander that had been handed down to him by Porphyry."

"Sifting through the interpretations of earlier commentators was painstaking and laborious, Porphyry's interpretation of 19b22-24 alone requiring, as we have seen, seventeen pages of commentary. By about the year 515 Boethius' attention must have been turning toward other projects, to new translations and commentaries, the theological tractates, logico-rhetorical monographs, and so on. If the Peri Hermeneias were allowed to consume so much time and energy, what would become of the rest of the *Organon* and Aristotle, not to mention Plato? Even for a treatise as rich and complex as the *Peri Hermeneias* Boethius may have had finally to calculate his "point of diminishing returns." He may have grown impatient with the project, his copy of Porphyry may have failed, or both. Had he known of the premature end that awaited him, he might have thought differently about how to weight the commentary, might have sought compensation in other projects for problems left

unsolved in connection with the *Peri Hermeneias*; but as it is, he left a work which, despite its imperfections, has proved to be one of his most fascinating and influential." (p. 54)

26. ———. 2011. "Preliminary Observations on the Textual Tradition of Boethius' First *Peri Hermeneias* Commentary." In *Logic and Language in the Middle Ages: A Volume in Honour of Sten Ebbesen*, edited by Fink, Jakob Leth, Hansen, Heine and Mora-Márquez, Ana María 13-26. Leiden: Brill.

    "In editing the first of Boethius' two commentaries on Aristotle's *Peri Hermeneias* Carl Meiser essentially worked from a single witness, F (below), which he ranked both *antiquissimus* and *optimus*. (1) Readings from three other munich manuscripts, e (MS Bayer. Staatsbibl. clm 14401, s. XI), M (below), and T (MS Bayer. Staatsbibl. clm 18479, s.XI), he reported *perpetuo more* but with varying degrees of accuracy. (2) He further consulted two st. Gall manuscripts, G (below) and S (MS Stiftsbibl. 817, s. XI-XII) *omnibus locis paulo difficilioribus* — citing them only infrequently, however, in his critical apparatus. from *Peri Hermeneias* 17b20 on, F preserves excerpted lemmata, and Meiser correctly recognized that the supplemented versions found in other witnesses violate Boethius' intention. (3)

    But F is in fact neither *antiquissimus* nor *optimus*, and Meiser's edition suffers from a particular failure to distinguish between the three versions of Boethius' *Peri Hermeneias* translation, two of which form his commentary lemmata. Hence a full assessment of the evidence seems called for. In what follows, I hope to shed some light on certain salient characteristics of the textual tradition." (p. 13)

    (1) Boethius, *Commentarii in librum aristotelis περι ερμηνειασ, pars prior versionem continuam et primam editionem continens*, ed. C. Meiser (Leipzig: Teubner, 1877), pp. VIII-X.

    (2) Cf. J. Magee, 'On the Composition and sources of Boethius' second *Peri Hermeneias* Commentary', *Vivarium* 48 (2010), 15, n. 32.

(3) Above, n. 1; cf. Aristotle, *De interpretatione vel Periermenias: Translatio Boethii*, ed. L. Minio-Paluello, AL 2.1 (Bruges: Desclée de Brouwer, 1965), pp. XI; LIII.

[MS F = Munich Bayer. Staatsbibl. clm 6374, s. IX

MS M = Munich Bayer. Staatsbibl. clm 14377, s. X-XI]

27. Mignucci, Mario. 1989. "Truth and modality in late antiquity: Boethius on future contingent propositions." In *Le teorie delle Modalità. Atti del Convegno internazionale di storia della logica*, edited by Corsi, Giovanni, Mangione, Corrado and Mugnai, Massimo, 47-78. Bologna: CLUEB.

28. ———. 1996. "Ammonius on Future Contingent Propositions." In *Rationality in Greek Thought*, edited by Frede, Michael and Striker, Gisela, 279-310. Oxford: Clarendon Press.

29. ———. 1998. "Ammonius' sea battle." In *Ammonius: On Aristotle On Interpretation 9 with Boethius: On Aristotle On Interpretation 9*, edited by Blank, David L. and Kretzmann, Norman, 53-86. Ithaca: Conell University Press.

30. ———. 2001. "Ammonius and the Problem of Future Contingent Truth." In *Ammonius and the Seabattle: Texts, Commentary and Essays*, edited by Gerhard, Seel, 247-284. Berlin: Walter de Gruyter.

31. Monteil, Jean-François. 1996. "De la traduction en arabe et en français d'un texte d'Aristote: le chapitre VII du *Peri Hermeneias*." *Bulletin d'Etudes Orientales* no. 48:57-76.

"Les propositions indéterminées du chapitre VII de *Peri Hermeneias* sont des particulières traduites par des universelles fausses. La cause de cette bizarrerie est dans le maître, et non dans les traducteurs. Aristote mutile un système naturel de propositions dont l'intégrité est restaurée par l'hexagone de Robert Blanché. Celui-ci ajoute deux postes au carré: Y (quantité partielle) et U (exclusion de la quantité partielle). Le carré représente A (totalité) et E (quantité zéro), mais pas avec la tierce quantité Y. Or, la quantité partielle (Y) est essentielle: c'est celle des particulières naturelles contenant notoirement plus d'information que les particulières logiques.

U (exclusion de la quantité partielle) est le signifié commun aux deux phrases qu'Aristote élimine du système naturel."

32. ———. 2004. "La transmission d'Aristote par les Arabes à la chrétienté occidentale: une trouvaille relative au *De Interpretatione*." *Revista Española de Filosofia Medieval* no. 11:181-195.

    "*Some men are not white* and *Some men are white* versus *No man is white* are illegitimately identified to the two pairs of logical contradictories constituting the logical square: *A* versus *O* and *I* versus *E*, respectively. Thus, the level of natural language and that of logic are confused. The unfortunate Aristotelian alteration is concealed by the translation of propositions known as *indeterminates*. To translate these, which, semantically, are *particulars*, all scholars, except for Paul Gohlke, employ the two natural *universals* excluded by the Master! The work of Isador Pollak, published in Leipzig in 1913, [*Die Hermeneutik des. Aristoteles in der Arabischen übersetzung des Ishiik Ibn Honain*] reveals the origin of this nearly universal translation mistake: the Arabic version upon which Al-Farabi unfortunately bases his comment. In adding the vertices *Y* and *U* to the four ones of the square, the logical hexagon of Robert Blanché (*) allows for the understanding of the manner in which the logical system and the natural system are linked."

    (*) *Structures Intellectuelles. Essai sur l'organisation systématique des concepts*, Paris: Vrin, 1966; *Raison et Discours. Défense de la logique réflexive*, Paris: Vrin, 1967.

33. ———. 2005. "Isidor Pollak et les deux traductions arabes différentes du *De interpretatione* d'Aristote." *Revue d'Études Anciennes* no. 107:29-46.

    "Dans le chapitre VII du *De interpretatione*, Aristote mutile un système naturel de trois couples de contradictions naturelles. Il évince le couple où deux universelles naturelles "Les hommes sont blancs", "Les hommes ne sont pas blancs" s'opposent contradictoirement. Conséquence grave: les deux couples de contradictoires naturelles, qu'Aristote considère exclusivement, sont identifiés illégitimement aux deux couples de

contradictoires logiques constituant le carré logique. Cette mutilation est dissimulée par la traduction des propositions dites "indéterminées". L'ouvrage d'Isidor Pollak, publié à Leipzig en 1913 (*Die Hermeneutik des Aristoteles in der arabischen Übersetzung des Ishak Ibn Honain, Abhandlungen für die Kunde des Morgenlandes*, 13,1), révèle l'origine de cette faute de traduction quasi universelle: la version arabe sur laquelle al-Farabi fonde son commentaire."

34. Mora-Márquez, Ana María 2011. "*Peri hermeneias* 16a3-8 : Histoire d'une rupture de la tradition interprétative dans le bas Moyen-Âge." *Revue Philosophique de la France et de l'Étranger* no. 136:67-84.

35. Normore, Calvin G. 1982. "Future Contingents." In *The Cambridge History of Later Medieval Philosophy. From the rediscovery of Aristotle to the disintegration of Scholasticism 1100-1600*, edited by Kretzmann, Norman, Kenny, Anthony and Pinborg, Jan. Cambridge: Cambridge University Press.

36. Rescher, Nicholas. 1963. "An Interpretation of Aristotle's Doctrine of Future Contingency and Excluded Middle." In *Studies in the History of Arabic Logic*, 43-54. Pittsburgh: University of Pittsburgh Press.

37. Rijk, Lambertus Marie de. 2003. "Boethius on *De interpretatione* (ch. 3): is he a reliable guide?" In *Boèce ou la chaîne des savoirs. Actes du Colloque International de la fondation Singer Polignac (Paris, 8-12 juin 1999)*, edited by Galonnier, Alain, 207-227. Paris: Peeters Publishers.

    "There can be no doubt whatsoever about Boethius's exceptional merits for transmitting Aristotle's logic to us. But while 'Aristotelian' logic is in many respects synonymous with 'Aristotelico-Boethian' logic, the question can be raised whether Aristotle himself was an 'Aristotelian'. To give just one example: from Lukasiewicz onwards there has been much debate among scholars about the telling differences between traditional syllogistic and that of the *Prior Analytics*. (1)

    In this paper I intend to deal with two specimens of Boethius's way of commenting upon Aristotle's text. They are found in his

discussion of *De interpretatione*, chapters 2 and 3, which present Aristotle's views of *ónoma* and *rhema*. (2) One concerns the semantics of indefinite names, the other that of isolated names and verbs." p. 227

(1) Jan Lukasiewicz, *Aristotle's Syllogistic from the Standpoint of Modern Formal Logic*, Oxford, 1951. G. Patzig, *Aristotle's Theory of the Syllogism. A logico-philological study of Book A of the Prior Analytics*, Dordrecht, 1969.

(2) *Rhema* properly stands for 'what is said of', including not only our 'verb' but also adjectives, when used in attributive position. One should realise, however, that 'verb' refers to a word class, rather than a semantic or syntactical category, as *rhema* does.

"Conclusion. Returning now to Boethius' manner of commenting upon Aristotle's texts, the following points can be made:

[1] In the wake of Ammonius, (3) Boethius explains [*De int.*] 16b22-25 on the apophantic level, i.e. in terms of statement-making, instead of framing significative concepts, i.e. on the onomastic level.

[2] Whereas in Ammonius' report of the predecessors, Alexander and Porphyry, as well as his own exposition of the issue, there are many clues to the previous alternative reading and interpretation on the onomastic level, Boethius does not even refrain from cleansing the text (including his 'quotations'), by changing, at any occurrence, '*ens*' into '*est*'.

[3] In doing so, Boethius decisively influenced the commentary tradition on account of the purport of *De int*. 3, 16b19-25. He effectively contributed to the common verdict on this paragraph in terms of 'a curious medley'.

[4] As far as the semantics of the indefinite verb (3, 16b14-15) is concerned, Boethius' apparently adhering to the so-called 'Ammonii recensio' was far less desastrous for the common understanding of Aristotle on this score, and, in effect, merely

provided us with some stimulating Medieval discussions of the semantics of term infinitation.

[5] Finally by way of speculative surmise, it might be suggested that both the fact that Boethius dealt with the 'Ammonii recognise' without reading it in his lemma of 16b14-15, as well as his rather ruthlessly interfering in the quotations of the pre-Ammonian sources, should make it more plausible that Boethius had extensive, but incomplete marginal notes to his Greek text of Aristotle at his disposal, rather than a full copy of Ammonius' commentary (or those of other Greek commentators).

To comment upon Aristotle's work naturally includes developing his lore. But nothing can ever guarantee that this will happen *ad metem auctoris*. (4)"

(3) It is unmistakably plain that in *De int*. ch. 3, Boethius is strongly influenced by what he read in Ammonius (or in marginal notes on Ammonius' view).

(4) Cf. the interesting paper on this subject by Frans A.J. de Haas, "Survival of the Fittest? Mutations of Aristotle's Method of Inquiry in Late Antiquity" (forthcoming). [Conference: *The Dynamics of Natural Philosophy in the Aristotelian Tradition (and beyond)*, Nijmegen, 16-20 August 1999.]

38. Schneider, Jakob Hans josef. 1994. "Al-Farabis Kommentar zu 'De interpretatione' des Aristoteles. Ein Beitrag zur Entwicklung der Sprachphilosophie im Mittelalter." In *Scientia und ars im Hoch- und Spätmittelalter*, 687-738. Berlin: Walter de Gruyter.

39. Seel, Gerhard, ed. 2001. *Ammonius and the Seabattle: Texts, Commentary and Essays*. Berlin: Walter de Gruyter.

40. Sillitti, Giovanna. 1980. *Tragelaphos. Storia di una metafora e di un problema*. Napoli: Bibliopolis.

41. Teixidor, Javier. 1996. "L'Introduction au *De interpretatione* chez Proba et Paul le Perse." In *Symposium Syriacum VII. Uppsala University, Department of Asian and African*

Languages, 11-14 August 1996, edited by Lavenant, René, 293-301. Roma: Pontificio Istituto Orientale.

Repris comme Chapitre V dans: J. Teixidor, *Aristote en syriaque: Paul le Perse, logicien du VIe siècle*, Paris: Éditions CNRS 2003, pp. 99-121.

42. Tessier, Andrea. 1979. *Il testo di Aristotele e le traduzioni armene*. Padova: Antenore.

43. Todd, Robert B. 1976. "Alexander of Aphrodisias on *De Interpretatione* 16a 26-29." *Hermes* no. 104:140-146.

44. Verbeke, Gérard. 1956. "Ammonius et saint Thomas. Deux commentaires sur le *Peri hermeneias* d'Aristote." *Revue Philosophique de Louvain* no. 54:228-253.

    "La comparaison entre le commentaire d'Ammonius, dans la traduction latine de Guillaume de Moerbeke, et celui de saint Thomas, permet de préciser dans quelle mesure saint Thomas s'inspire d'Ammonius. Édition critique du texte latin du *Peri hermeneias* d'Aristote, dans la traduction de Moerbeke du commentaire d'Ammonius, avec références au texte des manuscrits grecs."

45. ———. 1991. "Interprétation et langage dans la tradition aristotélicienne." In *Historia philosophiae Medii Aevi. Studien zur Geschichte der Philosophie des Mittelalters*, edited by Mojsisch, Burkhard and Pluta, Olaf, 1029-1045. Amsterdam: R. Grüner.

    "A la lumière des analyses qui précèdent, qu'en est-il maintenant du titre *peri hermeneias*? Ce titre correspond-il au contenu de l'ouvrage?

    La question posée ne vise pas directement l'authenticité Aristotélicienne de la formule: il est vrai cependant, qu'un titre qui ne traduirait pas bien le contenu du traité, aurait peu de chances d'avoir été rédigé par le Stagirite. Par contre, il est probable que l'ouvrage ait reçu un certain titre de la part de son auteur et si le titre traditionnel correspond au contenu de l'écrit, il peut très bien remonter à l'auteur lui-même. Quoi qu'il en soit de la question d'authenticité, nous croyons pouvoir

conclure que le titre donné recouvre bien le contenu du traité, dont le sujet principal est l'énonciation catégorique et ses composants. En se basant sur les analyses de Boèce et d'Ammonius, on peut dire que tous ces éléments correspondent à l'idée d'interprétation telle qu'elle est expliquée dans le traité:

1. L'énonciation y est conçue comme l'interprétation d'un contenu de pensée. Toutefois si le langage se rapporte directement à un objet pensé, il se réfère indirectement au réel: il en résulte que le discours énonciatif est aussi une interprétation de la réalité. Il l'est à un double niveau: le contenu particulier de chaque énonciation se rapporte à un sujet déterminé du monde et en exprime certaines caractéristiques; on peut donc le considérer comme un acte d'interprétation. Par ailleurs, il y a la structure même du jugement, qui, elle aussi, est une interprétation à un niveau plus fondamental de la physionomie du réel.

2. Les noms et les verbes constituent à leur tour un acte d'interprétation. Selon Aristote, la signification des mots est conventionnelle: elle est le résultat de la vie en communauté, où les hommes sont amenés à se mettre d'accord sur des notions fondamentales de la vie morale et sociale. Ammonius croit que le sens des mots n'est pas purement artificiel, mais qu'il est adapté à la nature des choses. Quoi qu'il en soit, le fait d'appliquer au réel des noms et des verbes est un acte d'interprétation. Exprimer le réel dans les catégories du langage implique toujours un acte interprétatif.

La doctrine aristotélicienne sur la nature du langage justifie donc le titre de *peri hermeneias.".*

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History of Logic

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Aristotle's *Prior Analytics*: the Theory of Categorical Syllogism

Modern interpretations of Aristotle's syllogistic

"When modem logicians in the 1920s and 1930s first turned their attention to the problem of understanding Aristotle's contribution to logic in modern terms, they were guided both by the Frege-Russell conception of logic as formal ontology and at the same time by a desire to protect Aristotle from possible charges of psychologism. They thought they saw Aristotle applying the informal axiomatic method to formal ontology, not as making the first steps into formal epistemology. They did not notice Aristotle's description of deductive reasoning. Ironically, the formal axiomatic method (in which one explicitly presents not merely the substantive axioms but also the deductive processes used to derive theorems from the axioms) is incipient in Aristotle's presentation.

Partly in opposition to the axiomatic, ontically-oriented approach to Aristotle's logic and partly as a result of attempting to increase the degree of fit between interpretation and text, logicians in the 1970s working independently came to remarkably similar conclusions to the effect that Aristotle indeed had produced the first system of formal deductions. They concluded that Aristotle had analyzed the process of deduction and that his achievement included a system of natural deductions including both direct and indirect deductions which, though simple and rudimentary, was semantically complete.

Where the interpretations of the 1920s and 1930s attribute to Aristotle a system of propositions organized deductively, the

interpretations of the 1970s attribute to Aristotle a system of deductions, extended deductive discourses, concatenations of propositions, organized epistemically. The logicians of the 1920s and 1930s take Aristotle to be deducing laws of logic from axiomatic origins; the logicians of the 1970s take Aristotle to be describing the process of deduction and in particular to be describing deductions themselves, both those deductions that are proofs based on axiomatic premises and those deductions that, though deductively cogent, do not establish the truth of the conclusion but only that the conclusion is implied by the premise-set.

Thus, two very different and opposed interpretations had emerged, interestingly both products of modern logicians equipped with the theoretical apparatus of mathematical logic. The issue at stake between these two interpretations is the historical question of Aristotle's place in the history of logic and of his orientation in philosophy of logic. This paper affirms Aristotle's place as the founder of logic taken as formal epistemology, including the study of deductive reasoning. A by-product of this study of Aristotle's accomplishments in logic is a clarification of a distinction implicit in discourses among logicians—that between logic as formal ontology and logic as formal epistemology.

Aristotle's Logic: New Goals, New Results

Our understanding of Aristotle's logic has increased enormously in the last sixty years. It is gratifying to review the cascade of progress beginning with the independently achieved but remarkably similar advances reported in 1929 by Jan Łukasiewicz and in 1938 by James Wilkinson Miller. Penetrating examination and critical evaluation of the Łukasiewicz-Miller viewpoint in the 1950s and 1960s set the stage for work in the early 1970s by Timothy Smiley and myself. Subsequent work in the late 1970s and early 1980s by various people including Timothy Smiley, Robin Smith, Michael Scanlan and myself can be seen as culminating, at least for the moment, in the 1989 translation and commentary on *Prior Analytics* by Robin Smith." (pp. 9-10)

From: John Corcoran, "The Founding of Logic. Modern Interpretations of Aristotle's Logic", *Ancient Philosophy*, 14, 1994, pp. 9-24.

"Jan Łukasiewicz, by his own account, entered the lists in 1923 as an interpreter of ancient logic from the standpoint of modern formal logic. In that year he began defending his view of the contrast of Stoic logic with Aristotelian logic; this view appeared in print for the first time in 1930.(1) This was followed by the Polish version in 1934, and the German in 1935, of his landmark paper, 'On the History of the Logic of Propositions' [1967]. During the same period Łukasiewicz was lecturing on Aristotle's syllogistic. An authorized version of his lectures on this and other logical topics was published by students at the University of Warsaw in 1929, republished in Warsaw in 1958, and finally translated into English in 1963 under the title *Elements of Mathematical Logic* [1963]. Łukasiewicz elaborated his researches until he issued in 1951 his now famous monograph *Aristotle's Syllogistic from the Standpoint of Modern Formal Logic* [1951]. A second edition, enlarged but not revised, appeared in 1957, its author's death having occurred in the previous year.(*)

Łukasiewicz thus has held the field for nearly half a century. Questions have been raised about some details of his interpretation, and corrections have been made of some of his mistakes in matters of fact, but, so far as I know, no one had brought a direct challenge against the main lines of Łukasiewicz's interpretation of Aristotle's syllogistic and its place in ancient logic until John Corcoran did so in 'A Mathematical Model of Aristotle's Syllogistic' [1973]. Indeed, so spectacular a *tour de force* was Łukasiewicz's book that, despite his own protestations that he was setting out the system merely "in close connexion with the ideas set forth by Aristotle himself" ([1951], p. 77) and "on the lines laid down by Aristotle himself" ([1951], p. VIII), his account has gained wide acceptance as the definitive presentation of Aristotle's syllogistic, and some writers lead one to believe that Aristotle's system is no more and no less than what Łukasiewicz proposes.

Łukasiewicz's view, very briefly put, is this: The logic of Aristotle is a theory of the relations A, E, I, and O (in their mediaeval senses) in the field of universal terms ([1951], p. 14). It is a theory of special relations, like a mathematical theory ([1951], p. 15). As a logic of terms, it presupposes a more fundamental logic of propositions,

which, however, was unknown to Aristotle and was discovered by the Stoics in the century after him ([1951], p. 49). Aristotle's theory is an axiomatized deductive system, in which the reduction of the other syllogistic moods to those of the first figure is to be understood as the proof of these moods as theorems by means of the axioms of the system ([1951], p. 44).

Corcoran has proposed, on the other hand, that Aristotle's syllogistic is not an axiomatic science but rather a natural deduction system, and that the theory is itself fundamental, presupposing neither the logic of propositions nor any other underlying logic.

Corcoran's proposals have a good deal to recommend them. First, Corcoran provides a faithful reconstruction of Aristotle's method. Although Łukasiewicz gives a system that does arrive at Aristotle's results, obtaining and rejecting laws corresponding to the moods which Aristotle obtains and rejects, his derivations, by substitution and detachment from axioms, have nothing in common with Aristotle's own method. Indeed, Łukasiewicz must say that Aristotle's proposals about method are wrong, and that Aristotle did not and could not use the technique of perfecting syllogisms, which Aristotle claims over and over again that he is using.(2) Corcoran, on the other hand, not only makes perfect sense of the doctrine of perfecting syllogisms, but he is willing to take Aristotle at his word instead of being content to elaborate a system allegedly in close connexion with Aristotle's ideas. The upshot is that Corcoran succeeds, as Łukasiewicz did, in reproducing Aristotle's results, and he succeeds, as Łukasiewicz did not, in reproducing Aristotle's method step by step, so that the annotated deductions of his system D are faithful translations of Aristotle's exposition. Corcoran's concern for method is prompted by his belief that Aristotle shared this concern. I think there can be no doubt that he is correct. Aristotle sets out his method in detail which if concise is yet minute, and when, at the beginning of Chapter XXX of the first book of the *Priora* (46a4), he summarizes his work so far, he speaks not of the same results in philosophy and every kind of art and study whatsoever, but of the same method (οδός) in all these branches of inquiry.

Corcoran's interpretation also has the virtue of making sense of Aristotle's views concerning the place of syllogistic in his doctrine as

a whole. While Łukasiewicz apparently held that syllogistic was a science which must take its place beside the other sciences in the Aristotelian scheme, Corcoran proposes to take syllogistic as the underlying logic of the demonstrative sciences. Łukasiewicz held further that syllogistic itself presupposes propositional logic as an underlying logic -- of which Aristotle, however, was ignorant. Corcoran, by contrast, suggests that syllogistic is a fundamental logical system, presupposing no other." (pp. 133-135)

Notes

(*) Łukasiewicz, Jan, *Aristotle's Syllogistic from the Standpoint of Modem Formal Logic*, Oxford Univ. Press, Oxford, 1951. Second ed. enlarged, 1957.

(1) Łukasiewicz, Jan, 'Philosophische Bemerkungen zu mehrwertigen Systemen des Aussagenkalküls', *Comptes rendus des seances de la Société des Sciences et des Lettres de Varsovie* 23 (1930). English transl. by H. Weber in McCall *Polish Logic 1920-1939*, Oxford University Press, Oxford 1967 as 'PhilosophicaI Remarks on Many-Valued Systems of Propositional Logic', pp. 40-65. See Storrs McCall *Polish Logic 1920-1939*, p. 69, n. 1, for Łukasiewicz's remark concerning the date of hist first proposals.

(2) Łukasiewicz [1951], p. 44. For texts in *An. Pr.* and *An. Post.* see Corcoran John, 'A Mathematical Model of Aristotle's Syllogistic', *Archiv für Geschichte der Philosophie* 55 (1973), 191-219.

From: Mary Mulhern, "Corcoran on Aristotle's Logical Theory", in: John Corcoran (ed.), *Ancient Logic and Its Modern Interpretations. Proceedings of the Buffalo Symposium on Modernist Interpretations of Ancient Logic, 21 and 22 April, 1972*, Dordrecht: Reidel 1974, pp. 133-148.

Contemporary evaluations of Aristotle's logic

"As a kind of summary of our research we present a review of what we take to be the fundamental achievements of Aristotle's logical theory. In the first place, he clearly distinguished the role of deduction from the role of experience (or intuition) in the development of scientific theories. This is revealed by his distinction

between the axioms of a science and the logical apparatus used in deducing the theorems. Today this would imply a distinction between logical and nonlogical axioms; but Aristotle had no idea of logical axioms (but cf. 77a22-25). Indeed, he gave no systematic discussion of logical truth (Axx is not even mentioned once). In the second place, Aristotle developed a natural deduction system which he exemplified and discussed at great length. Moreover, he formulated fairly intricate metamathematical results relating his central system to a simpler one. It is also important to notice that Aristotle's system is sound and strongly complete. In the third place, Aristotle was clear enough about logical consequence so that he was able to discover the method of counter instances for establishing invalidity. This method is the cornerstone of all independence (or invalidity) results, though it probably had to be rediscovered in modern times (cf. Cohen and Hersh). In the fourth place, his distinction between perfect and imperfect syllogisms suggests a clear understanding of the difference between deducibility and implication -- a distinction which modern logicians believe to be their own (cf. Church, p. 323, fn. 529). In the fifth place, Aristotle used principles concerning form repeatedly and accurately, although it is not possible to establish that he was able to state them nor is even clear that he was consciously aware of them as logical principles.

The above are all highly theoretical points -- but Aristotle did not merely theorize; he carried out his ideas and programs in amazing detail despite the handicap of inadequate notation. In the course of pursuing details Aristotle originated many important discoveries and devices. He described indirect proof. He used syntactical variables (alpha, beta, etc.) to stand for content words -- a device whose importance in modern logic has not been underestimated. He formulated several rules of inference and discussed their interrelations.

Philosophers sometimes say that Aristotle is the best Introduction to philosophy. This is perhaps an exaggeration. One of the Polish logicians once said that the Analytics is the best Introduction to logic. My own reaction to this remark was unambiguously negative -- the severe difficulties in reading the Analytics form one obstacle and I felt then that the meager results did not warrant so much study. After carrying out the above research I can compromise to the

following extent. I now believe that Aristotle's logic is rich enough, detailed enough, and sufficiently representative of modern logics that a useful set of introductory lectures on mathematical logic could be organized around what I have called the main Aristotelian system.

From a modern point of view, there is only one mistake which can sensibly be charged to Aristotle: his theory of propositional forms is very seriously inadequate. It is remarkable that he did not come to discover this for himself, especially since he mentions specific proofs from arithmetic and geometry. If he had tried to reduce these to his system he may have seen the problem (cf. Mueller, pp. 174-177). But, once the theory of propositional forms is taken for granted, there are no important inadequacies attributable to Aristotle, given the historical context. Indeed, his work is comparable in completeness and accuracy to that of Boole and seems incomparably more comprehensive than the Stoic or medieval efforts. It is tempting to speculate that it was the oversimplified theory of propositional forms that made possible the otherwise comprehensive system. A more adequate theory of propositional forms would have required a much more complicated theory of deduction -- indeed, one which was not developed until the present era." (pp. 122-123)

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From: John Corcoran, Aristotle's Natural Deduction System. In *Ancient Logic and Its Modern Interpretations*, edited by John Corcoran, Dordrecht: Reidel 1974, pp. 85-131.

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3. Angelelli, Ignacio. 1978. "*Analytica priora*, I, 38 and Reduplication." *Notre Dame Journal of Formal Logic* no. 19:295-296.

   "Although many commentators have summarized chapter 38 of *Analytica Priora I* as if it was perfectly clear to them, I have not found their explanations satisfactory enough. In fact, I think Aristotle's text needs badly some sort of clarification that makes it meaningful to modern logicians. In this note I wish to propose one such reconstruction."
4. Austin, John L. 1952. "Critical notice on Łukasiewicz, *Aristotle's Syllogistic*." *Mind* no. 61:395-404.

   Withj a correction: *Mind*, 61, 1952, p. 136.
5. Bäck, Allan. 1982. "Syllogisms with reduplication in Aristotle." *Notre Dame Journal of Formal Logic* no. 23:453-458.

"*Prior Analytics* 1.38 is a difficult text that offers a way of handling qua propositions in formal syllogistic. By 'qua proposition' I mean a proposition that contains a qualifying term, phrase, or clause. Many such propositions have a qua connector like 'qua', 'insofar as', 'in virtue of the fact that', 'with respect to', although in some cases a construction like an accusative of respect occurs

instead of an explicit connective.(1) Still, all qua propositions may be paraphrased by explicit qua connectives. So the class of qua propositions is a grammatical class of propositions of the form *'S* is *P* qua *M'* The *Prior Analytics* chapter deals with a specific logical type of qua propositions, and its syllogistic properties.(2)" (p. 453)

(1) Alexander of Aphrodisias, *In Aristotelis Analyticorum Priorum Librum I Commentaria,* ed., Wallies, Berlin, 1883.

(2) Alexander of Aphrodisias, *Themistius, Quae Fertur In Analyticorum Priorum Librum I Paraphrasis,* ed., Wallies, Berlin, 1883.

6. Barnes, Jonathan. 1997. "Proofs and the syllogistic figures." In *Beiträge zur antiken Philosophie: Festschrift für Wolfgang Kullmann*, edited by Günther, Hans-Christian, Rengakos, Antonios and Vogt, Ernst, 153-168. Stuttgar: Steiner.

   Reprinted in: J. Barnes, *Logical Matters: Essays in Ancient Philosophy II*, Oxford: Clarendon press 2012, pp. 364-381.

7. Berka, Karel. 1991. "La syllogistique aristotélicienne, reconstruction historico-logique." In *Penser avec Aristote*, edited by Sinaceur, Mohammed Allal, 429-432. Paris: Éditions érès.

8. Clark, Michael. 1980. *The Place of Syllogistic in Logical Theory*. Nottingham: University of Nottingham Press.

9. Corcoran, John. 1972. "Completeness of an Ancient Logic." *Journal of Symbolic Logic* no. 37:696-702.

   "In previous articles ([4], [5]) it has been shown that the deductive system developed by Aristotle in his "second logic"

(cf. Bochenski [2, p. 43]) is a natural deduction system and not an axiomatic system as previously had been thought [6].

It was also pointed out that Aristotle's logic is self-sufficient in two senses: First, that it presupposed no other logical concepts, not even those of propositional logic; second, that it is (strongly) complete in the sense that every valid argument formable in the language of the system is demonstrable by means of a formal deduction in the system. Review of the system makes the first point obvious. The purpose of the present article is to prove the second. Strong completeness is demonstrated for the Aristotelian system." (p. 696)

[2] I. M. BOCHENSKI, A history of formal logic (translated by Ivo Thomas), Chelsea, New York, 1970.

[4] JOHN CORCORAN, Aristotle's natural deduction system, this JOURNAL, vol. 37 (1972), 437. Abstract.

[5] __, A mathematical model of Aristotle's syllogistic, Archiv für Geschichte der Philosophie vol. 55 (1973), 191-219.

[6] JAN LUKASlEWICZ, Aristotle's syllogistic from the standpoint of modern formal logic, Press, Oxford, 1951.

10. ———. 1973. "A Mathematical Model of Aristotle's Syllogistic." *Archiv für Geschichte der Philosophie* no. 55:191-219.

"Our purpose in the present article is to present a mathematical model designed to reflect certain structural aspects of Aristotle's logic. Accompanying the presentation of the model is an interpretation of certain scattered parts of the Prior and *Posterior Analytics*. Although our interpretation does not agree in all respects with those previously put forth, the present work would have been impossible without the enormous ground work of previous scholars - especially Jenkinson, Łukasiewicz and W. D. Ross - to whom we are deeply grateful.

Our interpretation restores Aristotle's reputation as a logician of consumate imagination and skill. Several attributions of shortcomings and logical errors to Aristotle are seen to be without merit. Aristotle's logic is found to be self-sufficient in several senses. In the first place, his theory of deduction is

logically sound in every detail. (His indirect deductions' have been criticized, but incorrectly on our account.) In the second place, Aristotle's logic presupposes no other logical concepts, not even those of propositional logic. In the third place, the Aristotelian system is seen to be complete in the sense that every valid argument statable in his system admits of a deduction within his deductive system, I. e. every semantically valid argument is deducible.

In the present paper we consider only Aristotle's theory of non-modal logic which has been called "the theory of the assertoric syllogism" and "Aristotle's syllogistic." Aristotle presents the theory almost completely in Chapters 1, 2, 4, 5 and 6 of the first book of *Prior Analytics,* although it presupposes certain developments in previous works - especially the following two : first, a theory of form and meaning of propositions having an essential component in *Categories* (Ch. 5, esp. 2a 34- 2b 7) ; second, a doctrine of opposition (contradiction) more fully explained in *De Interpretatione* (Ch. 7, and cf. Ross, p. 3)." (p. 191)

11. ———. 1974. "Aristotelian Syllogisms: Valid Arguments or True Universalized Conditionals?" *Mind* no. 83:278-281.

"For centuries it was thought that Aristotle's 'syllogistic' was a codification of valid arguments. Early in the 1950s, however, Łukasiewicz [8] offered the view that it was certain true universalized conditional sentences that were being codified. (The traditional notion of a valid argument has been explicated (Mates, [8]) essentially as follows. An argument is a couple (P, c) where P is a set of (closed) sentences and c is a sentence: (P, c) is valid if c is a logical consequence of P. This explication obviously covers the technical use of the terms 'valid' and 'argument' in logic (cf. Corcoran, [2]). If p and q are open sentences and Q is a string of universal quantifiers one for each variable free in (p v q) then Q(p =) q) is a universalized conditional.) Łukasiewicz rested his case on the proposition that all syllogisms formulated in the relevant corpus involve an equivalent of the 'if . .. then' connective ([8], p. 2). Austin, in his review of the Łukasiewicz work [I], was able to weaken the Łukasiewicz case by citing a few references to syllogisms as

arguments while agreeing that Łukasiewicz was largely correct in his observation that syllogisms were formulated as conditionals. Several scholars (cf. [1] [11]) have further weakened the Łukasiewicz case by pointing out that in many circumstances it would be natural to assert the validity of an argument by saying that if the premises

were true then the conclusion would necessarily also be true. Prior regards Lukasiewicz's evidence as 'flimsy' (cf. [11], p. 25) whereas Patzig ([9], pp. 1-4) finds it convincing. In any event, however, neither case seems sufficiently convincing to make it possible to regard the issue as settled.

Additional information bearing on the issue can be obtained by considering howv the syllogisms are established in the corpus. In normal contexts, arguments are established (as valid) by deducing the conclusion from the assumption of the premises using presupposed rules of inference, whereas sentences are established (as true) by deducing them from other sentences previously accepted as true. Thus one is lead to reconsider the locations in the corpus where syllogisms are established to see which mode of validation seems to be used." (p. 278)

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[1] Austin, J. L. Review of Łukasiewicz, Aristotle's Syllogistic; *Mind*, vol. lxi (1952), 395-404.

[2] Corcoran, J. 'Conceptual Structure of Classical Logic', Philosophy and Phenomenological Research, 33 (1972), 25-47.

[8] Łukasiewicz, J. Aristotle's Syllogistic (2nd ed.) (Oxford, I957).

[9] Patzig, G. Aristotle's Theory of the Syllogism, tr. J. Barnes, Dordrecht (I968).

[11] Rose, L. Aristotle's Syllogistic, Springfield, Illinois (I968).

12. ———. 1974. "Aristotle's Natural Deduction System." In *Ancient Logic and Its Modern Interpretations. Proceedings of the Buffalo Symposium on Modernist Interpretations of Ancient Logic, 21 and 22 April, 1972*, edited by Corcoran, John, 85-131. Dordrecht: Reidel.

"In the present article we attempt to show that Aristotle's syllogistic is an underlying logic which includes a natural deductive system and that it is not an axiomatic theory as had previously been thought. We construct a mathematical model which reflects certain structural aspects of Aristotle's logic and we examine both the mathematical properties of the model and the relation of the model to the system of logic envisaged in certain scattered parts of *Prior* and *Posterior Analytics*.

Our interpretation restores Aristotle's reputation as a logician of consummate imagination and skill. Several attributions of shortcomings and logical errors to Aristotle are shown to be without merit. Aristotle's logic is found to be self-sufficient in several senses. In the first place, his theory of deduction is logically sound in every detail. (His indirect deductions have been criticized, but incorrectly on our account.) In the second place, Aristotle's logic presupposes no other logical concepts, not even those of propositional logic. In the third place, the Aristotelian system is seen to be complete in the sense that every valid argument expressible in his system admits of a deduction within his deductive system; i.e., every semantically valid argument is deducible.

There are six sections in this article. The first section includes methodological remarks, a preliminary survey of the present interpretation and a discussion of the differences between our interpretation and that of Łukasiewicz. The next three sections develop the three parts of the mathematical model. The fifth section deals with general properties of the model and its relation to the Aristotelian system. The final section contains conclusions." p. 85

"As a kind of summary of our research we present a review of what we take to be the fundamental achievements of Aristotle's logical theory. In the first place, he clearly distinguished the role of deduction from the role of experience (or intuition) in the development of scientific theories. This is revealed by his distinction between the axioms of a science and the logical apparatus used in deducing the theorems. Today this would imply a distinction between logical and nonlogical axioms; but

Aristotle had no idea of logical axioms (but cf. 77a22-25). Indeed, he gave no systematic discussion of logical truth *(Axx* is not even mentioned once). In the second place, Aristotle developed a natural deduction system which he exemplified and discussed at great length. Moreover, he formulated fairly intricate metamathematical results relating his central system to a simpler one. It is also important to notice that Aristotle's system is sound and strongly complete. In the third place, Aristotle was clear enough about logical consequence so that he was able to discover the method of counter instances for establishing invalidity. This method is the cornerstone of all independence (or invalidity) results, though it probably had to be rediscovered in modern times (cf. Cohen and Hersh). In the fourth place, his distinction between perfect and imperfect syllogisms suggests a clear understanding of the difference between deducibility and implication -- a distinction which modern logicians believe to be their own (cf. Church, p. 323, fn. 529). In the fifth place, Aristotle used principles concerning form repeatedly and accurately, although it is not possible to establish that he was able to state them nor is even clear that he was consciously aware of them as logical principles.

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13. ———. 1989. "Argumentations and Logic." *Argumentation* no. 3:17-43.

Abstract: "Argumentations are at the heart of the deductive and the hypothetico-deductive methods, which are involved in attempts to reduce currently open problems to problems already solved. These two methods span the entire spectrum of problem-oriented

reasoning from the simplest and most practical to the most complex and most theoretical, thereby uniting all objective thought whether ancient or contemporary, whether humanistic or scientific, whether normative or descriptive, whether concrete or abstract. Analysis,

synthesis, evaluation, and function of argumentations are described. Perennial philosophic problems, both epistemic and

ontic, related to argumentations are put in perspective. So much of what has been regarded as logic is seen to be involved in the study of argumentations that logic may be usefully defined as the systematic study of argumentations, which is virtually identical to the quest of objective understanding of objectivity."

14. ———. 1994. "The Founding of Logic. Modern Interpretations of Aristotle's Logic." *Ancient Philosophy* no. 14:9-24.

"Conclusion.

The tendency of interpreters to find an epistemically-oriented theory in Aristotle has been overwhelming. With the exception of James Wilkinson Miller's 1938 book and the writings of Jan Łukasiewicz and those directly influenced by these two, few interpreters have found a theory of formal ontology in Aristotle's Prior Analytics. Down through the ages, with these exceptions, interpreters have agreed that Prior Analytics is about methods of determining validity and invalidity of arguments. People studied Prior Analytics in order to learn more about deductive reasoning and in order to improve their own reasoning skills.

Despite the overwhelming tendency to interpret the syllogistic epistemically it wasn't until the early 1970s that it occurred to anyone to wonder whether Aristotle had a developed theory of deductive reasoning with a well worked-out system of deductions comparable in rigor and precision with the systems then familiar from mathematical logic. Of the logicians that studied Prior Analytics from this point of view, two of them published articles in same twelve-month period with remarkably similar systems affirming in clear and unequivocal terms the epistemic nature of Prior Analytics: Corcoran 1972 and Smiley 1973.

The simpler of the two articles holds that Aristotle's theory of deductions recognizes two kinds of extended deductions of conclusions from arbitrarily large premise sets: direct deductions and indirect deductions. A direct deduction of a conclusion from given premises begins with the premises and proceeds by chaining together simple one-premise and two-

premise inferences until the conclusion is reached. An indirect deduction of a given conclusion from given premises is in effect a direct deduction of a pair of contradictory opposites from the premises augmented by the contradictory opposite of the conclusion. This view is spelled out in more detail in the introduction to Smith's 1989 translation of Aristotle's Prior Analytics.

According to the ontic interpretation the syllogistic is a system of true propositions about inclusional relations among classes. It is a system which is organized deductively, axioms followed by deduced theorems, by employment of an underlying logic never explicitly mentioned by Aristotle. It is a system whose place in the Organon, in Greek philosophy, and in the history of philosophy raises many problems. When we turn to the epistemic interpretation the changes are dramatic. From the epistemic perspective the syllogistic is a system of deductions or chains-of-reasoning. It is organized according to an initial-versus-derivative structure with the derivative components as chainings of initial components. It is a system which can be seen to explain epistemic processes of deduction presupposed by the Socratic hypothetical method, by the so-called method of analysis, by the axiomatic method and even by dialectic itself. According to the epistemic interpretation, the focus of the syllogistic is on methods as opposed to results; it concerns the process of deduction rather than conclusions per se. One might say that it concerns how to think rather than what to think. And it is a step toward understanding the nature of proof as opposed to persuasion and toward fulfilling the demand made by Socrates in the Phaedo for a techné logiké. This step made by Aristotle was so firm, so detailed, and so well-developed that it warrants the title of THE FOUNDING OF LOGIC." (pp. 19-20)

15. ———. 2003. "Aristotle's *Prior Analytics* and Boole's *Laws of Thought*." *History and Philosophy of Logic* no. 24:261-288.

"*Prior Analytics* by the Greek philosopher Aristotle (384 - 322 BCE) and *Laws of Thought* by the English mathematician George Boole (1815 - 1864) are the two most important surviving original logical works from before the advent of

modern logic. This article has a single goal: to compare Aristotle's system with the system that Boole constructed over twenty-two centuries later intending to extend and perfect what Aristotle had started. This comparison merits an article itself. Accordingly, this article does not discuss many other historically and philosophically important aspects of Boole's book, e.g. his confused attempt to apply differential calculus to logic, his misguided effort to make his system of 'class logic' serve as a kind of 'truth-functional logic', his now almost forgotten foray into probability theory, or his blindness to the fact that a truth-functional combination of equations that follows from a given truth-functional combination of equations need not follow truth-functionally. One of the main conclusions is that Boole's contribution widened logic and changed its nature to such an extent that he fully deserves to share with Aristotle the status of being a founding figure in logic. By setting forth in clear and systematic fashion the basic methods for establishing validity and for establishing invalidity, Aristotle became the founder of logic as formal epistemology. By making the first unmistakable steps toward opening logic to the study of 'laws of thought' -- tautologies and laws such as excluded middle and non-contradiction -- Boole became the founder of logic as formal ontology."

16. ———. 2009. "Aristotle's Demonstrative Logic." *History and Philosophy of Logic* no. 30:1-20.

    "Demonstrative logic, the study of *demonstration* as opposed to persuasion, is the subject of Aristotle's two volume *Analytics*. Many examples are geometrical. Demonstration produces *knowledge* (of the truth of propositions). Persuasion merely produces *opinion*. Aristotle presented a general *truth-and-consequence conception of demonstration* meant to apply to all demonstrations. According to him, a demonstration, which normally proves a conclusion not previously known to be true, is an extended argumentation beginning with premises known to be *truths* and containing a chain of reasoning *showing* by deductively evident steps that its conclusion is a *consequence* of its premises. In particular, a demonstration is a *deduction* whose premises are known to be true. Aristotle's *general* theory

of demonstration required a prior *general* theory of deduction presented in the *Prior Analytics*. His general *immediate-deduction chaining*

conception of deduction was meant to apply to all deductions. According to him, any deduction that is not immediately evident is an extended argumentation that involves a chaining of intermediate immediately evident steps that *shows* its final conclusion to follow logically from its premises. To illustrate his general theory of deduction, he presented an ingeniously simple and mathematically precise *special* case traditionally known as the *categorical syllogistic*."

17. Crivelli, Paolo. 2001. "Empty Terms in Aristotle's Logic." *Boston Area Colloquium in Ancient Philosophy* no. 17:237-269.
18. ———. 2011. "Aristotle on Syllogisms from a Hypothesis." In *Argument from Hypothesis in Ancient Philosophy*, edited by Longo, Angela and Del Forno, Davide. Napoli: Bibliopolis.
19. Crivelli, Paolo, and Charles, David. 2011. "'ΠΡΟΤΑΣΙΣ' in Aristotle's Prior Analytics." *Phronesis* no. 56:193-203.
20. Crubellier, Michel. 2011. "Du *sullogismus* au syllogisme." *Revue philosophique de la France et de l'étranger* no. 136:17-36.
21. Duerlinger, James. 1968. "Drawing conclusions from Aristotelian syllogisms." *The Monist* no. 52:229-236.
22. ———. 1968. "Aristotle's Conception of the Syllogism." *Mind* no. 77:480-499.
23. ———. 1969. "Συλλογισμός and συλλογίζεσθαι in Aristotle's *Organon*." *American Journal of Philology* no. 1969:320-328.

"In recent years there have been expressed two views about the nature of an Aristotelian syllogism. The first view, which may be called the inference account, is that an Aristotelian syllogism is a valid inference composed of two premisses and a conclusion; and the second, which may be called the statement account, is that an Aristotelian syllogism is a conditional statement whose protasis is a conjunction of propositions and whose apodosis is a proposition made necessary by that

conjunction.1 Opposed to these views is what I call the premiss account, according to which an Aristotelian syllogism is a pair of premisses put forward in support of a conclusion which necessarily follows from that pair of premisses. An Aristotelian syllogism, on the premiss account, is an argument or proof, but it is an argument for, or proof of, a proposition. It is not an argument or a proof in the sense of being an inference, which is the process or the result of the process of drawing a conclusion from a pair of premisses. Aristotle's conception of the syllogism is tied to the conception of philosophical investigation he inherits from Plato." (p. 320)

(1) The inference account is expressed most recently by W. D. Ross, *Aristotle's Prior and Posterior Analytics* (Oxford, Oxford University Press, 1949), and by W. and M. Kneale, *The Development of Logic* (Oxford, Oxford University Press, 1962). The statement account is

expressed by J. Łukasiewicz, *Aristotle's Syllogistic* (2nd ed., Oxford, Oxford University Press, 1951), and most recently by G. Patzig, *Die Aristotelische Syllogistik* (2nd ed., Gottingen, Vandenhoeck & Ruprecht, 1963).

24. Duncombe, Matthew. 2014. "Irreflexivity and Aristotle's Syllogismos." *The Philosophical Quarterly* no. 64:434-452.

25. Ebbinghaus, Kurt. 1964. *Ein formales Modell der Syllogistik des Aristoteles*. Göttingen: Vandenhoeck & Ruprecht.

26. ———. 2016. *Un Modèle Formel de la Syllogistique d'Aristote*. London: College Publications.

    Traduction par ar Clément Lion.

27. Ebert, Theodor. 1977. "Zur Formulierung prädikativer Aussagen in den logischen Schriften des Aristoteles." *Phronesis* no. 22:123-145.

28. ———. 1980. "Warum fehlt bei Aristoteles die 4. Figur?" *Archiv für Geschichte der Philosophie* no. 62:13-31.

29. ———. 2015. "What is a perfect syllogism in Aristotelian syllogistic?" *Ancient Philosophy* no. 35:351-374.

30. Ebrey, David. 2015. "Why are there no conditionals in Aristotle's logic?" *Journal of the History of Philosophy* no. 53:185-205.

31. Engelmann, Edward M. 2007. "Aristotle's Syllogistic, Modern deductive Logic, and scientific Demonstration." *American Catholic Philosophical Quarterly*:535-552.

    Abstract: "This article investigates the nature of Aristotelian syllogistics and shows that the categorical syllogism is fundamentally about showing the connection, in the premises of the syllogism, between the major and minor terms as stated in the conclusion. It discusses how this is important for the use of the syllogism in scientific demonstration. The article then examines modern deductive logic with an eye to they way in which it contrasts with Aristotelian syllogistics. It shows how modern logic is about making necessary connections between each proposition by means of external or second order rules. In the syllogism, on the other hand, the necessity between the premises as a whole unit and the conclusion is based on the internal middle term. The article concludes with a discussion of Günther Patzig's claim that Aristotelian syllogisms are best thought of as tautological propositions. If this were the case, then the differences asserted to exist between syllogistic and modern logic would not hold. However, it is shown that Patzig's assimilation of syllogistics to modern deductive logic is illegitimate."

32. Englebretsen, George. 1978. "Aristotle on the Subject of Predication." *Notre Dame Journal of Formal Logic* no. 19:614-616.

    Reprinted in: A. Menne and G. Offenberger (eds.), *Zur Modernen Deutung der Aristotelischen Logik,* vol. II, Hildesheim: Georg Olms, 1985, pp. 128-130.

    "Aristotle's thesis that universals must always inhere in a primary substance, a particular, has been used recently as evidence that he, like many contemporary logicians, rejected the predication of terms to universal, i.e., nonsingular, subjects. Yet this would force Aristotle to treat quantifiers as ranging

over bare, unsorted, particulars. But Aristotle took the notion of an unsorted particular as nonsense. His thesis about the status of universals can no more serve as evidence that he took all subjects as particulars than can his thesis that every particular satisfies some universal serve as evidence that he took no subjects as particular."

33. Flannery, Kevin L. 1987. "A Rationale for Aristotle's Notion of Perfect Syllogisms." *Notre Dame Journal of Formal Logic* no. 28:455-471.

34. Frede, Michael. 1974. "Stoic vs. Aristotelian Syllogistic." *Archiv für Geschichte der Philosophie* no. 56:1-32.

    Reprinted in: M. Frede, *Essays in Ancient Philosophy,* Minneapolis: University of Minnesota Press, 1987 pp. 99-124.

35. Galvan, Sergio. 1995. "A Formalization of Elenctic Argumentation." *Erkenntnis* no. 43:111-126.

    "In the Aristotelean philosophical tradition, elenctic argumentation *(Elenchos)* is conceived as a form of dialectical foundation of a thesis.

    It takes place in the context of discussion for and against a given thesis and consists in showing that, as the denier of this thesis argues against the opponent, he is unable to maintain his position unless he presupposes the thesis itself, which thus prevails and is consequently proven. As is well known, Aristotle used this form of argumentation in many areas of his inquiry, since he regarded it as an extremely effective technique not only in the speculative sciences but in the physical and practical sciences as well. Particularly fortunate - because of its subsequent widespread use and because of the broad reflection that it stimulated - was Aristotle's application of this form of dialectical argumentation in Book Four of the *Metaphysics* in order to justify the principle of non-contradiction. Apart from its historical influence, this application is of especial importance because it evidences Aristotle's intention to prove, not any thesis whatsoever, but a logical principle, and this expresses his claim for an epistemically absolute proof - in the form of self-proof - of the principle itself.

It does not appear, however, that elenctic proof of the non-contradiction principle can be accomplished successfully. In fact, demonstration that this proof is impossible is the purpose of the present essay, in which I propose a formalization of the argument - i.e. a formal reconstruction of the argument intended to give it a sufficiently precise specification - which highlights the conceptual difficulties that lie at its root." (p. 111)

36. Gili, Luca. 2010. *La sillogistica di Aristotele. La riduzione di tutte le deduzioni valide al sillogismo*. Milano: Lampi di stampa.
37. Glashoff, Klaus. 2005. "Aristotelian syntax from a computational-combinatorial point of view." *Journal of Logic and Computation* no. 15:949-973.
38. Glezer, Tal. 2007. "Aristotle on Hypothetical Arguments and the Completeness of Syllogistic." *Ancient Philosophy* no. 27:323-334.
39. Goddard, Len. 2000. "The inconsistency of Aristotelian logic?" *Australasian Journal of Philosophy* no. 78:434-437.
40. Granger, Gilles Gaston. 1970. "Le syllogisme catégorique d'Aristote." *L'Age de la Science* no. 3:281-310.
41. Green, Lawrence D. 1995. "Aristotle's enthymeme and the imperfect syllogism." In *Rhetoric and Pedagogy: Its History, Philosophy, and Practice. Essays in Honor of James J. Murphy*, edited by Horner, Winifred Bryan and Leff, Michael C., 19-41. Mahwah (N. .J.): Erlbaum.
42. Henle, Paul. 1949. "On the fourth Figure of the Syllogism." *Philosophy of Science* no. 16:94-104.
43. Hintikka, Jaakko. 1988. "Le logicien incontinent d'Aristote." In *Aristote aujourd'hui*, edited by Sinaceur, Mohammed Allal, 94-112. Paris: Éditions érès.
44. Jacobs, William. 1979. "The existential presuppositions of Aristotle's logic." *Philosophical Studies* no. 37:419-428.
45. Jehamy, Aïda Chehadé. 1997. *Essais de formalisation de la logique d'Aristote*. Beyrouth: Département des Publications de

l'Université Libanaise.

46. Johnson, Fred. 1991. "Three-membered Domains for Aristotle's Syllogistic." *Studia Logica* no. 50:181-187.

47. ———. 1994. "Syllogisms with fractional quantifiers." *Journal of Philosophical Logic* no. 23:401-422.

    "Aristotle's syllogistic is extended to include denumerably many quantifiers such as more than 2/3' and exactly 2/3.' Syntactic and semantic decision procedures determine the validity, or invalidity, of syllogisms with any finite number of premises. One of the syntactic procedures uses a natural deduction account of deducibility, which is sound and complete. The semantics for the system is non-classical since sentences may be assigned a value other than true or false. Results about symmetric systems are given. And reasons are given for claiming that syllogistic validity is relevant validity."

48. ———. 1994. "Apodeictic Syllogisms: Deductions and Decision Procedures." *History and Philosophy of Logic* no. 16:1-18.

49. Johnston, David. 1990. "Aristotle's Apodeictic Syllogism." *Dialogue. Canadian Philosophical review* no. 29:111-121.

50. Joray, Pierre. 2014. "The Principle of Contradiction and Ecthesis in Aristotle's Syllogistic." *History and Philosophy of Logic* no. 35:219-236.

51. ———. 2017. "A Completed System for Robin Smith's Incomplete Ecthetic Syllogistic." *Notre Dame Journal of Formal Logic* no. 58:329-342.

52. Kapp, Ernest. 1975. "Syllogistic." In *Articles on Aristotle. Vol. 1 Science*, edited by Barnes, Jonathan, Schofield, Malcolm and Sorabji, Richard, 35-49. London: Duckworth.

    Originally published in German as 'Syllogistik' in: Pauly-Wissowa's *Real-Encyclopädie der classischen Altertumwissenschaft,* IV A, 1931 cols. 1046-1067. Reprinted in E. Kapp, *Ausgewählte Schriften,* Hrsg. von Hans und Inez Diller, Berlin: Walter de Gruyter, 1968, pp. 254-277.

53. Kelly, Charles J. 1991. "The Logic of the Liar from the Standpoint of the Aristotelian Syllogistic." *Notre Dame Journal of Formal Logic* no. 32:129-146.

54. Keyt, David. 2009. "Deductive Logic." In *A Companion to Aristotle*, edited by Anagnostopoulos, Georgios, 31-50. Malden: Wiley-Blackwell.

55. Kouremenos, Theokritos. 1998. "Aristotle on syllogistic and mathematics." *Philologus* no. 142:220-240.

56. Lear, Jonathan. 1980. *Aristotle and Logical Theory*. Cambridge: Cambridge University Press.

57. Lejewski, Czeslaw. 1963. "Aristotle's Syllogistic and Its Extensions." *Synthese* no. 15:125-154.

    "The task I have set myself in this paper can be described as bridging the gap between Aristotle's syllogistic and Lesniewski's ontology. I propose to suggest a number of successive extensions of syllogistic culminating in a system of what may be regarded as basic ontology. In this way I hope to throw new light on the significance of the Aristotelian logic. At the same time I hope to add a little to the understanding of Lesniewski's ontology, which interestingly enough was conceived by its originator as a modernised continuation of the ancient and medieval tradition."

58. Lukasiewicz, Jan. 1951. *Aristotle's Syllogistic from the Standpoint of Modern Formal Logic*. Oxford: Oxford University Press.

    Second edition 1957 with a new chapter on Aristotle's modal logic.

    Critical notice by J. L. Austin, *Mind*, 61, 1952, pp. 395-404.

59. ———. 1967. "On the History of the Logic of Propositions." In *Polish Logic 1920-1939*, edited by Storrs, McCall, 66-87. Oxford: Oxford University Press.

    Originally published in Polish as: *Z historii logiki zdan*, Przeglad Filozoficzny, 37, 1934; translated by the author in

German as: *Zur Geschichte der Aussagenlogik*, Erkenntnis, 5, 1935, pp. 111-131.

Translated in English in: Storrs McCall (ed.), *Polish Logic 1920-1939,* Oxford, Clarendon Press, 1967 pp. 66-87 and also in: J. Łukasiewicz, *Selected Works* - Edited by Ludwik Borowski, Amsterdam, North-Holland, 1970 pp. 197-217.

60. ———. 1967. "Philosophical Remarks on Many-Valued Systems of Propositional Logic." In *Polish Logic 1920-1939*, edited by Storrs, McCall. Oxford: Oxford University Press.

    Originally published in German as: *Philosophische Bemerkungen zu mehrwertighen Systemen des Aussagenkalküls*, Comptes rendus des séances de la Société des Sciences et des Lettres de Varsovie 23, 1930.

    Translated in English in: Storrs McCall (ed.) *Polish Logic 1920-1939,* Oxford, Clarendon Press, 1967, pp. 40-65 and also in: J. Łukasiewicz, *Selected Works*, Edited by Ludwik Borowski, Amsterdam, North-Holland, 1970, pp. 153-178.

61. ———. 1968. *La sillogistica di Aristotele*.

    Traduzione di Camillo Negro.

    Contenuto: Presentazione dell'edizione italiana 9; Prefazione di J. Lukasiewicz alla prima edizione 13; Indice e sommario 19; Introduzione storica: Jan Lukasiewicz e la Scuola di Logica di Varsavia, di Czeslaw Lejewski 23; Parte I. Il sillogismo in Aristotele, di Camillo Negro 43; Parte II. La sillogistica di Aristotele dal punto di vista della logica formale moderna, di Jan Lukasiewicz 107; Note del traduttore 245; Conclusione 269; Nota bibliografica 275; Indice delle cose 281; Indice dei luoghi di Aristotele 285; Indice dei nomi 291-292.

62. Maier, Heinrich. 1896. *Die Syllogistik des Aristoteles*. Tübingen: H. Laupp.

    Vol. 1. Die logische Theorie des Urteils bei Aristoteles. Berichtigte Neuausgabe mit einem Anhang: Die Echtheit der aristotelischen Hermeneutik (1896); Vol. 2. Die logische Theorie des Syllogismus und die Entstehung der aristotelischen

Logik: 1. Formenlehre und Technik des Syllogismus (1897); 2. Die Entstehung der aristotelischen Logik (1900).

Reprint: Hildesheim, Georg Olms, 1969-1970.

63. Malink, Marko. 2009. "Τῶι vs. τῶν in *Prior Analytics* 1.1-22." *Classical Quarterly* no. 58:519-536.

64. ———. 2009. "A Non-Extensional Notion of Conversion in the Organon." *Oxford Studies in Ancient Philosophy* no. 37:105-141.

65. ———. 2012. "Figures of Prosleptic Syllogisms in *Prior Analytics* 2.7." *Classical Quarterly* no. 62:163-178.

66. ———. 2015. "The Beginnings of Formal Logic: Deduction in Aristotle's *Topics* vs *Prior Analytics*." *Phronesis* no. 60:267-309.

67. Malink, Marko, and Rosen, Jacob. 2013. "Proof by Assumption of the Possible in *Prior Analytics* 1.15." *Mind* no. 122:953-986.

68. Marshall Jr., David. 1977. "Łukasiewicz, Leibniz and the arithmetization of the syllogism." *Notre Dame Journal of Formal Logic* no. 18:235-242.

    "Łukasiewicz' second axiomatization of the assertoric syllogism ("Aristotle's syllogistic", 1957) consists of four axioms of assertion and one of rejection. n arithmetic interpretation is presented proving the independence of the latter. Łukasiewicz himself demonstrated all five consistent by means of an arithmetization due to Leibniz. This arithmetization, we are told by Louis Couturat ("La logique de Leibniz", 1901) was thought by Leibniz himself to have been invalid. Whether and why Leibniz in fact took this (mistaken) view, is discussed briefly."

69. Martin, John N. 1997. "Aristotle's Natural Deduction Reconsidered." *History and Philosophy of Logic* no. 18:1-15.

    "John Corcoran's natural deduction system for Aristotle's syllogistic is reconsidered. Though Corcoran is no doubt right in interpreting Aristotle as viewing syllogisms as arguments and in rejecting Lukasiecwicz's treatment in terms of

conditional sentences, it is argued that Corcoran is wrong in thinking that the only alternative is to construe Barbara and Celarent as deduction rules in a natural deduction system. An alternative is presented that is technically more elegant and equally compatible with the texts. The abstract role assigned by tradition and Łukasiewicz to Barbara and Celarent is retained. The two 'perfect syllogisms' serve as ` basic elements' in the construction of an inductively defined set of valid syllogisms. The proposal departs from Łukasiewicz, and follows Corcoran, however, in construing the construction as one in natural deduction. The result is a sequent system with fewer rules and in which Barbara and Celarent serve as basic deductions. To compare the theory to Corcoran's, his original is reformulated in current terms and generalized. It is shown to be equivalent to the proposed sequent system, and several variations are discussed. For all systems mentioned, a method of Henkin-style completeness proofs is given that is more direct and intuitive than Corcoran's original."

70. McCaskey, John P. 2007. "Freeing Aristotelian Epagoge from *Prior Analytics* II 23." *Apeiron* no. 40:345-374.

71. Mendell, Henry. 1998. "Making sense of Aristotelian demonstration." *Oxford Studies in Ancient Philosophy* no. 16:161-225.

72. Menne, Albert, ed. 1962. *Logico-Philosophical Studies*. Dordrecht: Reidel.

73. Mignucci, Mario. 1991. "Expository Proof in Aristotle's Syllogistic." In *Aristotle and the Later Tradition*, edited by Blumenthal, Henry and Robinson, Howard, 9-28. Oxford: Clarendon Press.

    Oxford Studies in Ancient Philosophy. Supplementary volume.

74. ———. 1996. "Aristotle's Theory of Predication." In *Studies on the History of Logic. Proceedings of the Third Symposium on the History of Logic*, edited by Angelelli, Ignacio and Cerezo, Maria, 1-20. Berlin: Walter de Gruyter.

75. ———. 1996. "Che cos'è un sillogismo aristotelico?" In *Momenti di storia della logica e di storia della filosofia*, edited by Guetti,

Carla and Puja, Roberto, 39-58. Roma: Aracne Editrice.

76. ———. 2000. "Parts, Quantification and Aristotelian Predication." *The Monist* no. 83:3-21.

77. ———. 2002. "Syllogism and Deduction in Aristotle's Logic." In *Le style de la pensée. Recueil de textes en hommage à Jacques Brunschwig*, edited by Canto-Sperber, Monique and Pellegrin, Pierre, 244-266. Paris: Les Belles Letttres.

78. ———. 2007. "Aristotle on the Existential Import of Propositions." *Phronesis* no. 52:121-138.

79. Miller, James Wilkinson. 1938. *The Structure of Aristotelian Logic*. London: Kegan Paul, Trench, Trubner and Co.

80. Morgenstern, Amy S. 2001. "Commentary to Paolo Crivelli: *Empty Terms in Aristotle's Logic*." *Boston Area Colloquium in Ancient Philosophy* no. 17:270-281.

81. Morison, Benjamin. 2015. "What is a Perfect Syllogism?" *Oxford Studies in Ancient Philosophy* no. 48:107-166.

82. Morrison, John J. 1955. "The existential import of a proposition in Aristotelian logic." *Philosophy and Phenomenological Research* no. 15:386-393.

83. Mulhern, Mary. 1974. "Corcoran on Aristotle's Logical Theory." In *Ancient Logic and Its Modern Interpretations. Proceedings of the Buffalo Symposium on Modernist Interpretations of Ancient Logic, 21 and 22 April, 1972*, edited by Corcoran, John, 133-148. Dordrecht: Reidel.

    "Corcoran, it seems to me, has made a very important contribution to our understanding of Aristotle's logic, and the suggestions offered in what follows should not be construed as impugning in any substantive way the value of that contribution.

    Of the many points Corcoran raises, I intend to take up four: (1) whether syllogistic is a science; (2) whether the theory of propositional forms presupposed by syllogistic is adequate; (3) whether Aristotle had a doctrine of logical truth; and (4)

whether Aristotle considered reasoning natural or conventional." (p. 136)

84. Nasti de Vincentis, Mauro. 1981. "L'affermazione da trasposizione in *De Int*. 10 e *A. Pr*. A 46." In *Atti del Congresso nazionale di logica. Montecatini Terme, 1-5 ottobre 1979*, edited by Bernini, Sergio, 617-645. Napoli: Bibliopolis.

85. ———. 2010. "Forme della contraddizione e sillogistica aristotelica." In *La Contradizion che nol Consente*, edited by Puppo, Federico, 67-84. Milano: Angeli.

86. Negro, Camillo. 1967. "La sillogistica di Aristotele come metodo della conoscenza scientifica." In. Bologna: Patron.

87. Novak, Joseph A. 1980. "Some recent work on the assertoric syllogistic." *Notre Dame Journal of Formal Logic* no. 21:229-242.

    "Over the last few decades there have been many attempts to approach the Aristotelian syllogistic by utilizing the techniques of contemporary formal logic. The aim of this paper is to examine the most significant of these attempts and evaluate their fidelity to and consistency with Aristotle's own basic exposition of the syllogistic as expressed in the *Prior Analytics* (Book I, 1-2; 4-6).

    Two major approaches to the formalization of the assertoric syllogistic can be distinguished in the literature. The first and older approach construes the syllogistic as an axiomatic system, while the second and more recent approach considers the syllogistic as a natural deduction system. Since many of the attempts of the first sort fail to be mentioned in current discussion, this paper will try to summarize them and only make a concluding reference to the second approach which is readily accessible in the more recent publications.

    There are two main issues which must be confronted in the case of each attempt to present Aristotle's assertoric syllogistic as an axiomatic system: first, whether the method of representation, i.e., the logical alphabet and the well-formed formulas of the system, conforms to Aristotle's own approach; second, whether the specific formulas chosen as axioms and definitions, the

rules of inference, and the manner of proof, etc., are faithful to or at least consistent with Aristotle's writings. Although it might appear that the first issue, a discussion of the logical symbols employed, is

not of any real value, one must remember that Aristotle's logic seems tied to some basic philosophical or, better, metaphysical presuppositions. That there can be a close link between certain symbolical representations and some ontological positions is clear in the case of some other philosophers.

One instance in the twentieth century is Gustav Bergmann whose espousal of a bare particularist theory of individuation is linked to his employment of a type of Russelian formal language (Bergmann, G., *Meaning and Existence,* University of Wisconsin Press, Madison, 1960).

Attempts at presenting the syllogistic in a formal way have proceeded along four lines: first, the attempt to present the syllogistic by means of the first-order predicate calculus; second, the classic attempt of Łukasiewicz to develop the syllogistic; third, the attempt to present the syllogistic as a theory of classes; fourth, Lejewski's attempt to relate the syllogistic to Lesniewski's ontology. Each of these attempts will be treated below in light of the two issues raised above."

88. Parry, William T., and Hacker, Edward A. 1991. *Aristotelian Logic*. Albany: State University of New York Press.

89. Patterson, Richard. 1989. "The case of the two Barbaras: basic approaches to Aristotle's modal logic." *Oxford Studies in Ancient Philosophy* no. 7:1-40.

    " Aristotle's modal propositions use modal copulae rather than modal predicates or modally qualified *dicta*; the familiar contrast between predication of *dicta* and of things is inappropriate to the Aristotelian modalities. Despite what may appear to be vacillation on Aristotle's part between *de re* and *de dicto* modality, the copulae interpretation can serve to unify the two types."

90. ———. 1993. "Aristotle's Perfect Syllogisms, Predication, and the "Dictum de Omni"." *Synthese* no. 96:359-378.

91. Patzig, Günther. 1959. "Aristotle and Syllogisms from False Premisses." *Mind* no. 68:186-192.

92. ———. 1959. *Die aristotelische Syllogistik. Logisch-philologische Untersuchungen über das Buch A der Ersten Analytiken*. Göttingen: Vandenhoeck & Ruprecht.

    Critical notice by J. L. Ackrill, *Mind*, 71, 1962, pp. 107-117.

93. ———. 1968. "Aristotle's Theory of Syllogism. A Logico-Philological Study of Book *A* of the *Prior Analytics*." In. Dordrecht: Reidel.

    English translation by Jonathan Barnes of *Die aristotelische Syllogistik. Logisch-philologische Untersuchungen über das Buch A der Ersten Analytiken,* Göttingen: Vandenhoeck & Ruprecht, 1959.

94. ———. 1988. "Problèmes actuels de l'interprétation de la syllogistique d'Aristote." In *Aristote aujourd'hui*, edited by Sinaceur, Mohammed Allal, 270-275. Paris: Éditions érès.

95. Rose, Lynn. 1956. "Premise order in Aristotle's syllogistic." *Phronesis* no. 11:154-158.

96. ———. 1965. "Aristotle's syllogistic and the Fourth Figure." *Mind* no. 74:382-389.

97. ———. 1968. *Aristotle's Syllogistic*. Springfield: Charles C. Thomas.

    Contents: I. Plato's dialectic and Aristotle's syllogistic 3; II. The varieties of predication 13; III: The three figures 16; IV. The non-use of rules 27; V. Validation by reduction 34; VI. Invalidation by counterexample 37; VII. The syllogistic system 53; VIII. The Fourth Figure and the indirect proof 57; IX. Subalternation 80; X. Premise order 81; Appendix. I. The square of opposition 99; II. The mnemonic lines 102; III: The perfection of Aristotle' First Figure 104; IV. Theophrastus and the indirect moods 109; V. The diagrams of the three figures 133; VI. John Locke's criticisms of Aristotle and the syllogism 137; Bibliography 144; Index 147-149.

"Aristotle's work in formal logic has received a great deal of scholarly attention; nevertheless, it remains largely misunderstood. Aristotle's logic has often been equated with traditional "Aristotelian" logic (a usage as unhistorical as "Platonic" love or "Epicurean" tastes), or, which is even worse, judged and evaluated in accordance with how closely it follows or "fails" to follow that traditional logic. Even when efforts have been made to understand Aristotle's logic in its own right, Aristotle has usually been very shabbily treated. He has commonly been accused of errors that he never made at all, such as neglecting or overlooking the fourth figure. Even his way of conceiving the syllogism as a linear array of three terms has been lost on minds handicapped by later, but not thereby better, ways of thinking.

Although I hope that this book will contribute towards a better understanding of what Aristotle did and did not accomplish in his syllogistic, I have by no means attempted to treat Aristotle's syllogistic in its entirety. (For one thing, I have confined myself to the assertoric syllogistic and not gone into the modal logic at all.) The principal task of this book has been to explore the consequences of accepting the Aristotelian syllogism as a linear array of three terms. This approach to Aristotle sheds light on many hitherto mysterious aspects of Aristotle's logic; it provides new insights into what Aristotle was doing in the *Prior Analytics* and enables us to correct numerous misconceptions about his logic.

My treatment of the *Prior Analytics* has been quite sympathetic, and my conclusions are generally favorable; indeed, one of the aims of this book is to exonerate Aristotle's work in formal deductive logic." p. V

98. Ross, William D. 1939. "The Discovery of Syllogism." *Philosophical Review* no. 48:251-271.

99. Shepherdson, John C. 1956. "On the Interpretation of Aristotelian Syllogistic." *Journal of Symbolic Logic* no. 21:137-147.

100. Shorey, Paul. 1924. "The origin of the syllogism." *Classical Philology* no. 19:199-204.

101. ———. 1933. "The origin of the syllogism again." *Classical Philology* no. 28:199-204.

102. Simons, Peter. 1989. "Tree proofs for syllogistic." *Studia Logica* no. 48:540-554.

    Abstract: "This paper presents a tree method for testing the validity of inferences, including syllogisms, in a simple term logic. The method is given in the form of an algorithm and is shown to be sound and complete with respect to the obvious denotational semantics. The primitive logical constants of the system, which is indebted to the logical works of Jevons, Brentano and Lewis Carroll, are term negation, polyadic term conjunction, and functors affirming and denying existence, and use is also made of a metalinguistic concept of formal synonymy. It is indicated briefly how the method may be extended to other systems."

103. Smiley, Timothy. 1962. "Syllogism and Quantification." *Journal of Symbolic Logic* no. 27:58-72.

104. ———. 1973. "What is a Syllogism?" *Journal of Philosophical Logic* no. 2:136-154.

105. ———. 1994. "Aristotle's Completeness Proof." *Ancient Philosophy* no. 14:25-38.

    "In *Prior Analytics* I 23 Aristotle presents a completeness proof for syllogistic logic, or so I maintain. I reconstruct the crucial step, which I take to be his highly condensed argument that every syllogistic-style deduction with more than two premises can be reduced to a series of syllogisms proper. I detect two big holes in the argument, but show that they can be filled without recourse to anachronistically modern methods. I end with a principle about the ordering of terms, and discuss the connections between it, Platonic division and Aristotle's exclusion of the fourth figure." (p. 25)

106. Smith, Robin. 1978. "The mathematical origins of Aristotle's syllogistic." *Archive for History of Exact Sciences* no. 19:201-210.

107. ———. 1982. "What is Aristotelian Ecthesis?" *History and Philosophy of Logic* no. 3:113-127.

"I consider the proper interpretation of the process of ecthesis which Aristotle uses several times in the "Prior analytics" for completing a syllogistic mood, i.e., showing how to produce a deduction of a conclusion of a certain form from premisses of certain forms. I consider two interpretations of the process which have been advocated by recent scholars and show that one seems better suited to most passages while the other best fits a single remaining passage. I also argue that "ecthesis" for Aristotle means 'setting out' the case to be proved using letters. Aristotle's remarks about the use of letters in mathematical proofs suggest that he had some understanding of rules equivalent to universal generalization and existential instantiation; the 'proofs through ecthesis' are so-called because they rest on the latter rule, with which use of letters is involved in a special way." (p. 113)

108. ———. 1982. "The Axiomatic Method and Aristotle's Logical Methodology." *Southwest Philosophical Studies* no. 8:49-59.

Abstract: "I argue that Aristotle developed the syllogistic in the "Prior Analytics" in order to use it in resolving the question, presented in "Posterior Analytics" A 3, whether proof of every proposition is either necessary or possible. His method, which rests on an analysis of the possible structure of proofs derived from the study of syllogisms in the "Prior Analytics", resemble modern proof theory in both style and purpose."

109. ———. 1982. "The Relationship of Aristotle's two *Analytics*." *Classical Quarterly* no. 32:327-335.

110. ———. 1982. "The Syllogism in *Posterior Analytics* I." *Archiv für Geschichte der Philosophie* no. 64:113-135.

111. ———. 1983. "Completeness of an Ecthetic Syllogistic." *Notre Dame Journal of Formal Logic* no. 24:224-232.

Abstract: "In this paper I study a formal model for Aristotelian syllogistic which includes deductive procedures designed to model the "proof by ecthesis" that Aristotle sometimes uses and

in which all deductions are direct. The resulting system is shown to be contained within another formal model for the syllogistic known to be both sound and complete, and in addition the system is proved to have a certain limited form of completeness."

112. ———. 1986. "Immediate Propositions and Aristotle's Proof Theory." *Ancient Philosophy* no. 6:47-68.

113. ———. 1994. "Dialectic and the Syllogism." *Ancient Philosophy* no. 14:133-151.

114. Solmsen, Friedrich. 1951. "Aristotle's Syllogism and its Platonic Background." *The Philosophical Review* no. 60:563-571.

115. Steinkrüger, philipp. 2015. "Aristotle's assertoric syllogistic and modern relevance logic." *Synthese* no. 192:1413-1444.

    Abstract: "This paper sets out to evaluate the claim that Aristotle's Assertoric Syllogistic is a relevance logic or shows significant similarities with it. I prepare the grounds for a meaningful comparison by extracting the notion of relevance employed in the most influential work on modern relevance logic, Anderson and Belnap's Entailment. This notion is characterized by two conditions imposed on the concept of validity: first, that some meaning content is shared between the premises and the conclusion, and second, that the premises of a proof are actually used to derive the conclusion. Turning to Aristotle's Prior Analytics, I argue that there is evidence that Aristotle's Assertoric Syllogistic satisfies both conditions. Moreover, Aristotle at one point explicitly addresses the potential harmfulness of syllogisms with unused premises. Here, I argue that Aristotle's analysis allows for a rejection of such syllogisms on formal grounds established in the foregoing parts of the Prior Analytics. In a final section I consider the view that Aristotle distinguished between validity on the one hand and syllogistic validity on the other. Following this line of reasoning, Aristotle's logic might not be a relevance logic, since relevance is part of syllogistic validity and not, as modern relevance logic demands, of general validity. I argue that the reasons to reject this view are more compelling than the

reasons to accept it and that we can, cautiously, uphold the result that Aristotle's logic is a relevance logic."

116. Striker, Gisela. 1985. "Notwendigkeit mit Lücken." *Neue Hefter für Philosophie* no. 24/25:146-164.

117. ———. 1994. "Assertoric vs. modal Syllogistic." *Ancient Philosophy* no. 14:39-51.

118. ———. 1996. "Perfection and Reduction in Aristotle's *Prior Analytics*." In *Rationality in Greek Thought*, edited by Frede, Michael and Striker, Gisela, 203-219. New York: Oxford University Press.

119. ———. 1997. "Aristotle and the Uses of Logic." In *Method in Ancient Philosophy*, edited by Gentzler, Jyl, 209-226. New York: Oxford University Press.

120. Tennant, Neil. 2014. "Aristotle's Syllogistic and Core Logic." *History and Philosophy of Logic* no. 35:120-147.

121. Thom, Paul. 1976. "Ecthesis." *Logique et Analyse* no. 74-76:299-310.

122. ———. 1979. "Aristotle's Syllogistic." *Notre Dame Journal of Formal Logic* no. 20:751-759.

123. ———. 1981. *The Syllogism*. München: Philosophia Verlag.

    Contents: Preface 11; Part One. Aristotle's syllogistic. I. Elementary syntax 19; II. Basis of the system 32; III. Theses 45; IV. Non-theses 56; V. Interpretation an application 69; Part Tow. Syllogistic and its extensions. Introduction 89; VI. System *A* 91; VII: Subsystems 109; VIII. Extensions 119; IX: Rejection 147; X: Echtesis 164; Part Three. The theory of the syllogism. Introduction 179; XI. Syntactic theory 181; XII. Aristotle's syntactic theory 193; XIII. Semantic theory 216; XIV: Epistemological theory 227; Appendix 1. The Gergonne relations 253; Appendix 2. *Termini obliqui* and the logic of relations 255; Appendix 3. Medieval echtetic systems 257; Notes 261; Bibliography 289; Indices. Index 1. Aristotelian passages 299; Index 2. Definitions 306; Index 3. Names 409-312.

"The three Parts of this book deal respectively with the formal analysis of Aristotle's non-modal syllogistic; with the inter-relations between various syllogistic systems, their subsystems and extensions; and with the most fundamental question about the syllogism, *viz.* What is it?

Part One aims to effect a synthesis of recent work (both logical and philological) on the non-modal sections of the *Prior Analytics,* within the framework of a new formal system which combines features of Lukasiewicz's `axiomatic' approach with features of the 'natural deduction' approach of Corcoran and Smiley.

This system is identified, in Part Two, as one of a family which also includes the semantically complete systems of Łukasiewicz and Corcoran. Extended systems are also considered, in which rejected formulae are axiomatised, and negative or singular terms added. In particular, formal analyses are given of Aristotle's own logics of negative and singular terms, and it is shown that the whole system of categorical syllogisms can be based on a system of singular syllogisms with the Aristotelian rules of *ecthesis*.

The multiplicity of syllogistic systems discussed in Part Two gives rise to the search (carried out in the third Part) for properties *essential* to the syllogism, which would recur in any genuinely syllogistic system. A complex syntactic property of the categorical syllogism is first described, then a semantic one, and finally one which I will term epistemological (without wanting to sink into psychologism). The principal standpoint in this Part is a purely theoretical one - the semantic discussion being within the context of the contemporary debate on entailment, and the epistemological one belonging to the theory of fallacies. But the historical approach of the first two Parts is not wholly abandoned, and a detailed account is given of those parts of the *Prior Analytics* (not often read) which include Aristotle's own attempts at metatheory.

With some reluctance, and in the interests of brevity, I have adopted a style of exposition which is generally dogmatic rather than dialectical, in that it seeks merely to state the truth rather

than to allow the true view to emerge in stages from partial truths or mistaken opinions. Also, interpretations or theories which seemed to me *wholly* wrong have in general not been mentioned: there are just too many of them. On the other hand, I have tried to include reference to what seemed to me the most important contributions of the ancient and medieval commentators.

I have proceeded (as Aristotle would have said) from what is best known in itself, to what is best known for us, beginning with the basis of an uninterpreted formal system, and ending with a statement of the function of the syllogism and the use of the system. So, in a sense, the reader will not know why the beginning is as it is, until he has come to the end. For the benefit of readers who can't stand the suspense, I have tried to make the end independently intelligible, so that they can begin there, and then go to the beginning, ending in the middle with a kind of *syllogismus interruptus*." pp. 11-12

124. ———. 1991. "The Two Barbaras." *History and Philosophy of Logic* no. 12:135-149.

    Abstract: "This paper examines three recent discussions of Aristotle's system of syllogisms with apodeictic and assertoric premisses. Though they contain no cross-references, and though they arrive at disparate interpretations, all three pieces share a common aid. That aim is to construct an intuitively graspable interpretation of Aristotle's modal syllogistic which is based on metaphysical considerations. I argue that none of these authors has succeeded in this; nevertheless, I share their broad aim, and attempt to show that a more satisfactory interpretation can be formulated by combining and developing elements drawn from all three."

125. ———. 1993. "Apodeictic Ecthesis." *Notre Dame Journal of Formal Logic* no. 34:193-208.

126. ———. 1994. "Interpreting Aristotle's Contingency-Syllogistic." *Oxford Studies in Ancient Philosophy* no. 12:91-109.

127. ———. 1998. "How to base apodeictic syllogistic on essentialist theory." *Philosophiegeschichte und Logische Analyse = Logical*

Analysis and History of Philosophy no. 1:171-185.

Abstract: "Essentialist theories are based on notions of necessity and essentiality. Kinds and Quasi-Kinds can be defined in terms of these notions. Aristotle's essentialism asserts that (1) Kinds are unions of Quasi-Kinds, (2) Kinds that can overlap are necessarily included in a common Kind, and (3) Kinds partition into sub-Kinds. Truth-conditions for the apodeictic propositions of Aristotle's modal syllogistic are stated in terms of necessity and essentiality, but independent of theses (1)-(3). While the basic insights motivating Patterson's and Nortmann's interpretations of modal syllogistic are sound, nonetheless there are significant mistakes in the detail. Given (1)-(3), truth-conditions for apodeictic propositions can be stated in terms of essentiality, but independently of the notion of necessity, thus confirming Johnson's interpretation."

128. Thomas, Ivo. 1952. "A new decision procedure for Aristotle's syllogistic." *Mind* no. 61.

129. Thompson, Marley. 1959. "On the Elimination of Singular Terms." *Mind* no. 68:361-376.

130. Vlasits, Justin. 2019. "Mereology in Aristotle’s Assertoric Syllogistic." *History and Philosophy of Logic* no. 40:1-11.

131. Wedin, Michael 1990. "Negation and Quantification in Aristotle." *History and Philosophy of Logic* no. 11:131-150.

132. Weidemann, Hermann. 2004. "Aristotle on the reduciblity of all vald syllogistic moods to the two Universal moods of the First Figure (*Apr* A7, 29b1-25)." *History and Philosophy of Logic* no. 25:73-78.

133. Wesoly, Marian. 1996. "Aristotle's Lost Diagrams of the Analytical Figures." *Eos. Commentarii Societatis Philologae Polonorum* no. 84:53-64.

134. ———. 2012. "ΑΝΑΛΥΣΙΣ ΠΕΡΙ ΤΑ ΣΧΗΜΑΤΑ. Restoring Aristotle’s Lost Diagrams of the Syllogistic Figures." *Peitho. Examina Antiqua* no. 3:83-114.

135. Westerstähl, Dag. 1989. "Aristotelian syllogisms and generalized quantifiers." *Studia Logica* no. 48:577-585.

136. Williamson, Colwyn. 1972. "Squares of opposition: comparisons between syllogistic and propositional logic." *Notre Dame Journal of Formal Logic* no. 13:497-500.

"It has been pointed out, for example by Bochenski, (1) that the principles of propositional logic now known as DeMorgan's Laws bear a certain resemblance to the laws depicted in the traditional Square of Opposition.

The analogy, however, is not as perfect as it could be. The aim of this paper is to explore some of the consequences of seeking a more exact comparison between syllogistic and propositional logic."

(1) J. M. Bochenski, *A Précis of Mathematical Logic,* Holland (1959), p. 14.

137. ———. 1988. "How many syllogisms are there?" *History and Philosophy of Logic* no. 9:77-85.

"The incompleteness and artificiality of the 'Traditional logic' of the textbooks is reflected in the way that syllogisms are commonly enumerated. The number said to be valid varies, but all the numbers given are of a kind that logicians should find irritating. Even the apparent harmony of what is almost invariably said to be the total number of syllogisms, 256, turns out to be illusory. In the following, it is shown that the concept of a "distribution-value", which is related to the traditional theory of distribution, and the familiar concept of "quantity" together suffice to produce a far better way of enumerating syllogisms and a more complete understanding of the systematic features of syllogistic logic."

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History of Logic

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Stoic Logic: The Dialectic from Zeno to Chrysippus

The Stoic philosophy of language

"The nature of the Stoics' philosophy of language is the most tantalizing problem in the history of semantics. We know enough of it to say that it was by far the most intricate and probably the most insightful theory of its kind in antiquity and for centuries afterward; but we cannot be certain what its details were, and even its leading principles are sometimes obscured by vague or conflicting testimony. Those Stoics who had most to say about language were, naturally, the logicians, and the difficulty of determining the exact character of what they had to say stems from the fact that none of the many works of the Stoic logicians is extant. The best surviving sources (which date from almost five hundred years after the period of greatest development in Stoic logic and semantics) are Sextus Empiricus, *Outlines of Pyrrhonism*, Book II, and *Adversus Mathematicos*, Book VIII; and Diogenes Laertius, Book VII. Under these circumstances it is seldom possible to assign a particular doctrine to a particular Stoic, but much of the best of their logic and semantics is very likely to be the work of Chrysippus (c. 280–206 BCE). Under the Stoic division of philosophy into physics, ethics, and logic, logic was divided into rhetoric and dialectic, and dialectic further divided into an account of language (περὶ της φωςης) and an account of things signified (περὶ των σημαινόμενων). Both these subdivisions contain material relevant to semantics. In their account of language the Stoics distinguished vocal sound generally, "which may include mere noise," from the sort that is articulate (ἔςαρθρος), that is, capable of being embodied in written symbols (ἐγγάμματος).

Articulate sound, in turn, may be non-significant—for instance, "blityri"— or significant (σημαντηή); but for any articulate sound to be considered a sentence (λόγος) it must be significant and a product of someone's reason (Diogenes Laertius 7.55–57).

Within that same branch of their dialectic the Stoics recognized five kinds of words and distinguished their semantic or syntactic functions. They were the first who clearly separated (1) names, such as "Socrates," from (2) appellatives (προσηγορίαι), such as "man." (Cf. Aristotle's similar but significantly different distinction in *De Interpretatione*, Ch. 7.) A name "*points out* a kind proper to an individual," while an appellative "*signifies* a common kind." (3) A verb "*signifies* a predicate"; (4) a conjunction "*binds together* the parts of a sentence"; (5) an article (possibly also what would now be called a relative pronoun) serves to "*distinguish* the gender and number of nouns" (Diogenes Laertius 7.58). Thus the function of conjunctions and articles is purely syntactic, the semantic function of (proper) names is different from that of appellatives (or common names), and the appellative and the verb—the standard ingredients of the simplest kind of logicians' sentence—have one and the same kind of semantic function. The appellative occurring in a sentence signifies a subject and the verb a predicate or "something attachable (συστακτόν) to the one or more subjects."

Obviously the division between the accounts of language and of things signified was not exclusive, but the transition from the one account to the other as the Stoics conceived of them may be seen in the claim that all we utter (προφέρειν) is sounds, while what we express (λέγειν) is matters of discourse (πράγματα), or *lekta* —"expressibles" (Diogenes Laertius 7.57). It is the doctrine of the *lekton* around which the Stoics organized their account of things signified. In its novelty, importance, and difficulty that doctrine overshadows all the considerable remainder of their philosophy of language." (p. 757).

From: Norman Kretzmann, "Semantics, History of" in: Donald M. Borchert (ed.), *Encyclopedia of Philosophy. Second edition*, New York: Thomson Gale 2006, pp. 750-807.

The rediscovery of Stoic logic

"The first reactions to the negative appraisal of Stoic philosophy have come not from historians or philosophers specializing in antiquity, but from logicians being interested in the development of ancient logic.

(...)

Now in addition to what has been said in connection with the nineteenth-century misinterpretations and misconceptions, let me quote another view about the specific reasons for the disappreciation as well as for the rehabilitation of Stoic logic; it is found in I. M. Bochenski's *Ancient Formal Logic* (Amsterdam, 1951), and it clearly portrays the difference in attitude of the logicians of the twentieth century towards the Stoic logical system:

Modern history of Logic had been started during the XIXth century, but its state was very bad at that time -- indeed until 1930 approximately -- because of two phenomena. On one hand, most of the historians of logic took for granted what Kant said on it; namely that 'formal logic was not able to advance a single step (since Aristotle) and is thus to all appearance a closed and complete body of doctrine'; consequently, there was, according to them, no history of logic at all, or at the most, a history of the decay of Aristotelian doctrines. On the other hand, authors writing during that period were not formal logicians and by 'logic' they mostly understood methodology, epistemology and ontology. . . . We may place the beginning of recent research in our domain in 1896 when Peirce made the discovery that the Megarians had the truth-value definition of implication. (pp. 4-5)

Now whether it is Peirce to whom we owe the revival of interest in Stoic logic or not, what certainly is the case is that, from the early decades of the twentieth century on, given the important developments in the field of symbolic logic, it has finally become obvious that Stoic logic differed essentially from Aristotelian logic and should be studied on its own merits. The articles and books on Stoic logic which since then have been published, have examined in detail the Stoic contribution to the development of a logical calculus:

J. Łukasiewicz, 'Zur Geschichte der Aussagenlogik', Erkenntnis, 5 (1935).

B. Mates, *Stoic Logic* (Berkeley, 1953).

O. Becker, *Zwei Untersuchungen zur antiken Logik* (Wiesbaden, 1957).

W. and M. Kneale, *The Development of Logic* (Oxford, 1962).

M. Mignucci, *Il significato della logica stoica* (Bologna, 19672).

I. Mueller, 'Stoic and Peripatetic Logic', Archiv fur Geschichte der Philosophie, 51 (1969), 173-87.

M. Frede, *Die stoische Logik* (Gottingen, 1974).

M. Frede, 'Stoic vs. Aristotelian syllogistic', Archiv fur Geschichte der Philosophie, 56 (1974), 1-32." (pp. 15-17)

From: Katerina Ierodoakonou, "Introduction. The Study of Stoicism: Its Decline and its Revival", in: K. Ierodiakonou (ed.), *Topics in Stoic Philosophy*, Oxford: Clarendon Press 1999.

"Modern mathematical logic has taught us to distinguish within formal logic two basic disciplines, no less different from one another than arithmetic and geometry. These are, the logic of propositions and the logic of terms. The difference between the two consists in the fact that in the logic of propositions there appear, besides logical constants, only propositional variables, while in the logic of terms term variables occur.

The simplest way of making this difference clear is to examine the Stoic and the Peripatetic versions of the law of identity. To avoid misunderstanding let me at once say that, so far as our sources indicate, the two laws of identity were only incidentally formulated by the ancients, and in no way belong to the basic principles of either logic. The Stoic law of identity reads "if the first, then the first", and is to be found as a premiss in one of the inference-schemata cited by Sextus Empiricus. (1) The Peripatetic law of identity is "a belongs to all a", and is not mentioned by Aristotle, but can be inferred from a passage in Alexander's commentary on the Prior Analytics. (2) Using variable letters we can write the Stoic law of identity in the form "if p then p"; the Peripatetic law can be recast in the form "all a is a". In the first law the expression "if ... then" is a logical constant, and "p" a propositional variable; only propositions such as "it is day" can be

meaningfully substituted for "p". This substitution yields a special case of the Stoic law of identity: "if it is day, it is day". In the second law the expression "all ... is" is a logical constant, and "a" a term variable; "a" can be meaningfully replaced only by a term, and, in accordance with a tacit assumption of Aristotelian logic, only by a general term at that, such as "man" Upon substitution we get a special case of the Peripatetic law of identity: "all man is man". The Stoic law of identity is a thesis of the logic of propositions, whereas the Peripatetic law is a thesis of the logic of terms.

This fundamental difference between the logic of propositions and the logic of terms was unknown to any of the older historians of logic. It explains why there has been, up to the present day, no history of the logic of propositions, and, consequently, no correct picture of the history of formal logic as a whole. Indispensable as Prantl's 3) work is, even today, as a collection of sources and material, it has scarcely any value as an historical presentation of logical problems and theories. The history of logic must be written anew, and by an historian who has fully mastered mathematical logic. I shall in this short paper touch upon only three main points in the history of propositional logic. Firstly I wish to show that the Stoic dialectic, in contrast to the Aristotelian syllogistic, is the ancient form of propositional logic; and, accordingly, that the hitherto wholly misunderstood and wrongly judged accomplishments of the Stoics should be restored their due honour. Secondly I shall try to show, by means of several examples, that the Stoic propositional logic lived on and was further developed in medieval times, particularly in the theory of "consequences". Thirdly I think it important to establish something that does not seem to be commonly known even in Germany, namely that the founder of modern propositional logic is Gottlob Frege.

(...)

The fundamental difference between Stoic and Aristotelian logic does not lie in the fact that hypothetical and disjunctive propositions occur in Stoic dialectic, while in Aristotelian syllogistic only categorical propositions appear. Strictly speaking, hypothetical propositions can be found in Aristotle's syllogistic also, for each proper Aristotelian syllogism is an implication, and hence a

hypothetical proposition. For example, "If a belongs to all b and c belongs to all a, then c belongs to all b". (7) The main difference between the two ancient systems of logic lies rather in the fact that in the Stoic syllogisms the variables are propositional variables, while in Aristotle's they are term variables. This crucial difference is completely obliterated, however, if we translate the above-mentioned Stoic syllogism as Prantl does (I, p. 473):

If the first is, the second is

But the first is

Therefore the second is.

By adding to each variable the little word "is", which occurs nowhere in the ancient texts, Prantl, without knowing or wishing it, falsely converts Stoic propositional logic into a logic of terms. For in Prantl's schema only terms, not propositions, can be meaningfully substituted for "the first" and "the second". As far as we can judge from the fragmentary state of the Stoic dialectic that has come down to us, all Stoic inference-schemata contain, besides logical constants, only propositional variables. Stoic logic is therefore a logic of propositions. (8)" (pp. 197-200)

Notes

(1) Sextus, *Adv. Math*. VIII 292 (missing in Arnim): *ei to poton, to poton*. Good as H. von Arnim's collection is (*Stoicorum veterum fragmenta* [SVF], vol. II, Leipzig 1903), it does not begin to serve as source material for Stoic dialectic.

(2) Alexander, *In anal. pr*. comm., ed. Wallies, p. 34, 1. 19.

(7) Aristotle, *An. pr. II*. 11. 61b34

(8) I have defended this interpretation of the Stoic dialectic since 1923; see J. Łukasiewicz, "Philosophische Bemerkungen zu mehrwertigen Systemen des Aussagen-kalkuls", *Comptes rendus des séances de la Société des Sciences et des Lettres de Varsovie* 23 (1930), cl. III, pp. 51-77. ["Philosophical Remarks on Many-Valued Systems of Propositional. Logic", pp. 153-178 of this volume.] I rejoice in having found in H. Scholz, *Geschichte der Logik* (Berlin, 1931), p. 31, a supporter of this point of view.

From: Jan Łukasiewicz, "On the History of the Logic of Proposition" [1934], translated in: *Selected Works*, edited by Ludwik Borkowski, Amsterdam: North-Holland 1970, pp. 197-217 (Greek text omitted).

"I have compiled thus many quotations on purpose, for, although they illuminate one of the most important problems of logic, it nevertheless appears that many of them were either unknown to the historians of logic, or at least not sufficiently appreciated. The reason for this is in my opinion that the history of logic has thus far been treated by philosophers with insufficient training in logic. The older authors cannot be blamed for this, as a scientific logic has existed only for a few decades. The history of logic must be written anew, and by an historian who has a thorough command of modern mathematical logic. Valuable as Prantl's work is as a compilation of sources and materials, from a logical point of view it is practically worthless. To give only one illustration of this, Prantl, as well as all the later authors who have written about the logic of the Stoa, such as Zeller and Brochard, have entirely misunderstood this logic. For anybody familiar with mathematical logic it is self-evident that the Stoic dialectic is the ancient form of modern propositional logic. (26)

Propositional logic, which contains only propositional variables, is as distinct from the Aristotelian syllogistic, which operates only with name variables, as arithmetic is from geometry. The Stoic dialectic is not a development or supplementation of Aristotelian logic, but an achievement of equal rank with that of Aristotle. In view of this it seems only fair to demand of an historian of logic that he know something about logic. Nowadays it does not suffice to be merely a philosopher in order to voice one's opinion on logic.

Notes

(26) I have already expressed this idea, in 1923, in a paper read to the first congress of Polish philosophers in Lwow. A short summary of it appeared in *Przeglqd Filozoficzny* 30 (1927), p. 278. [Łukasiewicz develops his historical analysis of Stoic logic in his article "On the History of the Logic of Propositions" (pp. 197-217 of this book).]" (p. 178)

From: Jan Łukasiewicz, "Philosophical Remarks on Many-Valued Systems of Propositional Calculus" [1930], translated in: *Selected*

Works, edited by Ludwik Borkowski, Amsterdam: North-Holland 1970, pp. 153-178.

"In the first comprehensive history of western logic Prantl (1) described Stoic logic as "dull," "trivial," and "pedantic." Prantl's dismissal of Stoic logic was accepted by most interpreters of Stoicism for three quarters of a century. However, since the publication of Łukasiewicz's article, "*On the History of the Logic of Propositions*" in 1934, (2) Prantl's evaluation has been largely abandoned. Bochenski's remark, "The development of formal logic in antiquity reached its peak in the works of the thinkers belonging to the Megaric and Stoic Schools," exemplifies well the radical rehabilitation of the Stoics as logicians. (3) The cause of this rehabilitation is not the discovery of new texts, but rather the twentieth-century revolution in the subject of logic itself. Łukasiewicz and others, working with a full understanding of modern logic, have succeeded in retrieving from the ancient texts a Stoic logical theory of startling originality which rivals the achievement of Aristotle, the founder of logic. The failure of Prantl and his successors to accomplish this retrieval stems not from their obtuseness or stupidity but from the fact that the background scientific knowledge needed to understand the Stoic achievement was not available to them.

A factor contributing to Prantl's low opinion of Stoic logic was the character of the ancient texts themselves. There are no primary sources for Stoic logic analogous to Aristotle's Prior Analytics, and the ancient secondary sources are brief and usually hostile in their treatment of the subject. In many cases Prantl's evaluations simply repeat or develop remarks in the sources themselves. The unsatisfactoriness of the sources (on this see Mates, *Stoic Logic* 8-10) makes any but a tentative reconstruction of Stoic logic impossible. Unless an indication is given to the contrary, what I describe will be the most certain features of the theory.

One of the uncertain features is chronology. The history of Stoicism proper covers five centuries during which the logical theory, like other doctrines of the school, underwent modification and development. In the case of logic we know of some disagreements within the school and some ideas that can be ascribed to individuals,

but most of our sources refer simply to "the Stoics," as if there were a single, unambiguous Stoic logical theory. Commentators have tended to assign the major Stoic achievements in logic to Chrysippus (c. 280 B.C .- c. 206 B.C.), the third leader of the Stoa, of whom it was said, "If there were a dialectic among the gods, it would be none other than the Chrysippean one." (Diogenes Laertius 7.180. At 7.198 Diogenes mentions that Chrysippus wrote 311 books on logical matters.) In general I shall not attempt to assign logical doctrines to specific persons, but simply speak of "Stoic logic." Occasionally, however, it will be necessary to refer to possible disagreements within the school." (pp. 1-2)

Notes

(1) C. Prantl, *Geschichte der Logik im Abendlande* (Leizig, 1855) 408. I have generally given at most one ancient source for a doctrine. More information about sources can be found by consulting B. Mates, *Stoic Logic* (2nd ed.) or M. Frede, *Die Stoische Logik*.

(2) *Reprinted in J. Łukasiewicz,* Selected Works, ed. L. Borkowski

(3) I. M. Bochenski, *Ancient Formal Logic* (Amsterdam, 1951) 77.

From: Ian Mueller, "An Introduction to Stoic Logic", in: John M. Rist (ed.), *The Stoics*, Berkeley: University of California Press 1978, pp. 1-26.

"Zeno, the founder of the Stoic school of philosophy, is said to have been influenced primarily by two of the Socratic schools, the Cynics and the Megarians. (*) From the Cynics, according to the usual account, he took his moral teaching; from the Megarians, his logic. In view of our present subject, we shall omit all discussion of the Cynics and devote our attention to the Megarians.

The Megarian school was founded by Euclid, a follower of Socrates and a somewhat older contemporary of Plato. (See fig. 1.)

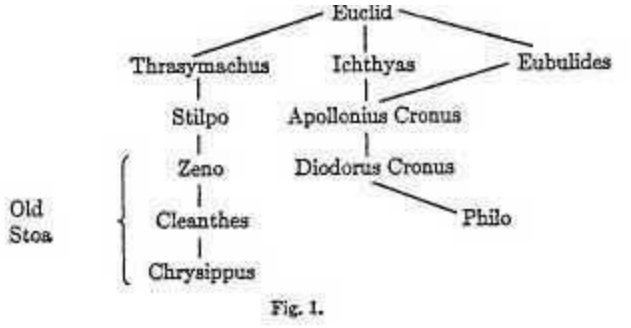


Fig. 1.

Among the pupils of Euclid were: Eubulides, a famous logician to whom the antinomy of The Liar is sometimes ascribed; Ichthyas, the successor of Euclid as head of the school; and Thrasymachus of Corinth, who is known primarily as the teacher of Stilpo. Stilpo, a contemporary of Aristotle, enjoyed a great reputation as a lecturer. He is supposed to have been somewhat influenced by the Cynics. His most famous pupil was Zeno, founder of Stoicism. Another important branch of the Megarian school consisted of Eubulides, Apollonius Cronus, Diodorus Cronus, and Philo, in that order. The latter two are very important in connection with Stoic logic, mainly for their views on the truth-conditions of conditionals.

Diodorus, a native of lasus in Caria, lived at the court of Alexandria in the reign of Ptolemy Soter. His surname or nickname "Cronus" ("old fool") is variously explained. According to one story, it was given to him by Ptolemy on account of his inability to solve a problem of logic put forth by Stilpo at a royal banquet. In fact, Diodorus is said to have taken his defeat so much to heart that he went home, wrote a treatise on the subject, and died in despair. According to another account, Diodorus took the surname from his teacher, Apollonius Cronus. At any rate, Diodorus was certainly not regarded as an old fool in antiquity. On the contrary, he was so celebrated for his dialectical skill that he was called "the logician" and "most logical one". This epithet gradually became a surname, and was even applied to his five daughters, who were also distinguished as logicians.

Little is known of the philosophy of Diodorus save two important definitions (and examples illustrating these): (1) a proposition is possible if and only if it either is true or will be true; (2) a conditional proposition is true if and only if it neither is nor was possible for the antecedent to be true and the consequent false. It is known that he

constructed the famous "Master" argument (*kurieuon logos*) to justify his definition of "possible." It is also known that he entered into a controversy with his pupil Philo over the truth-conditions for hypothetical propositions; this controversy was perpetuated and enlarged within the Stoic school.(**)

Philo of Megara, the pupil of Diodorus, was also very famous as a logician. Almost nothing is reported of his life except that he was a friend of Zeno. Chrysippus later wrote treatises against both him and his master. Philo disagreed with Diodorus concerning the nature of possibility and especially concerning the criterion for the truth of conditional propositions. Regarding the first, he thought (as against Diodorus) that a piece of wood at the bottom of the sea should be considered combustible even if it will never be burned. In regard to conditionals, he gave exactly the modern truth-table definition: a conditional is false if it has a true antecedent and a false consequent; in the other three cases it is true.

Zeno himself apparently lived ca. 350-260 B.C., but the dates are very uncertain. Like all the other major Stoic philosophers before the Christian era, he was not a native of Greece proper. (His birthplace was at Citium, in Rhodes.) Few facts are known about him, but where the facts leave off, legend begins. It is said that he was greatly respected for his personal characteristics dignity, modesty, sincerity, affability. Presumably because of a life of moderation, he lived to the ripe old age of ninety-eight, and, as the story has it, he died in the following way. As he was leaving the school one day, he stumbled and broke his toe. Beating his hand upon the ground, he addressed himself to the gods: "I'm coming of my own accord. Why then do you bother to call me?" Then he perished by holding his breath.

Also according to the legends, Zeno devoted much thought and energy to proposed reforms in language. This aroused ire in certain quarters, and it was pointed out that he was proposing to reform a language which he himself could hardly speak. As he was fond of coining new words, much of the technical vocabulary of Stoic logic may well be attributed to him. It was said that he used new terms in order to conceal his plagiarism of the views of his predecessors; Cicero repeats this charge at least fourteen times. His writings, which

were not numerous and were written in a very poor style, have been lost (excepting, of course, a few fragments).

The second head of the Stoic school was Cleanthes, known throughout antiquity as a man of strong character, great energy, and weak intellect. According to one story, he was a prize fighter who came to Athens with four drachmas in his pocket and entered the school of Zeno. He accepted Zeno's teaching in every detail and passed it on unchanged. At the age of ninety-nine or so, he died by starving himself to death.

Cleanthes was succeeded by Chrysippus, often said to have been the greatest logician of ancient times. Chrysippus was regarded as the second founder of Stoicism; according to an old saying, "If there had been no Chrysippus, there would have been no Stoa." He was born in 280 B.C. in Cilicia; the date of his death may be conjectured as 205 B.C. Without doubt, he was the best student his Stoic professors ever had. While in training, he thought of so many skeptical arguments against Stoicism that he was accused by the later Stoics of supplying Carneades with ammunition for attacking them. Chrysippus wrote 750 books, if the list given by Diogenes can be trusted. Of these we possess only the titles and a small number of fragments. But the titles alone show that he wrote on almost every important aspect of propositional logic. There are many ancient complaints that Chrysippus' books were dry and repetitious, and written in a very poor style. Yet they were widely read. He did not, like Cleanthes, merely repeat the words of his predecessors; there is a story that when he was a student of logic he wrote to Cleanthes, "Just send me the theorems. I'll find the proofs for myself."

It seems likely that Chrysippus was responsible for the final organization of Stoic logic into a calculus. When the five basic undemonstrated argument-types are cited, the name of Chrysippus is usually mentioned; in one place it is expressly stated that Chrysippus restricted the number of these types to five." (pp. 5-7)

Notes

(*) For the following account I am indebted to Zeller, *Die Philosophie der Griechen*, vol. 2, part 1, pp. 244 ff., and vol. 3, part 1, pp. 27-49;

William Smith, *Dictionary of Greek and Roman Biography and Mythology* (Boston, Little, Brown, 1849), 3 vols.

(**) The views of Diodorus will be discussed fully in the sequel, pp. 36-40, 44-51. Cf. my article, "Diodorean Implication."

From: Benson Mates, *Stoic Logic*, Berkeley: University of California Press 1953.

Summary of Benson Mates, Stoic Logic (1953)

Chapter I. *Introduction*: "The aim of this study is to present a true description of the logic of the Old Stoa. It repeats most of Łukasiewicz's published conclusions on the subject and offers additional evidence for them. It also (1) describes the Stoic semantical theory and compares it with certain similar modern theories, (2) attempts to give a better account of the heretofore misunderstood Diodorean implication, (3) points out the Stoic version of the conditionalization principle, and (4) discusses the contention of the Stoics that their propositional logic was complete. In appendices it offers and justifies new translations of some important fragments pertaining to Stoic logic. The Stoic authors in whose work we shall be interested primarily are Zeno, Cleanthes, and Chrysippus. Closely associated with them were Diodorus Cronus and Philo, of the Megarian school. Since the writings of these men have been lost, and since our sources usually do not distinguish between the views of the various Stoics, we are forced to treat the entire Old Stoa as a unit. This, of course, creates many difficulties. The best of our sources are Sextus Empiricus and Diocles Magnes (*apud* Diogenes Laertius). We also derive bits of information from Cicero, Gellius, Galen, Boethius, Apuleius, Alexander of Aphrodisias, Simplicius, Philoponus, Origen, Proclus, Stobaeus, Epictetus, Seneca, and a few others. Of these, only Epictetus and Seneca were favorably inclined toward Stoicism, and they, unfortunately, restricted their attention almost entirely to ethics. It is thus remarkable that the fragments of Stoic logic, transmitted by unsympathetic hands, are as clear and consistent as they are." (p. 1)

Chapter II. *Signs, sense, and denotation*: "The Chapter is divided into two sections. The first contains an account of the Stoic

distinction between the sign, the significate (called the "Lekton"), and the physical object to which the sign refers. Various types of signs and their corresponding Lekta are described in detail. In the second section the Stoic theory is compared with the modern theories of Frege and Carnap and is shown to bear marked resemblance to them, particularly in regard to what Carnap calls the "intension" of linguistic expressions. Numerous dissimilarities are also indicated, the most important of which are: (1) the Stoics restricted the denotation of expressions to bodies; (2) the Stoics did not take truth-values as the denotations of sentences." (p. 11)

Chapter III. *Propositions, truth, and necessity*: "This Chapter is divided into three sections. The first defines and classifies propositions and discusses their fundamental properties. A proposition is said to be "a complete Lekton assertoric in itself." Its most basic property is that of being true or false and not both. Propositions are classified as atomic and molecular; each of these classes in turn is divided into several subclasses. The absence from Stoic logic of examples beginning with "all" is noted. In the second section, the many Stoic usages of the words "truth" and "true" are taken up *seriatim*. All these usages are definable in terms of the usage referring to propositions. The third section deals with Stoic notions of necessity and possibility, as found in the fragments of certain (Megarian) philosophers to whom the notions were originally due. It is shown that a reference to time plays a very important role in Diodorus' view of possibility. (This is closely connected with his position in the controversy over implication, to be discussed in chap. IV.) A brief account of what is known of the famous "Master" argument of Diodorus is included, together with a few remarks on the views of Philo and Chrysippus regarding possibility." (p. 27)

Chapter IV. *Propositional connectives*: "The Stoics gave truth-functional definitions of all the more important propositional connectives, and defined also some non-truth-functional connectives. These definitions, and the various controversies over them, form the subject matter of the present chapter. The first section, on implication, contains an account of the four-sided argument over the truth-conditions for hypothetical propositions. It is shown that Philo's type of implication was exactly the same as the modern "material implication." Diodorean implication is defined and

distinguished from Chrysippean implication, which is the ancient equivalent of what is now called "strict implication." The connection between Diodorus' views on implication and on necessity is shown. In. the second section we are concerned with disjunction. The Stoics distinguished between inclusive and exclusive disjunction, gave truth-functional definitions of both types and also a non-truth-functional definition of the latter type. The third section considers conjunction, along with several other connectives. In the fourth section, we see how implication was defined in terms of conjunction and negation; also, how exclusive disjunction was defined in terms of negation and equivalence. Certain. difficulties in the evidence for these definitions are pointed out." (p. 42)

Chapter V. *Arguments*: "This Chapter consists of five sections. In the first, "argument" is defined as "a system of propositions composed of premises and a conclusion." A valid argument, according to the Stoics, is an argument such that the negation of its conclusion is incompatible with the conjunction of its premises. A true argument is a valid argument which has true premises, and a demonstration is a special kind of true argument. Another subclass of the valid arguments contains the so-called "undemonstrated" arguments; of these, five types were called "simple" and the innumerable others were called "non-simple," or "derived." To achieve generality in their discussions of propositional logic the Stoics made use of inference-schemas containing the numerals "first," "second," and so on as propositional variables. The second section contains an exposition of the five basic undemonstrated argument-types, as they are described in some twelve sources. The third section discusses an important Stoic principle which is closely related to the so-called "deduction theorem." In the fourth section is an account of the Stoic method of deriving non-simple undemonstrated arguments from simple ones; examples are considered in detail. Note is taken of the assertion of the Stoics that their propositional logic was complete. The fifth section describes the Stoic classification of invalid arguments and also considers briefly the famous paradox of The Liar, which was the subject of much Stoic writing. The classification is found to be poor, but the Stoic version of The Liar is stronger than the usual Epimenides paradox." (p. 58)

Chapter VI. *Evaluations of Stoic logic*: "In this concluding chapter we consider the traditional evaluations of Stoic logic, together with some of the confusions upon which they are based. The first section concerns some typical adverse criticisms by Prantl and Zeller. Unfortunately, these cannot be challenged by attacking the relevance or accuracy of the evidence for them, since there is no evidence for them. But it is apparent that Prantl and Zeller did not understand Stoic logic. The second section discusses the great confusion which exists in regard to the meaning of the technical term *sunemménon*. Third, there is a short conclusion." (p. 86)

Appendix A. *Translations*: "This Appendix consists of translations of some of the fragments which comprise our sources for Stoic logic. I have included only the fragments upon which relatively important sections of this study rest, and, of these, only passages which have not already been adequately translated into English." (p. 95)

Appendix B. *Glossary*: "This Glossary is not intended to be a complete list of the technical terms in Stoic logic. It includes only terms that appear in a sufficient number of contexts to establish their technical usage. Further, only a few of the more important occurrences of each term are cited. Usually these will include a definition or at least a passage of relatively clear meaning. Other glossaries of Stoic terminology are as follows:

R. G. Bury, *Sextus Empiricus*, volume 3. This glossary is almost worthless in regard to logical terminology.

I. M. Bochefiski, *Elementa Logicae Graecae*, pp. 99 ff. (Greek-Latin). Good.

J. W. Stakelum, *Galen and the Logic of Propositions*, pp. 92-93 (Greek-English). Good.

See also the *Index Verborum* in volume 4 of *Stoicorum Veterum Fragmenta*. Most of the Aristotelian commentators are well indexed, but unfortunately the indices for Sextus are very incomplete, and there are none for Diogenes Laertius." (p. 132)

From: Benson Mates, *Stoic Logic*, Berkeley: University of California Press 1953.

Sources for Stoic Logic

"Except for a few fragments, all the writings of the earlier Stoics have been lost. We must therefore depend on secondary sources. But that is only half of the difficulty. Since none of the later Stoics had much to say about logic, we are in the very unsatisfactory position of having to depend on the accounts of men who were without exception opponents of the Stoics. In view of this, it is all the more remarkable that Stoic logic makes as excellent a showing as it does. Perhaps the saving circumstance was that the essentials of Stoic logic were brought together in handbooks not long after the time of Chrysippus. Such handbooks were commonly entitled "Introduction to Logic" (*eisagogé dialektiké*), and evidently had a very wide circulation. Whatever accuracy and sense remain in the bits of Stoic logic which have filtered down to us probably derive from the fact that our sources made use of the handbooks.

The difficulties created by the loss of the Stoic writings are even greater than might at first appear. Since our sources do not distinguish between the views of the various Stoics but rather tend to ascribe the sayings of any of them to all of them, we must treat the school as a whole, even though we know that this procedure will lead to apparent inconsistencies. Also, it is obvious that technical writings such as those on logic suffer from being reported at second hand; of all our sources, Sextus is the only one who seems to have had some understanding of the theory he was reporting. Another serious difficulty arises from the fact that our best sources are at least four hundred years later than Chrysippus. By this time the mixture and confusion of Stoic logic with that of Aristotle were well under way, producing strange conglomerates like that found in Galen's *Institutio Logica*. Since we do not possess the information necessary for disentangling the two doctrines, we can only make the best of it.

Far and away our most important source for Stoic logic is Sextus Empiricus, a Greek physician and Skeptic, who lived in the first half of the third century of the Christian era. Almost nothing is known of his life. Two of his works are extant, the *Outlines of Pyrrhonism*, in three books, and *Against the Mathematicians*, in eleven books. Most of his discussion of Stoic logic is to be found in Book II of the *Outlines* and Book VIII of *Against the Mathematicians*; the accounts

given in these two places are often identical. Sextus is our only intelligent source. But even with him there is a fly in the ointment: he quotes the Stoics only to refute them. We may expect, therefore, that any parts of Stoic logic which he found either too difficult or too good to refute will be absent from his account. Also, he emphasized those matters on which Stoic opinions differed, with the result that we get no clear statement of the logical doctrine of any one man.

The next best picture of Stoic logic is that given by Diogenes Laertius, author of *Lives of Eminent Philosophers*. There is no information whatever on his own life, but since Sextus and Saturninus are the latest writers he quotes, it is sometimes guessed that he lived in the third century of the Christian era. As is well known, Diogenes is wholly unreliable on many subjects. It is therefore fortunate for us that in writing his life of Zeno (Book VII) Diogenes had recourse to a book written by Diodes Magnes, a scholar of the first century B.C., who seems to have had a fair knowledge of Stoic logic. The most serious deficiency of Diogenes' account is its extreme brevity; what there is of it is as excellent as anything to be found in Sextus.

All our other sources for Stoic logic are relatively unsatisfactory. Scattered references to the Stoa will be found throughout the twenty volumes of Galen's works,(8) but discussions of any extent are rare. The little treatise called *Historia Philosopha* contains the remains of a good account of the five basic undemonstrated argument-types. However, it has been necessary for editors to reconstruct the text on the analogy of corresponding passages in Sextus; consequently it has little independent value. There is also the handbook, *Institutio Logica*, ascribed to Galen by the manuscripts. Prantl has vehemently challenged its authenticity; Kalbfleisch has "proved" it genuine with equal vigor.(9) In any case, the treatise is of considerable interest to historians of logic. Although it is a mixture of Aristotelian and Stoic logic, its account of the five basic types of argument is clear and agrees exactly with our other information. Its criticism of these, however, is typically Peripatetic and typically confused. The treatise contains a few further hints about the views of the Stoics, but nothing else of value for our purpose.

Other scraps of information are to be found in the writings of Cicero, Gellius, and the many Aristotelian commentators.(10) Most of these

scraps fit consistently into the picture, but they are too brief to be of much help.

The work of the later Aristotelian commentators reveals extreme confusion between Stoic and Aristotelian logic, and hence is of very little use as a source.

All our sources have one characteristic in common: the more interesting the logic becomes, the more corrupt the text becomes. Because of the technical terminology and the very unusual sentences with which the Stoics sometimes illustrated their points, the origin of these textual difficulties is understandable -- but the difficulties remain. Especially is this noticeable in Galen's *Institutio Logic*a, where occasionally the whole thread of argument is lost.

In view of all these difficulties, the reader may well wonder whether there is enough evidence to justify the attempt to give a complete account of Stoic logic. He may answer this question for himself by reading the following chapters and, if he is interested, by checking the exposition against the Stoic passages which are cited. He will find that no effort has been made to conceal or minimize evidence contrary to the various theses proposed; the price exacted by this procedure is that the account is not always as simple and clear as one might desire." (pp. 8-10)

Notes

(8) The best exegetical study of the logic of Galen is by Stakelum, *Galen and the Logic of Propositions* [1940]. See especially the summary, pp. 90-91. [*cited below*]

(9) Prantl, *Geschichte der Logik im Abendlande*, [1855] pp. 591-610; Kalbfieisch, "Ueber Galens Einleitung in die Logik," [1897] pp. 681-708.

(10) The relevant writings of these authors are listed in the Bibliography. An excellent critical discussion of Apuleius, Alexander of Aphrodisias, Sextus, Diogenes Laertius, Themistius, Boethius, Ammonius, Simplicius, and Philoponus as sources of information about ancient logic may be found in Bochenski, *La Logique de Théophraste*, [1947] chap. I.

From: Benson Mates, *Stoic Logic*, Berkeley: University of California Press 1953.

"Conclusion.

It is evident from the *Introduction to Dialectic* that Galen was perfectly familiar with Stoic formal logic. It is equally evident that he was not a Stoic. Because he began his studies in the Stoic school, his terminology was Stoic, and the powerful Stoic influence of his period confirmed him in Stoic usage. His strong formalistic tendency also manifests his Stoic training. His later profession of Aristotelianism, however, becomes certain in his Peripatetic interpretation of Stoic propositions.

Galen presents exactly the forms of Stoic compound propositions, which he calls "hypothetical"; but his explanation are not Stoical, because he follows the Peripatetic practice of examining the matter of the propositions; instead of the Stoic custom of considering only the conjunctions. To the traditional Chrysippian propositions he adds the disjunctive and the not-excluding alternative propositions. His *Introduction* is also one of the earliest sources for the doctrine on equivalence and conversion of compound propositions.

Although his interpretation of Stoic propositions is not strictly formal, Galen's presentation of the hypothetical syllogisms is in accord with the most rigid Stoic formalism. He clearly explains the unfamiliar Stoic terminology pertinent to syllogisms, and he accepts four of the five traditional indemonstrable formulae. These he supplements with the disjunctive and the not-excIuding alternative syllogisms. He completes the treatment of the Stoic syllogism with his extraordinary doctrine on the conversion of hypothetical syllogisms.

Galen's teaching on the logic of propositions is a complete record of the state of Stoic logic in the second century. He not only summarizes the doctrine of the centuries immediately preceding but indicates the direction actually followed by subsequent logicians. His tendency to interpret Stoic Logic according to Peripatetic principles finds its culmination in classical logic. As this tendency so to interpret Stoic logic became more and more pronounced, the logic of the Stoa declined more and more until, having eventually lost its

distinctiveness as a branch of dialectics, it was completely absorbed into Peripatetic logic. He proves himself beyond all doubt an independent thinker and not a mere compiler, for the logic of propositions comes from his hands colored by the touch of his originality. The study of this elementary logical treatise makes us strongly desire to know some of more extensive works of Galen, the great logician, who has given us *The Introduction to Dialectic*." (pp. 90-91)

From: James W. Stakelum, *Galen and the Logic of Propositions*, Romae: Angelicum, 1940.

Ancient theories of meaning

"There were three ancient theories of meaning:

(1) According to the Peripatetics, words mean thoughts, and thoughts stand for things.

(2) According to the Epicureans, words directly mean things.

(3) According to the Stoics, words mean sayables, (1) and sayables stand for things.

The Stoics agree with the Peripatetics and disagree with the Epicureans in maintaining that a semantic theory must be three-tiered. The Stoics disagree with the Peripatetics insofar as the intermediate items in their three-tiered theory are sayables and not thoughts.

Thus far, mere caricature: each of the theories I have sketched requires further elucidation; and each of the sketches would be regarded as wildly inaccurate by some scholars. I shall not attempt to replace the caricatures by professional portraits; rather, I want to address one particular problem which the caricatures raise. If the Peripatetic and Stoic theories differ insofar as thoughts differ from sayables, then -- we may well wonder -- what exactly is the difference between sayables and thoughts, and how is Stoic saying related to Stoic thinking?

Several scholars, both ancient and modern, have denied that there is any substantive difference between the Peripatetic and the Stoic theories of meaning on the grounds that sayables are simply

thoughts under a different name. Thus according to Simplicius, some people held that

the argument in the Categories is about thoughts *(peri noematon);* for Aristotle plainly says that it is about things which are said *(peri ton legomenon),* and things which are said, or sayables, are thoughts, as the Stoics too held. (*in Cat*. 10.2-4 = *FDS* 703) (2)

More recently it has been maintained that a sayable is "that which is merely an expressed thought"; for sayables "exist only insofar as they are thought and expressed in words. As ideas in the mind ... the *lekta* ... should be interpreted ... as something ... akin to the ideas of, for instance, classical British empiricism -- as a kind of mental images which precede and accompany our words and give them meaning" (3)

A weaker thesis has also found favour: sayables are not to be identified with thoughts, but they are logically dependent upon the activity of thinking. For "every species of *lekton* requires the utterance of some expressible object present to the mind. Does this entail that*lekta* only persist as long as the sentences which express them? ... there is no evidence to show that *lekta*, as distinct from the speaker and his reference, persist outside acts of thought and communication". (4)

These theses about sayables and thoughts are not mere conjectures. For there are several ancient texts which associate sayables with thoughts, and these texts have been taken to support either the strong view that sayables actually are thoughts or the weaker view that sayables are parasitic upon thoughts.

The issues are complicated, both from a philosophical and from an exegetical point of view. I shall first make a few abstract remarks; then look at the Peripatetic theory of meaning; and finally turn to the texts which associate thoughts with sayables." (pp. 47-48)

Notes

(1) I use the unlovely word "sayable" for the Greek *lekton*. I take it that *lekta* stand to saying as thoughts stand to thinking; but no decent English word stands to "say" as "thought" stands to "think".

(2) Note that Simplicius does not subscribe to this view of *lekta* (pace Long [1971] 80): he ascribes it to unnamed interpreters of Aristotle's *Categories*, and at e.g. *in Cat*. 397.10-12 he implicitly distinguishes*lekta* from *dianoemata*.

(3) Nuchelmans (1973) 52, 55.

(4) Long (1971) 97, 98.

From: Jonathan Barnes, "Meaning, Saying and Thinking", in: Klaus Döring and Theodor Ebert (eds.), *Dialektiker und Stoiker. Zur Logik der Stoa und ihrer Vorläufer*, Stuttgart: Franz Steiner 1993, pp. 47-61.

The Stoic classification of arguments

"In Sextus Empiricus' *Outlines of Pyrrhonism* (6) one finds the following Stoic definitions of the expressions 'premises', 'conclusion', and 'argument'

(i) 'premises': the propositions assumed for the establishment of the conclusion,

(ii) 'conclusion': the proposition which is established by the premises (7),

(iii) 'argument': a whole composed of premises and a conclusion.

In terms of these definitions the questions I shall be attempting to answer are: for the Stoics what are the conditions under which the premises in an argument logically imply its conclusion? And, if the premises of an argument in fact imply its conclusion but not evidently so, how according to the Stoics may this relation of logical consequence be made evident? Before dealing with these questions, however, I present several classifications of Stoic arguments (see the outline of these classifications below).

The first division of the first classification of arguments is into valid and invalid arguments. An argument is valid "when the conditional having as its antecedent the conjunction formed from the premises of the argument and as its consequent the conclusion of the argument is true" (*P.H*. ii.137). An example of a valid argument is

(1) If it is day, it is light. It is day.

Therefore it is light.

Arguments which do not satisfy this condition are invalid.

Next valid arguments are divided into those which are true and those which are not true. A true valid argument is one of which both the conclusion and the premises are true (*P.H.* ii.138). An example of a true valid argument is (1) above when set forth during the day. Arguments which do not satisfy this condition are not true. An example of a not-true argument is the following when made during the day:

(2) If it is night, it is dark.

It is night.

Therefore it is dark.

Of true valid arguments some are demonstrative and some are not demonstrative. Demonstrative arguments are "those which conclude something non-evident through pre-evident premises".(8) An example of a demonstrative true valid argument, preserved by Sextus (*P.H.* ii.140), is

(3) If sweat flows through the surface of the skin, there exist imperceptible pores.

Sweat flows through the surface of the skin.

Therefore there exist imperceptible pores.

An argument not satisfying this condition is not demonstrative. Argument (1) is an example of an argument which is valid, true when set forth during the day, and not demonstrative. It will be shown subsequently that there was another kind of argument called undemonstrated, which provides an additional important category of arguments. It is not to be confused with a not-demonstrative argument.

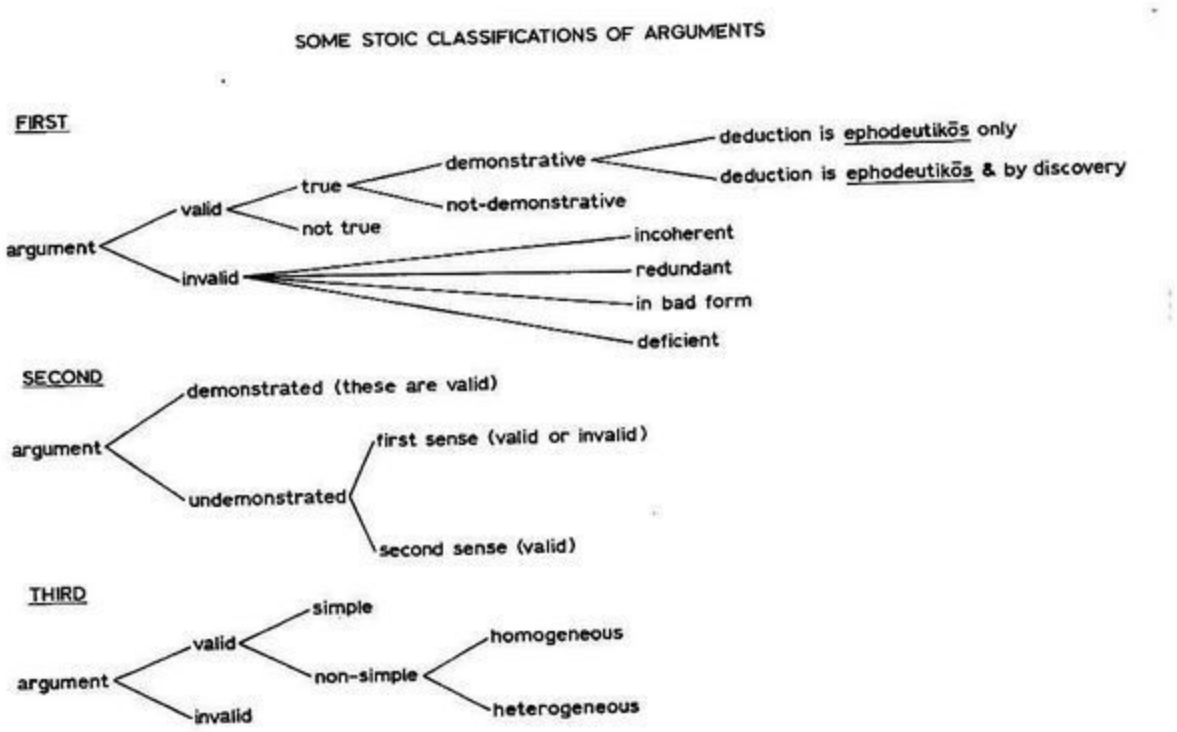
Of demonstrative true valid arguments "some lead us through the premises to the conclusion *ephodeutikos* only" (*P.H.* ii.141). I am not sure precisely what '*ephodeutikos*' means. Etymologically the word suggests 'advancing over a path towards something' and when the expression attaches to the word 'argument' a reasonable candidate

for the 'something' would be the conclusion of the argument. But 'advancing over a path towards a conclusion' is a metaphorical description of arguments generally and it fails to bring out what is peculiar to the type of argument to which the label is here attached. I simply transliterate the expression. A kind of this type argument is said to be one which "depends upon belief and memory". One might well ask, 'What kind of argument doesn't?' An example of an argument which depends on belief and memory is

(4) If someone said to you that this man would be wealthy, this man will be wealthy.

This god said to you that this man would be wealthy. Therefore this man will be wealthy.

Sextus' comment on this argument is that we "assent to the conclusion not so much on account of the necessity of the premises as because we believe the assertion of the god" (*P.H.* ii.141-142).



Contrasted with this type argument are those which "lead us to the conclusion not only *ephodeutikeis* but also by way of discovery" (*P.H.* ii.142). An example of such an argument is (3). The element of discovery in this argument is the disclosure of the existence of pores through the fact that sweat flows through the surface of the skin. The element of belief in the argument, apparently sufficient to provide the *ephodeutikeis* component, is the "prior assumption that moisture cannot flow through a solid body" (*P.H.* ii.142).

The components of a 'demonstration' may be derived from one component of each division in this first classification, for a demonstration is a valid and true argument having a non-evident conclusion and disclosing that conclusion by the power of the premises (*P.H.* ii.143). I am uncertain as to the point of the last clause in Sextus' report. It appears to imply that the conclusion is obtained without the aid of assumptions external to the premises of the argument, although this would involve the existence of a class of demonstrative arguments different from those which are *ephodeutikeis*.

A second Stoic classification of arguments is also reported by Sextus, and it, too, ought to be kept in mind when thinking about deduction in Stoic logic. This classification begins from a division of arguments into demonstrated and undemonstrated. I take a demonstrated argument in this context to be one whose validity has been made evident. I say more subsequently about how the validity of arguments is made evident. An argument is undemonstrated in one of two senses. The first sense is the contradictory of that of 'demonstrated'. In this sense, then, an argument is undemonstrated if it has not been demonstrated (*Adv. Math.* viii.223), i.e., on my interpretation, if it has not been shown to be valid. In a second sense an argument is undemonstrated if it is immediately evident that it is valid (ibid.). This distinction may be brought out by noticing that the first sense is temporal inasmuch as an argument which is undemonstrated in that sense in 100 B.C. may be demonstrated in 50 B.C., while the second sense is non-temporal.(9) An argument is undemonstrated in this second sense if it exhibits one of five forms of argument which are referred to respectively as the first undemonstrated, the second undemonstrated, etc. These forms are also called inference schemata, and I have more to say about them

below. For now I merely give the forms with illustrative examples (Gould, *The Philosophy of Chrysippus*, pp. 83-85):

The first undemonstrated

(5) If the first, the second.

The first.

Therefore the second.

If it is day, there is light.

It is day.

Therefore there is light.

The second undemonstrated

(6) If the first, the second.

Not the second.

Therefore not the first.

If it is day, there is light.

There is not light.

Therefore it is not day.

The third undemonstrated

(7) Not both the first and the second.

The first.

Therefore not the second.

Not both it is day and it is night.

It is day.

Therefore it is not night.

The fourth undemonstrated

(8) Either the first or the second.

The first.

Therefore not the second.

Either it is day or it is night.

It is day.

Therefore it is not night.

The fifth undemonstrated

(9) Either the first or the second.

Not the first.

Therefore the second.

Either it is day or it is night.

It is not day.

Therefore it is night.

A third classification divides valid arguments first into simple and non-simple (*Adv. Math.* viii.228). A simple valid argument is one having the form of one of the five undemonstrated argument forms. A non-simple valid argument is one 'woven together' out of simple valid arguments in order that it may be known to be 'valid' (*Adv. Math.* viii.229). There are two kinds of non-simple arguments, one formed from two or more simple arguments all of the same form, and the other composed from two or more simple arguments not of the same form. The former is a homogeneous non-simple and the latter, a heterogeneous non-simple argument (*ibid.*). An example of a homogeneous non-simple argument is

(10) If it is day, then if it is day it is light.

It is day.

Therefore it is light.

For upon analysis it may be seen to have been compounded from two simple arguments having the form of the first undemonstrated. Analysis of this argument is carried out in accordance with the following 'dialectical theorem' :

(11) Whenever we have premises from which a certain conclusion can be validly deduced, potentially we have also that conclusion among

the premises, even if it is not stated explicitly.(10)

One analyzes (10) by drawing the conclusion from the first two premises in accordance with the first undemonstrated inference schema, thus getting

(12) If it is day, then if it is day it is light.

It is day.

Therefore if it is day, it is light.

Then by the theorem stated in (11) one gets as premises

(13) If it is day, then if it is day it is light.

It is day.

If it is day, it is light.

And by another application of the first inference schema one gets the conclusion in (10)." (pp. 152-157)

Notes

(6) ii.135-136. This work will be referred to in the remainder of the paper as *P.H.*

(7) Thomas has rightly pointed out that the intent here must have been something like "the proposition which is allegedly established by the premises". Otherwise every conclusion would be the conclusion of a valid argument.

(8) *P.H.* ii.140. Sextus reports (*P.H.* ii.97-98) that the 'dogmatists' distinguished three kinds of non-evident objects. Some are absolutely non-evident; these are those which are not of the sort to fall under our apprehension, e.g., that the stars are even in number. Some are on occasion non-evident; these are of a sort to be evident but are made non-evident on occasion by external circumstances, e.g., as a city in which I am not present now is to me. Finally, some are naturally non-evident; these are naturally incapable of falling under our clear apprehension, e.g., that there are imperceptible pores.

(9) I am indebted to John Corcoran for having suggested to me this feature of the distinction.

(10) *Adv. Math*. viii.231. I discuss this theorem below (p. 18) in conjunction with other Stoic rules of inference.

From: Joseph Gould, "Deduction in Stoic Logic", in: John Corcoran (ed.), *Ancient Logic and Its Modern Interpretations. Proceedings of the Buffalo Symposium on Modernist Interpretations of Ancient Logic, 21 and 22 April, 1972.*, Dordrecht: Reidel 1974, pp. 151-168.

Digital Quadrivium Project



History of Logic

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The Stoic Doctrine of *Lekta* (Sayables)

The place of the doctrine of lekta in the Stoic dialectic

SVF = Hans von Arnim, *Stoicorum Veterum Fragmenta*, Lipsia 1903-1905 (the standard collection of the Fragments of ancient Stoics).

"In moving from the theory of knowledge to the other topics which the Stoics include within the third branch of their philosophy, it must be noted that they draw a sharp distinction between logic and language. All the remaining topics can be grouped either on one side of this distinction or the other. The Stoics define language as utterance. Language is sound. It is corporeal, material, and sensible. (135) Hence, language is part of the world of real being. Words, real beings themselves, are natural signs of natural objects. Logic, on the other hand, falls within the category of the incorporeals. Logical statements are *lekta*. (136) They have meaning, but since they are not corporeal, they do not have full being. They exist only intramentally. The *lekta* include predicates, arguments, syllogisms, and fallacies. They are not natural signs of natural objects.

This classification of logical statements as *lekta* has important implications for the way in which the Stoics handle dialectic, or logic as a formal branch of philosophical investigation.(137) Their logic is propositional. The variables in Stoic syllogisms are propositions, in contrast to the variables in Aristotelian syllogisms, which tend to be terms and classes. The Stoics are sensitive to the grammatical precision of their logical propositions; they elaborate a more precise

way of expressing negation than had been used hitherto, prefixing a negative word to the entire proposition and not just to the verb. Thus, instead of saying "It is not day," they say "Not: it is day." While less idiomatic, this is a more unambiguous way of specifying what is being negated, similar to the usage "Not-p" in modern symbolic logic. Indeed, the technical ingenuity of Stoic logic is considerable, resulting in a number of ideas which had been neglected in Aristotle's logic.

Since *lekta* are not natural signs of natural objects, the Stoic preference in logic is for hypothetical syllogisms.(138) Unlike the categorical, deductive, or inductive syllogisms used by Aristotle, the hypothetical syllogism does not begin with an axiomatic statement about a general class of beings, nor does it conclude with a statement about the fixed, essential nature of things. For the Stoics, such a procedure would have been in conflict with a propositional logic whose aim is to demonstrate the logical tenability of the conclusions of one's premises, not their empirical or ontological verifiability. At the same time, and although they are *lekta*, the Stoics' hypothetical syllogisms are compatible with the physics which they espoused, for their syllogisms deal with the changing relations between concrete individual events rather than with a changeless structure of fixed essences.(139) The five main types of syllogisms used by the Stoics may be schematized as follows:

Conditional: "If it is light, it is day."

Conjunctive: "It is light and it is day."

Disjunctive: "Either it is light or it is day."

Causal: "It is light because it is day."

Likely: "It is more likely that it is day than that it is night."

In all cases both the initial premises and whatever conclusions may follow from them refer to transient events. Having demonstrated a proposition by means of these syllogisms, one has still not claimed to have said anything about an enduring natural phenomenon. This is a perfectly reasonable choice for the Stoics given both their physics of dynamic events and their conception of the *lekta*." (pp. 53-55)

Notes

(135) *SVF*, 1, 74; 2, 140-41, 144a.

(136) See the references cited in note 35 above; Diogenes Laertius, *Lives* 7. 63-81.

(137) The traditional view of Stoic logic, treating it as beneath consideration because of its departures from Aristotelian logic, is stated clearly by Carl Prantl, *Geschichte der Logik im Abendlande* (Leipzig, 1927), 1, 401-96. It has been superseded by a positive reinterpretation of Stoic logic, marked by two trends. One understands Stoic logic and its differences from Aristotelian logic in the light of its connections with the rest of the Stoic system. The most important studies in this area are Urs Egli, *Zur stoischen Dialektik* (Basel, 1967), pp. 93-104; Michael Frede, *Die stoische Logik,* Abhandlungen der Akademie der Wissenschaften in Göttingen, philosophisch-historische Klasse, 3:88 (Göttingen, 1974); and Virieux-Reymond, *La logique et l'épistimologie des Stoïciens*. See also Bréhier, *Hellenistic and Roman Age,* pp. 41 fr.; V. Brochard, *Études de philosophie ancienne et de philosophie moderne,* nouv. ed. I Paris, 1926), pp. 220-51; Carlo Diano, *Forma ed evento: Principii per una interpretatione del mondo greco (*Venezia*,* 1952), pp. 9-20; Edelstein, *Meaning of Stoicism,*pp. 27-29; Goldschmidt. *I.e système stoïcien,* pp. 82 83; Josiah 13. Gould, "Chrysippus: On the Criteria for the Truth of a Conditional Proposition," *Phronesis,* 12 (1967)*,* 152-61; *Chrysippus,* pp. 66-88; Charles H. Kahn, "Stoic Logic and Stoic Logos," *Archiv für Geschichte der Philosophie,* 51 (1969), 158-72; Lorenzo Pozzi, "Il nesso di implicazione nella logica stoica," Atti del convegno di storia della logica, Parma, 8-10 ottobre 1972 (Padova, 1974), pp. 177-87; Giulio Preti, "Sulla dottrina del *semeion* nella logica stoica," *Rivista critica di storia della filosofia*, 2 (1956), 5-14; Reymond, "La logique stoïcienne," *Revue de Théologie et de Philosophie*, n.s. 17 (1929), 161-71; Carlo Augusto Viano, "La dialettica stoica," *Rivista di filosofia*, 49 (1958), 179-227; Antoinette Virieux-Reymond, "Le 'sunemménon' stoïcien et la notion de la loi scientifique," *Studia Philosophica*, 9 (1949), 162-69.

The second group consists of scholars primarily interested in modern logic, who have rediscovered Stoic logic because of the affinities they perceive between it and the school of Carnap and Frege. The essay which began this movement is Jan Łukasiewicz, "Zur Geschichte der

Aussagenlogik," *Erkenntnis*, 5 (1935), 111-31. The most important technical treatment of Stoic logic within this or any other perspective is Benson Mates, *Stoic Logic* (Berkeley, 1953). See also Nimio de Anquin, "Sobre la logica de los Estoicos," *Sapientia*, 11 (1956), 166-72; Oskar Becker, *Zwei Untersuchungen zur antiken Logik* (Wiesbaden, 1957); I. M. Bochenski, Ancient Formal Logic (Amsterdam, 1951), pp. 77-102; William Kneale and Martha Kneale, *The Development of Logic* (Oxford, 1962), pp. 11376; Leo Lugarini, "L'orizzonte linguistico del sapere in Aristotele e la sua trasformazione stoica," *Il Pensiero*, 8 (1963), 327-51; Jürgen Mau, "Stoische Logik. Ihre Stellung gegenüber der aristotelische Syllogistik und dem modernen Aussagekalkül," *Hermes*, 85 (1957), 147-58; Mario Mignucci, *Il significato della logica stoica*, 2a ed. (Bologna, 1967); Jan Mueller, "An Introduction to Stoic Logic," in *The Stoics*, ed. Rist, pp. 1-26.

(138) *SVF*, 2, 182, 207-08, 213, 215, 241-42, 245.

(139) For the parallels in physics see *SVF*, 2, 13, 114, 395-97. Good analyses of this point can be found in Jacques Brunschwig, "Le modèle conjonctif," *Les Stoiciens et leur logique*, Actes du Colloque de Chantilly, 18-22 septembre 1976 (Paris, 1978), pp. 61-65; Edelstein, *Meaning of Stoicism*, pp. 27-29; Michael Frede, "Stoic vs. Aristotelian Syllogistic," *Archiv für Geschichte der Philosophie*, 56 (1974), 1-32; Goldschmidt, *Le système stoïcien*, pp. 82-83; Gould, "Chrysippus," *Phronesis*, 12 (1967), 152-61; Chrysippus, pp. 66-88; A. A. Long, "Dialectic and the Stoic Sage," in *The Stoics,* ed. Rist, pp. 101-24; Virieux-Reymond, "Le 'sunemménon' stoicien," *Studia Philosophica*, 9 (1949), 162-69. William H. Hay, "Stoic Use of Logic," *Archiv für Geschichte der Philosophie*, 51 (1969), 145-57 argues unconvincingly that the Stoic syllogisms also reflect an interest in abstract subjects and universal conclusions.

(140) *SVF,* 2, 368-75. On the other hand, Andreas Graeser, "The Stoic Categories," *Les stoiciens et leur logique*, pp. 199-221; "The Stoic Theory of Meaning," in *The Stoics*, ed. Rist, p. 78 sees the categories as linguistic expressions signifying syntactical classifications.

(141) *SVF*, I, 91.

From: Marcia L. Colish, *The Stoic Tradition from Antiquity to the Early Middle Ages. I. Stoicism in Classical Latin Literature*, Leiden: Brill 1985.

The lekton as what is said or predicated of something

"4.1.1 According to *SVF* 1, 89, Zeno of Citium, the founder of the Stoic school, made a distinction between a cause, which is a body or *soma,* and that of which it is the cause, which is called *symbebekos,* consequence, or *kategorerna,* predicate. Stobaeus, who gives this information, cites as examples of causes or bodies practical wisdom*(phronesis),* the principle of life *(psyche),* and self-control *(sophrosyne);* and as examples of what is caused by these bodies being wise *(phronein),* living *(zen),* and being temperate *(sophronein).* For the Stoics a body or *soma is* everything that acts or undergoes action *(SVF* II, 336, 340). What is done or undergone by such agents or patients, the action or passion, is a *kategorema,* which in contrast with the somatic agents or patients is characterized as asomatic (*asomaton*) Sextus *M* IX, 211) gives the following examples. The lancet and the flesh are bodies; the lancet is the cause of an asomatic *kategorema,* namely being cut, with respect to the flesh. Fire and wood are bodies; the fire is the cause of an asomatic *kategorema,* namely being burnt, with respect to the wood. Further examples can be found in *SVF* II, 349, where it is also added that the flesh is the cause of the cutting with respect to the lancet.

The verbal character of that which is caused was stressed by the Stoics against those who maintained that it could be indicated by nominal expressions (SE, *PH III,* 14). If the sun or the sun's heat makes the wax melt, we have to say that the sun is the cause, not of the melting of the wax *(tes chyseos),* but of the wax being melted, of a *kategorema* which is indicated by an infinitive *(tou cheisthai).* Clement of Alexandria *(SVF* III, 8, p. 263) even makes an explicit distinction, in a somewhat similar context, between 'is cut' *(temnetai),* which is the actual *kategorema,* and the infinitive 'to be cut', which is the name (*ptiptosis*) of the *katkategorema."* pp. 45-46

(...)

"The strongest proof that the term *lekton* was used to designate that which is said or predicated of something, as a synonym of *kategorema* and in the typical frame of the Stoic theory of predication, is the fact that it is so often qualified by the attribute *asomaton*. In many contexts one can make sense of this characterization only by taking *lek ton* as standing for the action or passion, the *pragma* which is signified by the verb, in contrast with the *somata* which perform or undergo the action. It is therefore time to try to throw more light upon the ontological and psychological aspects of that which the Stoics called *asomaton*.

4.1.5. As for the ontological aspects, I shall confine myself to a rough outline; for details and controversial points I refer to Bréhier (1962), Goldschmidt (1969), Hadot (1968 and 1969), and Rist (1969). At the top of the Stoics' ontological hierarchy we find the *ti*. These somethings are divided into the *on* and the *me on,* the sphere of the existent and the sphere of the non-existent. To the *on* belong the *somata,* the things that can perform or undergo actions. In terms of the Stoic categories a soma is composed of *hyle,* matter, and *poiotes,* determining quality. To the *me on* belong the void, place, time, and the *lekta*. These four *asomata* do not have an independent existence of their own; they are only thought and said. A *lekton,* as we have seen, belongs to *a soma (hyparchein)* when the *soma* actually performs or undergoes the action concerned, but in itself it does not have the same kind of existence as *a soma* has. What is predicated of *a soma* is an event that occurs at the periphery of the domain in which bodies act and are acted upon; the actuality of the event entirely derives from the body by which it is caused. In terms of the Stoic categories the *lekton* has to be associated with the *pos echon,* the ways of behaving of a body, and the *pros ti pa's echon,* its ways of behaving in relation to something else.

4.1.6. Turning now to the psychological side of the aromatic *lekton,* I first call attention to a passage (DL VII, 51) in which two divisions of presentations *(phantasiai)* are mentioned. One is into those of living beings possessed of reason and speech *(logikai)* and those of living beings that are deprived of these faculties*(alogoi)*. The presentations of the first group are also called *noeseis,* in a broad sense of that word (Cf. *SVF* II, 89). The second division divides presentations into those of sense-perception *(aisthetikai)* and those of thought in the

narrower sense *(dia tes dianoias)*. To the latter group belong the presentations of *asomata* and of the other things that are apprehended only by means of the *logos*. Parallel to this second division into presentations of sense-perception and presentations of thought we often find a distinction between *periptosis* and *metabasis:* between direct acquaintance by means of the senses (for instance, with something white or black, sweet or bitter) and the formation of ideas, which consists in a kind of transition from sense-perception to something else. The *metabasis* is characteristic of man (SE, *AM* VIII, 276, 288; Epictetus, *Dissertationes* I, 6, 10). This creative power of the human mind amounts, however, to no more than the faculty of compounding, transposing, augmenting, or diminishing the materials afforded us by the senses; it is impossible to find in thought anything which one does not possess as known by experience (SE, *AM* VIII, 58, 60). Sextus gives the following examples of *metabasis (AM* I, 25, III, 40, VIII, 59, IX, 393, XI, 250). Because of a likeness of Socrates, which has been seen, we conceive of Socrates, who has not been seen. Starting from the common man we move on to a conception of a giant. By decreasing the size of the common man we grasp a conception of a pygmy. By way of composition we derive from man and horse the conception of a thing we have never perceived, a centaur. DL VII, 52-53, gives a more extensive list of possibilities. The queer thing is that he contrasts *periptosis* not with *metabasis* generally, but with such species of *metabasis*(in Sextus's sense) as resemblance, analogy, transposition, composition, and opposition. *Metabasis* occurs as one of the species: some ideas are formed by transition, for instance *lekta* and place, both *asomata*. This may be just a mistake; or the word *metabasis* may have been used by some in a generic sense and by others in a more special sense, without much further difference of meaning.

Now the *lekton* was defined as that which exists *kata logiken phantasian,* by way of a presentation which is typical of a living being possessed of reason and speech (DL VII, 63; SE, *AM* VIII, 70). Sextus adds that *a logike phantasia* is a presentation in which it is possible to set the thing presented before the mind by means of speech*(logos)*. This can be connected with what DL, VII, 49, says: first comes the presentation and then follows thought *(dianoia),* which is capable of expressing things in speech *(eklaletike)* and

expresses that which it undergoes by the influence of the presentation, by means of an utterance. From elsewhere *(SVF II,* 236) we know that the Stoics called the *noemata* by the name of *ekphorika,* things capable of being expressed in words.

The view that the thinking faculty is capable of forming, on the basis of the materials offered by sense-perception, new presentations which are arrived at by a process of *metabasis* and exist only in so far as they are thought and expressed in words, was illustrated by means of the following simile (SE, *AM* VII, 409). A trainer or drill-sergeant who is teaching a boy rhythm and how to make certain motions sometimes takes hold of the boy's hands and at other times stands at a distance and offers himself as a model for the boy's imitations, by making certain rhythmical motions. In the same way some of the objects presented produce the impression in the soul as it were by touching and contact with it (such as white and black and *somata* generally), whereas others are not of this nature, since in their case the principal part of the soul has presentations which are not caused by them but are formed on the occasion of their occurrence *(tou hegemonikou ep'autois phantasioumenou kai ouch hyp'auton), as is* the case with asomatic *lekta*. Sextus cites this simile in connection with the question of how presentations of asomatic *lekta* are possible. Since *an asomaton* neither effects nor suffers anything, it cannot produce presentations in the soul. The Stoics apparently solved this problem by pointing out that just as the boy makes both movements which are caused by the trainer and spontaneous movements, so the soul has both presentations that are caused by *somata* and spontaneous presentations -- for instance, of *lekta*. The *lekta* do not cause their presentations, but those presentations are produced by the soul itself, although this spontaneous production is limited to certain operations on the impressions of sense-perception.

That *lekta* are merely thought and that nothing directly corresponds to them in the world of existing *somata is* confirmed by *SVF* II, 521. The Stoics considered time and *asomata* generally as existing only in thought, without the reality of bodies which consists in causal activity. It looks as if this were contradicted by a passage in Plutarch *(De communibus notitiis contra Stoicos* 1084 c), where such activities as walking and dancing *(ton peripaton, ten orchesin)* are counted among the *somata*. This can be connected with what Seneca

(Epistula 113, 23; *SVF* II, 836) tells us about a controversy between Cleanthes and Chrysippus concerning the nature of walking *(ambulatio).*Cleanthes contended that it is *pneuma* which has been sent down from the principal part of the soul into the feet; Chrysippus maintained that it is the principal part of the soul itself *(a soma).* To solve the apparent contradiction we probably have to distinguish between the *Om* as far as it is in a certain state or is disposed in a certain way *(pos echon)* and that state itself, considered on its own. If the action or passion is regarded as realized in *a soma, it* is, as it were, an aspect of that *soma.* This point of view was strongly emphasized by Chrysippus, here and elsewhere. But if the action or passion is contrasted with the *soma,* as that which is caused or undergone by it, it is seen to have a status of its own; from this point of view it is something asomatic and a mere product of thought.

4.1.7. It may be concluded, I think, that at least one of the ways in which the word *lekton* was used by Stoic philosophers was to designate that which is said or predicated of something. The *lekton* or *kategorema* is an asomatic *pragma,* an action or passion which is performed or undergone by a *soma.* From an ontological point of view the *lekton-kategorema-pragma* is totally different from the *soma. Somata are* the real things which are characterized by their capacity of acting and being acted upon. The actions or passions themselves are merely thought and expressed in words; they are presentations which are spontaneously formed by a transition from sense-experience and made known by spoken sounds, without having a direct counterpart in somatic reality. Given this ontological and psychological peculiarity of the *lekton,* it is not unlikely that almost from the beginning the word *lekton* could also be taken as referring to that which is only (thought and) said. If the *lekton* as such does not really exist and is nothing but a spontaneous product of thought, it is quite natural to see it not only as that which is said of a *soma,* but also as that which is merely an expressed thought, only something said." (pp. 51-55)

From: Gabriel Nuchelmans, *Theories of Proposition. Ancient and Medieval Conceptions of the Bearers of Truth and Falsity*, Amsterdam: North-Holland 1973.

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History of Logic

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Ancient Stoicism: The Editions of Fragments and *Testimonia*

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   [*My translation*:] Overview of Contents: Preface XIX; Introduction by the Editor XXIII; Annexes I-II LXXVIII; 1. Introduction: The dialectic in the context of the Stoic philosophy (Fragments No. 1-254) 2; 1.1 Philosophy and its division in Logic, Ethics, Physics (No. 1-32a) 2; 1.2 Exclusion and further determination of Dialectic (Nos. 33-98). 40; 1.3 On the origin, development and reception of Stoic dialectic (No.

99-254) 102; 2. Theory of Knowledge (Epistemology) (No. 255-473) 248; 2.1 Unity and diversity of representations (ideas) (No. 259-281) 260; 2.2 On sensory perception and on the Concept (No. 282-321). 296; 2.3 The criteria of truth (No. 322-362) 332; 2.4 Assent, knowledge and science (No. 363-419) 392; 2.5 Digression: On the Soul (No. 420-456) 454; 2.6 Theoretical Sciences (No. 457-473) 486; 3. About the linguistic sign (No. 474-680) 516; 3.1 Successive determination of the speech according to the sound (No. 476-535) 520; 3.2 The parts of speech (word classes) (No. 536-593) 592; 3.3 Advantages and faults of speech. Poetics (No. 594-620) 672; 3.4 Linguistic characters in relation to their meaning (No. 621-680) 714; 4. About the meanings (No. 681-1257) 790; 4.1 Terminology (No. 681-694) 790; 4.2 The Lekta (sayable) in general. The incomplete Lekta and the categories (No. 695-873) 806; 4.3 The full Lekta (no. 874-913) 1086; 4.4 The classifications of the statement (No. 914-1035) 1140; 4.5 The theory of argument (No. 1036-1198a) 1364; 4.6 The fallacies (no. 1199-1257) 1690; Indexes I-VIII 1787.

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I. Introduzione alla logica stoica (1984); II. Crisippo: il catalogo degli scritti e i frammenti dai papiri (1985); III. Diogene Laerzio (Dalle *Vite dei filosofi VII*) (1986); IV. Sesto Empirico (Dai *Lineamenti pirroniani II*, Dal *Contro i matematici VIII*) (1986); Va. Alessandro di Afrodisia (Dal *Commento agli Analitici primi,* Dal *Commento ai Topici*) (1986); Vb. Plotino, i Commentatori aristotelici tardi, Boezio (1987); VI. Cicerone (Testi dal *Lucullus*, dal *De Fato*, dai *Topica*) (1986); VIIa. Galeno (Dalla *Introduzione alla dialettica*) (1986); VIIb. Le Testimonianze minori del sec. II. d.C.: Epitteto, Plutarco, Gellio, Apuleio (1987); VIII. *Testimonianze sparse ordinate sistematicamente* (1987).

"Il presente lavoro tenta una ricostruzione sintetica della logica stoica considerata nei suoi rapporti storici e nella sua cornice sistematica: non è pertanto una interpretazione della logica stoica nella prospettiva della logica moderna né propriamente una esposizione di un momento della storia della logica, bensì intenderebbe presentare un momento della storia della filosofia.

In particolare, esso nasce da un decennale contatto con tutte le fonti antiche relative alla logica stoica e vuole introdurre alla lettura di tali fonti. I testi di Crisippo, di Diogene Laerzio, di Sesto Empirico, dei commentatori di Aristotele (innanzitutto di Alessandro di Afrodisia), di Cicerone, degli scrittori del sec. Il d.C. che ci informano sulla logica stoica (innanzitutto di Galeno) sono stati raccolti, ordinati per autore e vagliati, nonché tradotti e commentati; sono state anche raccolte e ordinate secondo il contenuto secondo il quale si sviluppa l'esposizione nel presente lavoro le testimonianze che si trovano sparse nei più vari autori (anche negli autori che si potrebbero ritenere scarsamente significativi), e sono state anch'esse tradotte e commentate." (Dalla Prefazione al primo volume).

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   What has been selected are important contributions to the Stoic tradition as theory and practice. This literature is concentrated in a half dozen modern European languages accessible to English language scholars, and is largely confined to the twentieth century.

A generous sense of what is philosophical has been employed; works that are exclusively historical, philological, or literary have been excluded. The following forms of scholarship were generally ignored:

(a) primary sources, translations, and commentaries, (b) encyclopedia and dictionary entries, (c) dissertations, (d) book reviews, and (e) standard histories.

Several oddities should be noted. All serials titled by a single term (e.g. *Phronesis)* will be fully cited, whereas multi-term serials (e.g. *Classical Quarterly)* are abbreviated according to *L'Annee Philologique,* and listed here with other serials on pages 126-13 1. Since rules of capitalization are varied, I have favored a minimalist approach, and when the work of a single author is collected (e.g. Max Pohlenz's *Kleine Schriften),* a single citation replaces the separate citations contained therein. Indexes of key English and selected Greek subjects complete user access to this bibliography, and regrettably indexes to Latin terms and the primary literature could not be included." (From the *Preface* by R. H. Epp).

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"Nous n'avons pas reproduit dans ce volume la bibliographie de la première édition, qui aurait rendu celle-ci pléthorique; nous avons donc laissé à leur place, et sous leur forme initiale, toutes les références antérieures à 1976, *telles qu'elles se trouvent dans le texte et dans les notes des articles eux-mêmes*. En revanche, nous regroupons ici, par ordre alphabétique des noms des auteurs, les références complètes des études qui ont été mentionnées, sous forme abrégée, dans les compléments apportés aux textes et aux notes par les auteurs et réviseurs de la présente deuxième édition; nous y ajoutons quelques publications récentes particulièrement marquantes. On ne trouvera donc dans ce qui suit, sauf exceptions justifiées par leur importance, que des titres publiés depuis 1976."

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History of Logic

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Annotated Bibliography on the Ancient Stoic Dialectic (First Part: A - G)

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   "According to Michael Frede's interpretation, the notion oflekton was developed in the context of the Stoic theory of causality, and conceived as a metaphysical entity. The author of the book challenges this developmental explanation, upholding the linguistic origin of the notion oflekton, that would have been always conceived by the Stoics as a purely semantic entity – that is, as the incorporeal meaning of a corporeal linguistic voice."

4. Allen, James. 2001. *Inference from Signs. Ancient Debates About the Nature of Evidence*. New York: Oxford University Press

   Contents: Abbreviations XI; Introduction 1; Study I: Aristotle on Sign-inference and Related Forms of Argument 13; Study II: Rationalism, Empiricism, and Scepticism: Sextus Empiricus' Treatment of Sign inference 87; Study III: The Stoics on Sign-inference and Demonstration 147; Study IV: Epicurean Sign-inference in Philodemus 194; Conclusion 242; Bibliography

255; Index Locorum 265; General Index 276-279."...Study II has three tasks: first, to free the philosophical views that Sextus reports, especially the Stoic position, from the framework he used to classify them; second, to examine the debate about the nature of sign-inference between partisans of commemorative and indicative signification that was carried on in medicine; and last, to examine the sceptical credentials of the commemorative sign which Sextus embraces on behalf of Pyrrhonism.""Study III examines the Stoic theory of signs, now freed from the distorting influence of Sextus' framework. There I argue that, contrary to the expectations created by Sextus, it belongs among low views of signification and has more affinities with commemorative than indicative signification. But while the medical Empiricists distinguish a higher form of inference, indicative signification, only to repudiate it, the Stoics, like Aristotle, recognize superior forms of inference that they classify under the head of 'demonstration'. The Stoic distinction between signs and demonstrations takes a different form from Aristotle's, however, in a way that reflects some fundamental epistemological differences between Aristotle and the Stoa.And we shall see, as others have noticed before, that there was room within the Stoic position for disagreement and development: there were in fact a number of related Stoic positions, which seem to have differed mainly over whether and how demonstrations enter intoscientific explanation." (pp. 9-10)

5. Annas, Julia. 1980. "Truth and Knowledge." In *Doubt and Dogmatism. Studies in Hellenistic Epistemology*, edited by Barnes, Jonathan, Burnyeat, Myles and Schofield, Malcolm, 84-104. Oxford: Clarendon Press

   "In the debate on the question, 'What is the criterion of truth ?'(1) the answer provided by the Stoics was, in the main,(2) *katalepsis* or *kataleptike phantasia*. l shall translate these as 'apprehension' and 'apprehensible presentation'. (3) These are problematic concepts, asdifficult as the much-debated question of 'the criterion of truth' itself. This discussion tries to bring out some ways in which the debates were clouded by the Stoic failure to distinguish clearly between questions about what we

can know and questions about what is the case, and to realize that truth is a metaphysical notion, not an epistemological one." (p. 84)(1) Graeser [75], 68 (cf. Hartmann [47], 4) holds that the question of a criterion of truth was not one the Stoics faced until forced to do so by the challenge of their opponents in the sceptical Academy. But this cannot be right; Zeno was forced by Arcesilaus' criticisms to modify his definition of the apprehensible presentation (e.g. *Acad*. II 77, Numen. *apud* Eus. PE XIV 5-6, esp. 732 a and 733 a-c), so he already defended a theory of apprehensible presentations as the criterion. (Possibly he was attacking the Epicurean view that all presentations (not just all perceptions) were true; see *SVF* II 78, and Striker [133].)(2) *DL* VII 54 offers what look like various alternative criteria, but these are not rivals to the apprehensible presentation (see Rist [33], 133-4, Long [69]). The word 'criterion' itself did not imply that what was put forward was a guarantee of truth, rather than just a means or way of judging (see Striker [21]); but the Stoics did think of a criterion as a guarantee (see above n. 1).(3) I do not want here to go into the vexed question of whether the word καταλεπτικε had a suggestion of activity (as in 'apprehensive') or of passivity (as in 'apprehensible'). On this see Sandbach [121], 14-15, Graeser [75], 45-50.References[21] Striker, G. *Kriterion tes Aletheias* (Gottingen, 1974); Nachrichten der Akademie der Wissenschaften in Gifttingen, Phil.-hist. klasse, 1974, Nr. 2, 47-110.[37] Rist, J. *Epicurus, An Introduction* (Cambridge, 1972). [47] Hartmann, H. *Gewissheit und Wahrheit: der Streit zwischen Stoa und akademischen Skepsis* (Halle, 1927).[69['Sextus Empiricus on the Criterion of Truth', *Bulletin of the Institute of Classical Studies* 25 (1978), 35-49.[75] Graeser, A. *Zenon von Kition, Positionen und Probleme* (Berlin, 1975).[121] Sandbach, F. H., 'Phantasia Kataleptike', in Long, A. A., ed. *Problems in Stoicism* (London, 1971), 9-21.[133] Striker, G. 'Epicurus on the Truth of Sense-Impressions', *Archiv fiir Geschichte der Philosophie* 59 (1977), 125-42.

6. Aubert, Sophie. 2008. "Cicéron et la parole stoïcienne : polémique autour de la dialectique." *Revue de Métaphysique et de Morale*:61-91

Résumé: "Sous la République, la parole stoïcienne fit l'objet, de la part de Cicéron, d'analyses aussi nombreuses et précises que polémiques. La coexistence d'un style syllogistique et d'un autre plus ample au sein d'un même discours conduisit l'Arpinate à discréditer la rhétorique des Stoïciens au point de ne plus reconnaître à ces philosophes qu'un seul mode d'expression – le mode dialectique, dont il conteste la validité tant sous l'angle de la pratique philosophique, jugée inefficace, que du point de vue de l'éloquence, celle-ci étant foncièrement inappropriée à tous les auditeurs. Dans le *De Oratore*, Crassus analyse le mode d'expression philosophique des Stoïciens sous un angle oratoire, alors qu'il étudie l'éloquence philosophique des Académiciens et des Péripatéticiens sans chercher à examiner si elle conviendrait à un orateur. Dans le *Brutus*, le personnage éponyme insiste quant à lui sur le caractère prétendument unitaire d'une éloquence stoïcienne censée être identique à Rome et à Athènes, au cours d'entretiens philosophiques ou de discours oratoires. La description du style de Diogène de Babylonie par Antoine confirme pour finir la réduction du style des Stoïciens à la dialectique ainsi que son incapacité à charmer, émouvoir ou même enseigner, sa sécheresse, son obscurité (due à un constant décalage entre le fond et la forme du discours), son inutilité dans le cadre de l'invention et de la topique, et surtout sa propension à l'autodestruction. Pour autant, la dialectique du Portique était bien dotée d'une fonction heuristique, et non uniquement défensive ou agonistique."

7. Baldassarri, Mariano. 1993. "Un trattatello Plutarcheo di dialettica stoica: De E Delphico Cap. VI." In *Studi di filosofia antica. Vol. II*, 43-65. Como: Libreria Noseda

   Prima edizione in tedesco in: Klaus Döring, Theodor Ebert (hersg.), *Dialektiker und Stoiker. Zur Logik der Stoa und ihrer Vorläufer*, (1993), pp. 33-46."Del passo plutarcheo or ora presentato in traduzione [*] vediamo di effettuare un inquadramento rapido nel contesto dell'opuscolo e, soprattutto, una accurata analisi in vista di alcune conclusioni significative (i).Il dialogo s'imposta, come è noto, sul significato da dare alla E di grandi dimensioni sospesa come dono votivo al di sotto del

frontone del tempio di Apollo in Delfi tra le colonne del pronao." (p. 43)(...)"Questo capitolo sesto si presenta dunque come un trattatello di dialettica stoica. Compito primo della dialettica è la soluzione delle ambiguità (e dei sofismi) ossia la ricerca ed il conseguimento della verità: il rettamente discutere in vista del rettamente intendere. La dialettica ha come unità elementari non gli enunciabili completi non assertorii bensì le proposizioni logiche (semplici o non semplici); e delle non semplici la proposizione più caratteristicamente deduttiva è la proposizione condizionale, la quale si imposta sulla congiunzione caratteristicamente connettiva 'se': mentre le bestie hanno conoscenza dei fatti, soltanto l'uomo (che è fornito di ragione) conosce e giudica la connessione necessaria di un fatto con un altro fatto, il conseguire di un fatto ad un altro fatto, ossia il rapporto — positivo o negativo — del conseguente (del secondo) con l'antecedente (col primo) sia per presenza implicita del conseguente nell'antecedente sia per coerenza del conseguente con l'antecedente. Sorge così il primo anapodittico: aggiungendo alla proposizione condizionale, che pone la connessione e costituisce la premessa maggiore, l'affermazione dell'effettivo darsi dell'antecedente mediante la premessa minore, si afferma nella conclusione l'effettivo darsi del conseguente (o si ottiene il secondo anapodittico: negando nella minore il darsi del conseguente, si nega nella conclusione il darsi dell'antecedente). Per questa via (ma anche per la via della proposizione congiuntiva e della proposizione disgiuntiva, ossia mediante gli anapodittici terzo, quarto e quinto) si può realizzare la dimostrazione, che è verità (e sapere organizzato o scienza). E la dimostrazione è conoscenza, attraverso ciò che presentemente è, di ciò che in passato fu, in quanto causa appunto del presente, e di ciò che in futuro sarà, in quanto effetto appunto del presente: la ragione è ricerca della causa, e la sillogistica (innanzitutto la sillogistica della dialettica mantica) ha il suo fondamento nel principio ontologico di causa (nella serie eterna delle cause)." (p. 56)[*] *De E Delphico* 6, pp. 386D-387D; tr. it. Plutarco, *L'E di Delfi,* a cura di Claudio Moreschini, Napoli, D'Auria, 1998.

8. ———. 1993. "Il Simposio di Bamberg sulla logica degli Stoici e dei suoi precursori." In *Studi di filosofia antica. Vol. II*, 67-107.

Como: Libreria Noseda

Note sul *Symposion zur Logik der Stoiker und ihrer Vorläufer* (Bamberg, 2-6 September 1991).

9. ———. 1993. "Una rilevante disciplina antica documentata in modo nuovo (Discussione)." In *Studi di filosofia antica. Vol. II*, 109-123. Como: Libreria Noseda

   A proposito del libro di Karlheinz Hülser, *Die Fragmente zur Dialektik der Stoiker*, Stuttgart: Frommann Holzboorg 1986-1987.

10. ———. 1993. "Osservazioni sull'interpretazione Prantliana della logica Stoica." In *Studi di filosofia antica. Vol. II*, 125-138. Como: Libreria Noseda.

11. ———. 1993. "Ein kleiner Traktat Plutarchs über stoische Logik." In *Dialektiker und Stoiker. Zur Logik der Stoa und ihrer Vorläufer*, edited by Döring, Klaus and Ebert, Theodor, 33-46. Stuttgart: Franz Steiner.

12. Barnes, Jonathan. 1980. "Proof Destroyed." In *Doubt and Dogmatism. Studies in Hellenistic Epistemology*, edited by Barnes, Jonathan, Burnyeat, Myles and Schofield, Malcolm, 161-181. Oxford: Clarendon Press

    Reprinted in: J. Barnes, *Proof, Knowledge, and Scepticism: Essays in Ancient Philosophy III*, edited by Maddalena Bonelli, Oxford: Clarendon Press 2014.

13. ———. 1982. "Medicine, Experience and Logic." In *Science and Speculation. Studies in Hellenistic Theory and Practice*, edited by Barnes, Jonathan, Brunschwig, Jacques, Burnyeat, Myles and Schofield, Malcolm, 24-68. Cambridge: Cambridge University Press

    Reprinted in: J. Barnes, *Logical Matters. Essays in Ancient Philosophy II*, edited by Maddalena Bonelli, Oxford: Clarendon Press 2012, pp. 538-581.Translated in French as "Médécine, expérience et logique", in *Revue de Métaphysique et de Morale*, 1989, 94, pp. 437-481.

14. ———. 1985. "Theophrastus and Stoic Logic." In *Aristoteles. Werk Und Wirkung, Paul Moraux Gewidmet, I: Aristoteles Und Seine Schule*, edited by Wiesner, Jürgen, 557-576. Berlin: Walter de Gruyter

    Reprinted in: J. Barnes, *Logical Matters. Essays in Ancient Philosophy II*, edited by Maddalena Bonelli, Oxford: Clarendon Press 2012, pp. 413-432.

15. ———. 1997. *Logic and the Imperial Stoa*. Leiden: Brill

    Contents: Preface IX-XI; Chapter One: The Decline of Logic 1; Chapter Two: Seneca 12; Chapter Three: Epictetus 24; Chapter Four: Conclusion 126; Appendix: Epictetus, diss I vii 129; Bibliography 147; Indexes: Passages 155; Persons 159: Topics 162-165.

16. ———. 1999. "Aristotle and Stoic Logic." In *Topics in Stoic Philosophy*, edited by Ierodiakonou, Katerina, 23-53. Oxford: Clarendon Press

    Reprinted in: J. Barnes, *Logical Matters: Essays in Ancient Philosophy II,* Oxford: Clarendon Press, 2012, pp. 382-412."Were Aristotle's logical writings known to the early Stoic logicians, and did Aristotle's logical ideas have any influence on the development of Stoic logic? The evidence which bears on this question is perplexing: there are numerous pertinent texts which favour an affirmative answer; yet as we approach them they seem, like so many will-o'-the-wisps, to retreat -- and we are stumbling in a treacherous marsh.But the question is not without its fascination, in as much as it concerns the historical relations between two magnificent monuments to Greek philosophical acumen; and it may stand some discussion. Section I presents some general ruminations. Section II deals with the preliminary question of whether the Stoics could in principle have read Aristotle. Section III assembles a sample of the evidence which suggests that the Stoics did in fact read and study their Aristotle. And the remaining sections try to assess the value of this evidence.The question is a historical one, and it invites consideration of a certain type of historical explanation. It is not merely a matter of whether the Stoics were aware of the

Peripatetic achievement in logic: it is a matter of whether this awareness influenced their own logical thoughts and caused them to think in this way rather than in that." (p. 23)

17. ———. 2005. "What Is a disjunction?" In *Language and Learning: Philosophy of Language in the Hellenistic Age. Proceedings of the Ninth Symposium Hellenisticum*, edited by Frede, Dorothea and Inwood, Brad, 274-298. Cambridge: Cambridge University Press

    Reprinted in J. Barnes, *Logical Matters. Essays in Ancient Philosophy II*, Oxford: Clarendon Press 2012, pp. 512-537."That the Stoics were the instigators of the emphasis put on linguistic observations in ancient philosophy is uncontested. To what degree they are rightly accused of paying more attention to expressions rather than to things is quite another matter, despite the fact that this reproach was voiced repeatedly in antiquity by authorities such as Galen and Alexander of Aphrodisias and has lasted through the nineteenth century AD. If the Stoics have enjoyed a better press since the twentieth century it is because they were taken to be logicians for logic's sake, committed formalists who stopped just short of inventing the appropriate type of artificial language. That this picture needs revision is argued by Jonathan Barnes (*What is a disjunction*?') in a painstaking investigation of the treatment of connectives in Apollonius Dyscolus' essay with that title and Galen'sInstitutio logica. Barnes shows that Apollonius' text is coherent and thereby undermines a long-standing prejudice about the Stoic impact on the development of traditional grammar: contrary to what has been assumed (via an unwarranted textual emendation in a crucial passage of Apollonius Dyscolus) Apollonius does not criticise the Stoics' meddling with grammar, but rather their insufficient interest in some of its finer points. Far from adopting a purely formalistic stance, the Stoics distinguished between natural and non-natural disjunctions and colligations. They used these considerations not only to distinguish between natural and occasional disjunctions, but also between grammatical and semantical nonsense. Since no other text besides Apollonius' attributes the conception of 'natural disjunctions' to the Stoics

it is a question whether it actually is of Stoic origin rather than derived from the Peripatetics or an invention by certain grammarians. As Barnes shows, the interconnections and boundaries between natural language and formal logic did not only play a crucial role in the treatment of disjunctions by Apollonius Dyscolus. They are also the basis of Galen's criticism of Stoic logic on the differentiation between complete and incomplete conflict and implication, whose intent was to show what is and what is not a legitimate use of conjunctions. If that distinction is at stake, then Galen's view on disjunctions and conjunctions turns out to be coherent, despite initial appearances to the contrary. The differing parties accused each other of not having paid sufficient attention to thepragmata; however, their complaint is not that the facts in the world have been ignored, but rather that the meaning of the terms has not received sufficient attention." From the *Introduction* by Dorothea Frede and Brad Inwood (pp. 11-12).

18. ———. 2009. "Grammaire, rhétorique, épistémologie, et dialectique." In *Lire les stoïciens*, edited by Gourinat, Jean-Baptiste and Barnes, Jonathan, 135-149. Paris: Presses Universitaires de France.

19. ———. 2011. "Reading the Hypotheticals." In *Argument from Hypothesis in Ancient Philosophy*, edited by Longo, Angela, 187-280. Napoli: Bibliopolis.

20. Becker, Oskar. 1957. *Zwei Untersuchungen Zur Antiken Logik*. Wiesbaden: Otto Harrassowitz

    Inhalt: Zum Problem der platonischen Idealzahlen (Eine Retraktation) 1; Miszellen zu mathematisch-philosophischen Texten 23; Über die vier Themata der stoischen Logik 27; Miszellen zur stoische Logik 50-55.

21. Berrettoni, Pierangiolo. 1997. "L'ἀξίωμα διασαφουˆν τὸ μαˆλλον nella logica stoica." In *Grammatica e ideologia nella storia della linguistica*, edited by Berrettoni, Pierangiolo and Lorenzi, Franco, 1-34. Perugia: Margiacchi - Galeno.

22. Bobzien, Suzanne. 1986. *Die Stoische Modallogik*. Würzburg: Kõnighausen-Neumann

Inhalverzeichnis: Einleitung 4;I. Der Axioma-Begriff der Stoiker 11;1. Die stoische Definition des Axioma-Begriffes 11; 2. Vorläufige Bestimmung der Wahrheitskriterien des stoischen Axioms 14; 3. Der gleiche Satz bezeichnet verschiedene Axiomata: das definite Axioma 17; 4. Axiomata vergehen 18; 5. Axiomata, die ihren Wahrheitswert wechseln:meta - piptonta 21; 6. Das Bestehen des dem Axioma korrespondierenden Sachverhalts wird durch das Axiome je nur für den Zeitpunkt der Behauptung dieses Axioma behauptet 23; 7. Zeitbezogene Axiomata 26; 8. Wahrheitsbedingungen der zeitbezogenen Axiomata 28; 9. Wahrheitswertwechsel der zeitbezogenen Axiomata 26; 9. Axiomata mit Pseudodaten 31; 11. Nichtzeitbezogene Axiomata 34; 12. Zusammenfassung 36;II. Die stoische Modallogik 40;1.Die Definitionen der stoischen Modalbegriffe 40; a) Interpretation und Rekonstruktionsversuche vor Frede 40; b) Fredes Rekonstruktion der stoischen Modalbegriffe 45; 2.Korrelation der stoischen Axioma- und Sachverhaltsmodi 50; 3. Die Sachverhaltsmodi und ihre überlieferten Bestimmungen 51;4. Kontingente Axiomata und Sachverhalte 56; 5. Der Ausdruck 'epidektikon aletés / pseudos einai 60; 6. Die Modalitäten der nichtzeitbezogenen Axiomata 63; 7. Der Ausdruck 'äussere Umstände hindern...' 67; 8. Die Modalitäten der zeitbezogenen Axiomata 72; a) Die Modalitäten der Axiomata über die Gegenwart 73; b) Die Modalitäten der Axiomata über die Vergangenheit 76; c) Die Modalitäten der Axiomata über die Zukunft 91; 9. Zusammenfassung und Schlussfolgerung bzgl. der Art der Modalitäten der zeitbezogenen Axiomata 98; 10. Modalitätenwechsel 103; 11. Aus Möglichem folgt Unmögliches 105; 12. Die Rekonstruktion des stoischen Modalsystems von Mignucci und Vuillemin 113; 13. Zusammenfassung 118; Anmerkungen 121; Symbol- und Abkürzungsverzeichnis 142; Literaturverzeichnis 143-147.English Abstract: "Part I discusses the Stoic notion of propositions (assertibles, axiomata): their definition; their truth-criteria; the relation between sentence and proposition; propositions that perish; propositions that change their truth-value; the temporal dependency of propositions; the temporal dependency of the Stoic notion of truth; pseudo-dates in propositions. Part II discusses Stoic

modal logic: the Stoic definitions of their modal notions (possibility, impossibility, necessity, non-necessity); the logical relations between the modalities; modalities as properties of propositions; contingent propositions; the relation between the Stoic modal notions and those of Diodorus Cronus and Philo of Megara; the role of 'external hindrances' for the modalities; the temporal dependency of the modalities; propositions that change their modalities; the principle that something possible can follow from something impossible; the interpretations of the Stoic modal system by B. Mates, M. Kneale, M. Frede, J. Vuillemin and M. Mignucci are evaluated."For a shorter, updated, English version of Part I see "Stoic Logic", in K. Algra et al. (eds), *The Cambridge History of Hellenistic Philosophy*, Cambridge: Cambridge University Press 1999, pp. 92-157.For a shorter, updated, English version of Part II see "Chrysippus' Modal Logic and its Relation to Philo and Diodorus", in K. Döring, Th. Ebert (eds.), *Dialektiker und Stoiker*, Stuttgart: Franz Steiner1993, pp. 63-84.

23. ———. 1996. "Stoic Syllogistic." *Oxford Studies in Ancient Philosophy* no. 14:133-192

    "For the Stoics, a syllogism is a formally valid argument, and the primary function of their syllogistic is to establish the formal validity of arguments. Stoic syllogistic can be understood as a system of formal logic that relies on two types of argumental rules:' first, five rules (the accounts of the indemonstrables) which were used to determine whether any given argument is an indemonstrable argument (anapodeiktos logos), i.e. an elementary syllogism the validity of which is not in need of further demonstration (D.L. 7.79), since its validity is evident in itself (Sextus,M. 2. 223);2 second, one unary and three presumably binary argumental rules, called themata, which allow one to establish the formal validity of non-indemonstrable arguments by analysing them in one or more steps into one or more indemonstrable arguments (D.L. 7. 78). The function of these rules is not to generate non indemonstrable syllogisms from indemonstrable ones, but rather to reduce given non-indemonstrable arguments to indemonstrable syllogisms. Moreover, the Stoic method of

deduction differs from standard modern ones in that the direction is reversed. The Stoic system may hence be called an 'argumental reductive system of deduction'.In the following I present a reconstruction of this system of logic. The rules or accounts used for establishing that an argument is indemonstrable have all survived, and the indemonstrables are among the best-known elements of Stoic logic. However, their exact role and logical status in Stoic syllogistic are usually neglected. I expound how they are integrated in the system of deduction. The state of evidence for thethemata is dismal -- although perhaps not hopeless. I suggest a reconstruction of thethemata, based on a fresh look at some of the sources, and then offer a reconstruction of the general method of reduction of arguments and some general remarks on Stoic syllogistic as a whole and on the question of its completeness (much of which will not depend on the particular formulation of thethemata I propose, but on more general considerations for a reconstruction).Stoic logic is a propositional logic, and Stoic negation and conjunction are truth-functional. This has, naturally, led to comparisons with the 'classical' propositional calculus (as e.g. presented inPrincipia Mathematica), including repeated examinations of Stoic syllogistic on completeness in the modern sense. The Stoic theory of deduction invariably comes out as deficient, inferior, or simply outlandish in such comparisons, which has evoked adjusting additions and modifications -- tacit or explicit -- in previous reconstructions of the system. I suggest that this is the wrong approach; that the classical propositional calculus is the wrong paradigm; that Stoic logic has to be considered first of all in its own light; and that, if one looks for comparisons with contemporary logic, one can find some rather more interesting parallels when turning one's attention to non-truth-functional propositional logics." (pp. 133-134)(1) By an argumental rule I mean a rule that produces arguments from (zero or more) arguments, as opposed to a rule that produces propositions from (zero or more) propositions.(2) The accounts of the indemonstrables, when interpreted as rules, are nullary argumental rules.

24. ———. 1997. "The Stoics on Hypotheses and Hypothetical Arguments." *Phronesis.A Journal for Ancient Philosophy* no.

42:299-312

"In the list of Chrysippus' logical writings in Diogenes Laertius, in its fourth section of works on arguments(λογοι), e find ten books on hypothetical arguments (υποθετικόι λογοι, D. L. VII 196). The questionI shall follow up in this paper is: what were these Stoic hypothetical arguments about which Chrysippus had so much to say? Little has been written on this issue, the situation of the sources being not exactly favourable. No example of an hypothetical argument assigned to Chrysippus or any other early Stoic has survived, nor do we have any Stoic definition.One way of approaching the issue is to look and see what arguments were called "hypothetical arguments" or "hypothetical syllogisms" after Chiysippus, and to examine whether these are the same kind of arguments Chrysippus wrote about." (p. 299)

25. ———. 1999. "Logic. III. The Stoics." In *The Cambridge History of Hellenistic Philosophy*, edited by Algra, Keimpe, Barnes, Jonathan, Mansfeld, Jaap and Schofield, Malcolm, 92-176. Cambridge: Cambridge University Press

    §§ 1-7 (pp. 92-157) by Susanne Bobzien; § 8 (pp. 157-176) by Mario Mignucci.

26. ———. 2002. "Pre-Stoics Hypothetical Syllogistic in Galen's *Institutio Logica*." In *The Unknown Galen*, edited by Nutton, Vivian, 57-72. London: Institute of Classical Studies, University of London

    "The text of the *Institutio Logica* (*IL*) or *Introduction to Logic* is not found in Kuhn [*] because its sole surviving manuscript was first published, not long after its discovery, in 1844, and thus too late for inclusion in Kuhn. Moreover, some have thought the work to be spurious.(1)The reasons given for this assumption were on the whole unconvincing. I take it for granted that the *Institutio Logica* is by Galen.In this paper I trace the evidence in the *Institutio* for a hypothetical syllogistic which predates Stoic propositional logic. It will emerge that Galen is one of our main witnesses for such a theory. In the *Institutio*, Galen draws from a number of different sources and theories.There are the so-called ancient philosophers (οι

παλαιοι των Φιλοσοφων); there is the Stoic Chrysippus, whose logic Galen studied in his youth.(2) There are the ‘more recent philosophers’ (οι νεωτεροι), post-Chrysippean Stoics or logicians of other schools who adopted Stoic terminology and theory.(3) There are from the 1st century BC the Stoic Posidonius and the Peripatetic Boethus, both of whom Galen may have counted among the ‘more recent philosophers’. Again, in some passages Galen seems to draw from contemporary logicaltheories of non-Stoic make, presumably of Peripatetic or Platonist origin; and in others he explicitly introduces his own ideas.(4) But apart from Plato, who is generously credited by Galen with the use of the later so-called second hypothetical syllogism, the only promisingcandidates for pre-Stoic proponents of a hypothetical syllogistic are the above-mentioned 'ancient philosophers'. In the following I concentrate on their theory."[* Karl Gottlob Kühn, *Claudii Galeni Opera Omnia*. Leipzig: C. Cnobloch, 1821-1833, 19 volumes, reprinted Hildesheim: Georg Olms,1964-1997].(1) E.g. C. Prantl, *Die Geschichte der Logik im Abendlande* vol. I (Leipzig 1855) 591-92.(2) Cf. Galen, *On my own books*, 43 (Kühn XIX).(3) Cf. L S. Kieffer, *Galen's Institutio Logica* (Baltimore 1964) 130-32; J. Bames, ‘Form and Matter’, in A. Alberti, ed., *Logica, Mente e Persona* (Florence 1990) 7-119, at 71-23.(4) E.g. in chapters 16-17 of the *Institutio*.

27. ———. 2003. "Stoic Epistemology." In *The Cambridge Companion to Stoics*, edited by Inwood, Brad, 59-84. Cambridge: Cambridge University Press.

28. ———. 2005. "The Stoics on Fallacies of Equivocation." In *Language and Learning. Philosophy of Language in the Hellenistic Age. Proceedings of the Ninth Symposium Hellenisticum*, edited by Frede, Dorothea and Inwood, Brad, 239-273. Cambridge: Cambridge University Press

    "As Susanne Bobzien shows, the Stoics had philosophical reasons for the development of strategies to handle `lexical' ambiguities, because they regarded fallacies of ambiguity as complexes of propositions and sentences that straddle the realm of linguistic expression (the domain of language) and the realm of meaning (the domain of logic); moreover, there is also

a pragmatic component because being deceived is a psychological disposition that can be reduced neither to language nor to meaning. Not all arguments are, after all, as transparently fallacious as is the example that exploits the ambiguity of 'for men/manly' and concludes that a 'garment for men' must be courageous because manliness is courage. Bobzien provides a detailed analysis of the relevant passages, lays bare textual and interpretative difficulties, and explores what the Stoic view on the matter implies for their theory of language. She points up that the Stoics believe that the premisses of the fallacies, when uttered, have only one meaning and are true, and thus should be conceded; hence no mental process of disambiguation is needed, while Aristotle, by contrast, assumes that the premisses contain several meanings, and recommends that the listeners explicitly disambiguate them. Bobzien proffers two readings of the Stoic advice that we 'be silent' when confronted with fallacies of ambiguity, and explicates how each leads to an overall consistent interpretation of the textual evidence. Finally, she demonstrates that the method advocated by the Stoics works for all fallacies of lexical ambiguity." (From the *Introduction* by Dorothea Frede and Brad Inwood, (pp. 10-11)

29. ———. 2011. "The Combinatorics of Stoic Conjunction: Hipparchus Refuted, Chrysippus Vindicated." *Oxford Studies in Ancient Philosophy* no. 40:157-188.

30. ———. 2019. "Stoic Sequent Logic and Proof Theory." *History and Philosophy of Logic* no. 40:234-265

    Abstract: "This paper contends that Stoic logic (i.e. Stoic analysis) deserves more attention from contemporary logicians. It sets out how, compared with contemporary propositional calculi, Stoic analysis is closest to methods of backward proof search for Gentzen-inspired substructural sequent logics, as they have been developed in logic programming and structural proof theory, and produces its proof search calculus in tree form. It shows how multiple similarities to Gentzen sequent systems combine with intriguing dissimilarities that may enrich contemporary discussion. Much of Stoic logic appears surprisingly modern: a recursively formulated syntax with

some truth-functional propositional operators; analogues to cut rules, axiom schemata and Gentzen's negation-introduction rules; an implicit variable-sharing principle and deliberate rejection of Thinning and avoidance of paradoxes of implication. These latter features mark the system out as a relevance logic, where the absence of duals for its left and right introduction rules puts it in the vicinity of McCall's connexive logic. Methodologically, the choice of meticulously formulated meta-logical rules in lieu of axiom and inference schemata absorbs some structural rules and results in an economical, precise and elegant system that values decidability over completeness. "

31. Bobzien, Suzanne, and Dychoff, Roy. 2019. "Analyticity, Balance and Non-admissibility of Cut in Stoic Logic." *Studia Logica* no. 107:375-397

    Abstract: "This paper shows that, for the Hertz–Gentzen Systems of 1933 (without Thinning), extended by a classical rule T1 (from the Stoics) and using certain axioms (also from the Stoics), all derivations are analytic: every cut formula occurs as a subformula in thecut's conclusion. Since the Stoic cut rules are instances of Gentzen's Cut rule of 1933, [*] from this we infer the decidability of the propositional logic of the Stoics. We infer the correctness for this logic of a "relevance criterion" and of two "balance criteria", and hence(in contrast to one of Gentzen's 1933 results) that a particular derivable sequent has no derivation that is "normal" in the sense that the first premiss of each cut is cut-free. We also infer that Cut is not admissible in the Stoic system, based on the standard Stoicaxioms, the T1 rule and the instances of Cut with just two antecedent formulae in the first premiss." [*] Gentzen, G., ¨Uber die Existenz unabhängiger Axiomensysteme zu unendlichen Satzsystemen, Mathematische Annalen 107:329–350, 1933.

32. Bobzien, Suzanne, and Mignucci, Mario. 2003. "Logic." In *The Cambridge Companion to Stoics*, edited by Inwood, Brad, 85-123. Cambridge: Cambridge University Press

§§ 1-7 (pp. 92-157) by S. Bobzien; § 8 (pp. 157-176) by M. Mignucci.

33. Bochenski, Joseph. 1951. *Ancient Formal Logic*. Amsterdam: North-Holland

    Chapter V. *The Stoic-Megaric School,* pp. 77-102.

34. ———. 1961. *A History of Formal Logic*. Notre Dame: Indiana University Press

    Translated from the German edition "Formale Logik" (1956) by Ivo Thomas.Reprinted New York, Chelsea Publishing Co., 1970.On the Stoics see Part III. *The Megarian-Stoic School,* pp. 105-251.

35. Boersma, Gerald P. 2014. "The Logic of the Logos: A Note on Stoic Logic in *Adversus Praxean* 10." *Journal of Early Christian Studies* no. 22:485-498

    "Tertullian sees logic as inhering in language, and he takes this notion from the Stoic tradition. I will argue that it is this Stoic link between logic and language that enables Tertullian to make sense of the scriptural language that distinguishes between the divine persons. After briefly considering the nature of Stoic dialectic, I will analyze the presence of Stoic dialectic in *Adversus Praxean* 10, and conclude by remarking on the theological significance of Stoic dialectic in this passage. Studies on the place of Stoic thought in Tertullian have tended to focus on his appropriation of this philosophical tradition in his ethics and anthropology. There remains a lacuna in any real engagement with the place of Stoic dialectic in his thought." (p. 486)

36. Brancacci, Aldo. 2005. "Antisthène et le stoïcisme: la logique." In *Les Stoïciens*, edited by Romeyer, Dherbey Gilbert and Gourinat, Jean-Baptiste, 55-73. paris: Vrin.

37. Brittain, Charles. 2005. "Common Sense: Concepts, Definition and Meaning in and out of the Stoa." In *Language and Learning: Philosophy of Language in the Hellenistic Age. Proceedings of the Ninth Symposium Hellenisticum*, edited by

Frede, Dorothea and Inwood, Brad, 164-209. Cambridge: Cambridge University Press

"Charles Brittain also focuses on an important aspect of the philosophical analysis of language: its relation to reality and to the conceptual apparatus in the human mind, which on most theories connects reality to language. To the naive mind, a concept like 'common sense' would not seem to be in need of development since it must have been in place since the dawn of human reasoning. Nor is that the issue of Brittain's paper. Instead, he focuses on the development of atheory of common sense that is based on the connection between a stock of rational conceptions that is the common possession of all humans and the words which map naturally onto those conceptions and so give expression to them. The Stoics themselves did not maintain that everyone can acquire conceptions that successfully capture the essence of things; such success presupposes the uncorrupted mind of the wise; so these normative concepts do not seem to be an obvious source for a theory of common conceptions that are open to all. As Brittain contends, it would nevertheless be wrong to attribute such a theory to the later Platonists despite the fact that they advocated the existence of universally acceptable word-meanings that are open to every human being's grasp. For Platonists regarded these meanings as mere accidental features of the thing in question. What was needed to establish a theory of common sense was a combination of the two theories: the 'preliminary definition' of a term with universal acceptance that lays claim to at least a partial grasp of the thing's essence. En route to this solution Brittain offers,inter alia, a reconstruction of the mechanism at work in the formation of common concepts with abstract and general contents and seeks to solve the conundrum of how definitions of the words corresponding to the concepts are formed. He does so by carefully sifting through different sources that employ Stoic vocabulary (such as 'preconceptions' or 'common conceptions') but that differ significantly from the Stoic view that all humans have at least a partial grasp of a thing's essential properties, rather than mere accidental properties. This assumption paves the way towards a

theory of 'common sense' that establishes a direct connection between the concepts and the objects of the world and explains how ordinary language-speakers have at least an outline understanding of the world. Such a theory, so Brittain argues, is the upshot of Cicero's treatment of preconceptions, in the basis of definitions. The rendering of 'preconception'(prolepsis) as shared by all - bycommunis mens and finally bycommunis sensus - justifies the attribution to Cicero of at least 'a fragment of a theory of common sense' in civic and political matters that everyone in principle can understand. This was a theory that deeply influenced the later rhetorical tradition and thereby became a lasting asset in cultural history." (From the *Introduction* by Dorothea Frede and Brad Inwood, (pp. 8-9)

38. ———. 2014. "The compulsions of Stoic assent." In *Strategies of Argument: Essays in Ancient Ethics, Epistemology, and Logic*, edited by Lee, Mi-Kyoung, 332-355. New York: Oxford University Press.

39. Brochard, Victor. 1892. "La logique des Stoïciens." *Archiv für Geschichte der Philosophie* no. 5:449-468

    Repris dans: V. Brochard, É*tudes de philosophie ancienne et de philosophie moderne: XI. La logique des Stoïciens* (Première étude, pp. 220-238); XII. *La logique des Stoïciens* (Deuxième étude, pp. 239-251), Paris: Vrin, 1954.

40. Bronowski, Ada. 2014. "La structure logique du langage ordinaire chez les Stoiciens." In *Philosophie et langage ordinaire de l'Antiquité à la Renaissance*, edited by Counet, Jean-Michel, 83-96. Edition Peeters.

41. ———. 2019. *The Stoics on Lekta: All There Is to Say*. New York: Oxford University Press.

42. Brunschwig, Jacques. 1980. "Proof Defined." In *Doubt and Dogmatism. Studies in Hellenistic Epistemology*, edited by Barnes, Jonathan, Burnyeat, Myles and Schofield, Malcolm, 125-160. Oxford: Clarendon Press.

43. ———, ed. 2006. *Les Stoïciens et leur logique*. Paris: Vrin

Actes du Colloque de Chantilly 18-22 septembre 1976.Première édition 1978; deuxième édition, revue, augmentée et mise à jour (reproduit la pagination de l'édition originale).Table des matières: Avant propos de la deuxième édition 7; Avant propos de la première édition 11; John M. Rist: Zeno and the Origins of Stoic Logic (non revu par l'auteur) 13; Ian G. Kidd: Posidonius and Logic (revu par l'auteur) 29; Victor Goldschmidt: Remarques sur l'origine épicurienne de la "prénotion" (revu par Pierre-Marie Morel) 41; Anthony A. Long: The Stoic Distinction Between Truth (me alétheia) and the True (to alethés) (revu par l'auteur) 61; Claude Imbert: Théorie de la représentation et doctrine logique dans le stoïcisme ancien (revu par l'auteur) 79; George Kerferd: The Problem of *syntakatathesis* and *katalepsis* in Stoic Doctrine (revu par Thomas Bénatouïl) 109; Urs Egli: Stoic Syntax and Semantics (revu par l'auteur) 131; Pierre Pachet: l'imperatif stoïcien (revu par l'auteur) 149; Françoise Caujolle-Zaslawsky: Le style stoïcien et la *paremphasis* (revu par l'auteur) 165; Richard Goulet: La classification stoïcienne des propositions simples selon Diogène Laërce, VII 69-70 (revu par l'auteur) 191; Anthony C. Lloyd: Definite Propositions and the Concept of Reference (revu par Jean-Baptiste Gourinat) 223; Jacques Brunschwig: Le modèle conjonctif (revu par l'auteur) 235; Gérard Verbeke: La philosophie du signe chez les stoïciens (revu par Danielle Lories) 261; Hervé Barreau: Cléanthe et Chrysippe face au maître-argument de Diodore (revu par l'auteur) 283; Mario Mignucci: Sur la logique modale des stoïciens (revu par Paolo Crivelli) 303; Pasquale Pasquino: Le statut ontologique des incorporels dans l'ancien stoïcisme (revu par l'auteur) 333; Andreas Graeser: The Stoic Categories (revu par l'auteur) 347; Janine Bertier: Une hénadologie liée au stoïcisme tardif dans le commentaire d'Alexandre d'Aphrodise à laMétaphysique d'Aristote (990 b 9) (non revu par l'auteur) 369; Jean-Paul Dumont: *Mos geometricus*, *mos physicus* (revu par Pierre-Marie Michel) 389; Joseph Moreau: Immutabilité du vrai, nécessité logique et lien causal (revu par Valéry Laurand) 405; Jonathan Barnes: La doctrine du retour éternel (revu par l'auteur) 421; Maria Daraki: Les fonctions psychologiques dulogos dans le stoïcisme ancien (non revu par

l'auteur) 441; Bibliographie complémentaire 475; Index locorum 485-509.

44. Burnyeat, Myles. 2005. "The origins of non-deductive inference." In *Science and Speculation. Studies in Hellenistic Theory and Practice*, edited by Barnes, Jonathan, Brunschwig, Jacques, Burnyeat, Myles and Schofield, Malcolm, 193-238. Cambridge: Cambridge University Press

    Reprinted in M. Burnyeat, *Explorations in Ancient and Modern philosophy, Volume 1*, Cambridge: Cambridge University Press 2012 pp. 112-151.

45. Cameron, Margaret. 2015. "On What is Said: The Stoics and Peter Abelard." In *Linguistic Content: New Essays on the History of Philosophy of Language*, edited by Cameron, Margaret and Stainton, Robert, 55-73. Oxford: Oxford University Press

    "A novel kind of meaning shows up, apparently independently, in the philosophy of the Stoics and of Peter Abelard (1079–1142). For the Stoics it is the *lekton*, or 'sayable' (or, more precisely, the *axioma*, or'assertible', which is one type of *lekton*), and for Abelard it is the *dictum*. The extent of similarity between their doctrines is surprising, especially because there is no evidence of a historical connection between them: as far as we know, Abelard did not have access to any Stoic writings, or reports of Stoic views, on the topic of linguistic content. (1) The similarity is more surprising still, given that Abelard was working within the context of Aristotle's logic, which contains no comparable doctrine. Historians of philosophy have noticed this similarity.(2) When the comparison is drawn it is with reference to the fact of their shared recognition of this new type of content—propositional content. But there are other remarkable points of similarity in their views. First, both seem to have been motivated, at least in part, by the need to disambiguate the notion of'predication in the ancient philosophical tradition. Second, both the Stoics (at least beginning with Chrysippus, the third head of the school) and Abelard were driven by a commitment to anti-realism, and by the need to present an anti-realist, or at least deflationary,

metaphysics. After a brief outline of each of their doctrines, I will compare their views on the points mentioned here." (p. 55) (1) While Augustine's *De dialectica* contains some version of the Stoic doctrine, his treatise does not appear to have circulated until the thirteenth century. Another possible source might have been Cicero, but I know of no evidence to support such a transmission. (2) Martin (2004), who cites Nuchelmans (1973) and Schenkeveld (1984). See also Jacobi (1983) and Lenz (2005). But see Nuchelmans (1973: 152): it is hardly necessary to add that the Abelardian term *dictum* has nothing to do with the Stoic term *lekton*.'"Conclusion. In conclusion, what happens to this new type of linguistic content after Abelard? Theories of propositional content emerge, disappear, and re-emerge throughout the medieval and scholastic periods. The interest is preserved in the continuation of the logical tradition, still rooted in Aristotelian logic, beginning in the twelfth century. Some theorists seemed to have been entirely unconcerned with the ontological implications and underpinnings of these sorts of linguistic content. For example, the author(s) of a thirteenth-century logical textbook called the *Ars Burana* explain(s) that it is best considered to be an extrapredicamental thing (that is, not countenanced in what exists in an Aristotelian ontology of substances and accidents): Note that whether it is called a *dictum propositionis* or the *significatum propositionis* or the *enuntiabile*, it is the same. The enuntiable is that which is signified by the proposition . . . If you inquire what kind of thing it is, whether it is a substance or an accident, it must be said regarding the enuntiable, just as regarding the predicable, that it is neither a substance nor an accident nor is it of any other category. For it has its own per se mode of existing. And it is called 'extrapredicamental', not for the reason that it does not belong to any category, but because it does not belong to any of the ten categories that Aristotle distinguished. It is therefore of a certain category which can be called the 'enuntiable category'. (53) Later, some philosophers attempted to defend a view that took the opposite tack— that is, to defend a view of propositional realism, only to encounter some of the same sorts of anti-realist challenges.(54)" (p. 71) (53) *Ars Burana* (1967: 208). See De Libera (1981); Martin

(2004). (54) The best study of this topic is Cesalli (2007).ReferencesArs Burana (1967). Anon., *Ars Burana,* in L. M. de Rijk (ed.), *Logica modernorum: A Contribution to the History of Terminist Logic*. Assen: Van Gorcum, 175–213. Cesalli, L. (2007). *Le Réalisme propositionnel: Sémantique et ontologie des propositions chez Jean Duns Scot, Gauthier Burley, Richard Brinkley, et Jean Wyclif*. Paris: J. Vrin. De Libera, A. (1981) 'Abélard et le dictisme', *Cahiers de la revue de théologie et de philosophie*, 6: 59–92. Jacobi, K. (1983).'Abelard and Frege: The Semantics of Words and Propositions', in *Atti del convegno internazionale di storia della logica*, ed. V. M. Abrusci (San Gimignano: CLUEB), 81–96. Lenz, M. (2005).'Peculiar Perfection: Peter Abelard on Propositional Attitudes', *Journal of the History of Philosophy,* 43/4: 377–86. Martin, C. (2004).'Propositionality and Logic in the Ars Meliduna', in A. Maierù and L. Valente (eds), *Medieval Theories on Assertive and Non-Assertive Language*. Florence: Olschki, 111–28. Nuchelmans, G. (1973). *Theories of the Proposition: Ancient and Medieval Conceptions of the Bearers of Truth and Falsity*. Dordrecht: North-Holland. Schenkeveld, D. M. (1984).'Stoic and Peripatetic Kinds of Speech Act and the Distinction of Grammatical Moods', *Mnemosyne*, 37: 291–351.

46. Casari, Ettore. 1958. "Sulla disgiunzione nella logica megarico-stoica." In *Actes du VIII Congrès Internationale d'Histoire des Sciences. Florence-Milan, 3-9 Septembre 1956. Vol. III*, 1217-1224. Paris: Hermann et C.ie.

47. ———. 2018. *La logica stoica*. Pisa: Edizioni ETS

    A cura di Enrico Moriconi.

48. Castagnoli, Luca. 2010. "How Dialectical Was Stoic Dialectic?" In *Ancient Models of Mind: Studies in Human and Divine Rationality*, edited by Nightingale, Andrea Wilson and Sedley, David, 153-179. Cambridge: Cambridge University Press.

49. Cavini, Walter. 1983. "La teoria stoica della negazione." In *Atti del Convegno internazione di storia della logica*, edited by Abrusci, Michele, Casari, Ettore and Mugnai, Massimo, 229-234. Bologna: CLUEB.

50. ———. 1985. "Il papiro Parigino 2. Testo, traduzione e commento." In *Studi su Papiri Greci di logica e medicina*, edited by Cavini, Walter, Donnini Macciò, Maria Cristina, Funghi, Maria Serena and Manetti, Daniela, 85-126. Firenze: Olschki.

51. ———. 1985. "La negazione di frase nella logica greca." In *Studi su Papiri Greci di logica e medicina*, edited by Cavini, Walter, Donnini Macciò, Maria Cristina, Funghi, Maria Serena and Manetti, Daniela, 85-126. Firenze: Olschki

    Indice dei Contenuti: Nota liminare 9;LA NEGAZIONE ARISTOTELICA1. La sintesi dichiarativa: supplemento di frase e contenuto descrittivo 11; 2. Negazione semplice e affermazione trasposta 17; 3. Le asserzioni indeterminate: trasformazione predicativa ed equivocità composta 26; 4. Portata esistenziale dell'affermazione 36; 5. Negative categoriche 41;LA NEGAZIONE STOICA1. Frammenti e testimonianze 47; 2. La teoria stoica degliaxiomata 48; 3. Negazione semplice e composta 51; 4. Opposti contraddittòri 57; 5. Ambiguità della negazione ordinaria 67;APPENDICE - IL PAPIRO PARIGINO 2Testo e traduzione 86; Commento 107; Bibliografia 122-126.

52. ———. 1996. "Essere ed essere vero. Sull'uso assoluto di *Hyparcho* nella logica stoica." In *Odoi Dizesios = Le Vie Della Ricerca. Studi in Onore Di Francesco Adorno*, edited by Funghi, Maria Serena, 141-145. Firenze: Olschki.

53. Celluprica, Vincenza. 1980. "La logica stoica in alcune recenti interpretazioni." *Elenchos.Rivista di Studi sul Pensiero Antico* no. 1:123-150.

54. ———. 1989. "Diocle di Magnesia come fonte della dossografia stoica in Diogene Laerzio." *Orpheus.Rivista di Umanità Classica e Cristiana* no. 10:58-79.

55. Chiesa, Curzio. 1991. "Le problème du langage intérieur chez les Stoiciens." *Revue Internationale de Philosophie* no. 45:301-321.

56. Colish, Marcia L. 1979. "The Stoic Hypothetical Syllogisms and Their Transmission in the Latin West through the Early Middle Ages." *Res Publica Litterarum* no. 2:19-26

Reprinted in M. L. Colish, *The Fathers and Beyond: Church Fathers between Ancient and Medieval Thought*, Aldershot: Ashgate 2008, Essay XIV.

57. Corcoran, John. 1974. "Remarks on Stoic Deduction." In *Ancient Logic and Its Modern Interpretations. Proceedings of the Buffalo Symposium on Modernist Interpretations of Ancient Logic, 21 and 22 April, 1972*, edited by Corcoran, John, 169-181. Dordrecht: Reidel

"The purpose of this note is to raise and clarify certain questions concerning deduction in Stoic logic. Despite the fact that the extant corpus of relevant texts is limited, it may nevertheless be possible to answer some of these questions with a considerable degree of certainty. Moreover, with the answers obtained one might be able to narrow the range of possible solutions to other problems concerning Stoic theories of meaning and inference.The content of this note goes somewhat beyond the comments I made during the discussion of Professor Gould's paper 'Deduction in Stoic Logic', in the symposium. I am grateful to Professors Gould and Kretzmann for pointing out the implications of those comments as well as for encouraging me to prepare them for this volume.One of the obstacles to a careful discussion of Stoic logic is obscurity of terminology. Clarification of terminology may catalyze recognition of important historical facts. For example, in 1956 a modern logician suggested (incorrectly) in a historical note [Alonzo Church, *Introduction to mathematical logic*, Princeton. 1956, fn. 529] that the distinction between implication and deduction could not have been made before the work of Tarski and Carnap. But once historians had clarified their own terminology it became obvious that this distinction played an important role in logic from the very beginning. Aristotle's distinction between imperfect and perfect syllogisms is a variant of the implication-deduction distinction and Gould

'Deduction in Stoic Logic' suggests the existence of a parallel distinction in Stoic logic." (p. 169)

58. Crivelli, Paolo. 1994. "Indefinite Propositions and Anaphora in Stoic Logic." *Phronesis.A Journal for Ancient Philosophy* no. 39:187-206

    "If I utter in succession the sentences 'Someone is ringing at the door' and 'He is looking for you', my utterance of the pronoun 'he' is anaphoric on my utterance of the indefinite description 'someone', and the proposition expressed by my utterance of 'He is looking for you' is anaphoric on the indefinite proposition expressed by my utterance of 'Someone is ringing at the door'. Propositions anaphoric on indefinite propositions are very important in Stoic logic because they can be parts of indefinite conditionals and indefinite conjunctions, which are 'universal' and 'particular' propositions.In this paper I aim at establishing two main results concerning the Stoic conception of indefinite propositions and propositions anaphoric on them: the verb υοτατττειν belongs to the jargon of Stoic logic and expresses the operation of subordination, which yields the definite propositions that are relevant to the truth or falsity of a given indefinite proposition; the standard ('sentential') truth conditions of conditionals and conjunctions yield the expected ('quantificational') truth conditions of indefinite conditionals and conjunctions, i.e. truth conditions suitable for 'universal' and 'particular' propositions." (p. 187)

59. ———. 1994. "The Stoic Analysis of Tense and of Plural Propositions in Sextus Empiricus, *Adversus Mathematicos* X 99." *Classical Quarterly* no. 44:490-499

    "*Adversus Mathematicos* (*M*.) x is the second book dedicated by Sextus to the discussion of the physical doctrines put forward by dogmatic philosophers. An extensive section (*M*. X 85-120) deals with Diodorus Cronus' arguments concerning movement.*M*. X 99 occurs within the report of a debate on motion and time between Diodorus and some unnamed opponents. The passage is probably corrupt (as was already noticed by Heintz) [*] and contains some observations on plural propositions and tense which have not yet been

satisfactorily explained. In this paper I argue that Diodorus' critics are Stoics, propose a new emendation of the text, and attempt a plausible account of the remarks on plural propositions and tense. Thereby some light is shed on a hitherto unexplored region of Stoic logic." (p. 490)[* Werner Heintz, *Studien zu Sextus Empiricus*, Halle, 1932.]

60. ———. 2009. "La dialectique." In *Lire les Stoïciens*, edited by Gourinat, Jean-Baptiste and Barnes, Jonathan, 41-61. Paris: Presses univeristaires de France.

61. ———. 2010. "The Stoics on Definitions." In *Definition in Greek Philosophy*, edited by Charles, David, 359-423. New York: Oxford University Press

    "The present study is a reconstruction of the Stoic theory of definition. The topic is vast and the sources are scarce. My focus is on the epistemological and semantic aspects of the Stoic theory of definition.The study's first section explains how important definitions were for the Stoics. The second section expounds the different locations of the study of definitions within the Stoic system of philosophical disciplines. The third section discusses the epistemological side of the theory of definitions on which one of these locations relies. In particular, it addresses two roles played by definitions: sharpening our conceptions in such a way that they are more successfully applied to or withheld from entities, and endowing our conceptions with a systematic structure that makes them suitable for instruction. The fourth section discusses the link between definition and essence: it argues that the Stoics do not think that definitions reveal the essence of what is defined. The fifth section discusses the position of definitions within Stoic philosophy of language: definitions are not linguistic expressions, but sayables of a special kind (distinct from statables)." (p. 359)

62. Croissant, Jeanne. 1984. "Autour de la quatrième formule d'implication dans Sextus Empiricus, *Hyp. Pyrrh.* II, 112. Essai de mise au point." *Revue de Philosophie Ancienne* no. 2:73-120

    Repris dans: J. Croissant, *Études de philosophie ancienne*, Bruxelles: Ousia 1986, pp. 297-345."Le chemin que nous avons

suivi nous a conduits à interpréter la quatrième formule de Sextus comme l'expression d'un lien causal entre l'antécédent et le conséquent, avec cette précision supplémentaire, qui fait corps avec le texte de Galien, que la proposition ypothétique dans laquelle s'exprime l'endeixis procède à partir de l'effet pour découvrir la cause. Nous débouchons donc sur une présence du lien causal dans la proposition hypothétique qui est à l'opposé de l'interprétation de J. Moreau (126) qui voit dans l'*emphasis* l'inclusion dynamique de l'effet dans la cause, disons plutôt de l'ultérieur dans l'antérieur. Alors que mes réflexions m'ont orientée vers le domaine médical, J. Moreau a cherché à retrouver dans la logique stoïcienne la trace et la mise en forme de la conception stoïcienne de l'ordre du monde et des raisons séminales qui président à son déroulement. Les deux positions impliquent en outre une métaphorisation d'emphasis, un peu différente de part et d'autre, sous l'identité du "περιεχεται δυναμει". C'est aux lecteurs qu'il appartiendra de juger." (pp. 116-117)(126) [Joseph Moreau, "Immutabilité du vrai, nécessité logique et lien causal", *Les Stoïciens et leur logique* (Actes du Colloque de Chantilly, septembre 1976), Paris, Vrin, 1978, pp. 347-360] Cf. p. 84.

63. Detel, Wolfgang, Hülsen, Reinhard, Krüger, Gerhard, and Lorenz, Wolfgang. 1980. "λεκτα` ἐλλιπῆ in der Stoischen Sprachphilosophie." *Archiv für Geschichte der Philosophie* no. 62:276-288.

64. Dorandi, Tiziano. 2005. "La tradition papyrologique des Stoïciens." In *Les Stoïciens*, edited by Romeyer, Dherbey Gilbert and Gourinat, Jean-Baptiste, 29-52. Paris: Vrin

    "J'ai organisé ma contribution en cinq sections: 1. Noms de philosophes stoïciens et de leurs oeuvres dans les papyrus (d'Égypte et d'Herculanum). 2. Histoire de la Stoa de Philodème de Gadara. 3. Textes stoïciens en tradition directe (livres ou fragments de philosophes stoïciens transmis par les papyrus d'Égypte ou d'Herculanum). Je considère d'abord les textes dont l'attribution à un philosophe défini est certaine ou présumée telle: Chrysippe, Hiéroclès, Musonius Rufus; ensuite, je m'arrête sur le papyrus *Parisinus 2* dont l'attribution à Chrysippe a été contestée; enfin, j'examine des cas de fausses

attributions. 4. Textes stoïciens en tradition indirecte (les extraits de la P*oliteia* de Zénon de Citium cités par Philodème; ceux tirés des œuvres d'Ariston de Chios, d'Antipatros de Tarse et de Diogène de Séleucie). 5. Pour terminer, je dresserai une liste de papyrus où se trouve une référence à la Stoa, aux stoïciens, ou des allusions à des doctrines stoïciennes." (p. 30)Les pages 35-37 sont sur les *Recherches logiques* (*Logika zêtêmata*) (*fragmenta, P. Herc. 307*) de Chrysippe.

65. Döring, Klaus, and Ebert, Theodor, eds. 1993. *Dialektiker und Stoiker. Zur Logik der Stoa und ihrer Vorläufer*. Stuttgart: Franz Steiner

    Inhaltsverzeichnis: Vorwort 7; Abkürzungsverzeichnis 8; Teilnehmerverzeichnis 9; Wolfram Ax: Der Einfluss des Peripatos auf die Sprachtheorie der Stoa 11; Mariano Baldassarri: Ein kleiner Traktat Plutarchs über stoische Logik 33; Jonathan Barnes: Meaning, Saying and Thinking 47; Susanne Bobzien: Chrysippus' Modal Logic and Its Relation to Philo and Diodorus 63; Walter Cavini: Chrysippus on Speaking Truly and the Liar 85; Theodor Ebert: Dialecticians and Stoics on the Classification of Propositions 111; Urs Egli: Neue Elemente im Bild der stoischen Logik 129; Michael Frede: The Stoic Doctrine of the Tenses of the Verb 141; Gabriele Giannantoni: Die Philosophenschule der Megariker und Aristoteles 155; Karheinz Hülser: Zur dialektischen und stoischen Einteilung der Fehlschlüsse 167; Katerina Ierodiakonou: The Stoic Indemonstrables in the Later Tradition 187; Fritz Jürss: Zum Semiotik Modell der Stoiker und ihrer Vorläufer 201; Mario Mignucci: The StoicThemata 217; Luciano Montoneri: Platon, die Ältere Akademie und die stoische Dialektik 239; Luciana Repici: The Stoics and the Elenchos 253; Andreas Schubert: Die stoischen Vorstellungen 271; Gerhard Seel: Zur Geschichte und Logik destherizön logos 291; Hermann Weeidemann: Zeit und Wahrheit bei Diodor 319; Literaturverzeichnis 331; Register 343-361.

66. Drozdek, Adam. 2002. "Λεκτόν. Stoic Logic and Ontology." *Acta Antiqua. Academiae Scientiarum Hungaricae* no. 42:93-104

Summary: "For the Stoics, the *lekton* is as an intermediary between the thought and the object. They do not exist independently of the mind, but, at the same time, the mind does not create them. Due to this status, they guarantee intersubjectivity of the rational discourse. They are incorporeals that do not exist, but subsist and the Stoic Logos-God guarantees their permanent subsistence. The *Iekta* are semantico-syntactic entities. Their role is analogous to the role of an interlingua used as a tool for automated translation of languages."

67. Dumitriu, Anton. 1977. *History of Logic*. Tunbridge Wells: Abacus Press

    Revised, updated, and enlarged translation from the Roumanian of the second edition of "Istoria logicii" (1969, 4 volumes).On the Stoics see: Vol. I, pp. 216-253.

68. Ebert, Theodor. 1987. "The Origin of the Stoic Theory of Signs in Sextus Empiricus." *Oxford Studies in Ancient Philosophy* no. 5:83-126.

69. ———. 1991. *Dialektiker und frühe Stoiker bei Sextus Empiricus. Untersuchungen zur Entstehung der Aussagenlogik*. Göttingen: Vandenhoeck & Ruprecht

    Inhalt: Einleitung 13; I. Teil: Der Ursprung der stoischen Theorie des Zeichens. Erstes Kapitel: Die stoische Theorie des Zeichens bei Sextus Empiricus 29; Zweites Kapitel: Die stoische Theorie des Zeichens vor dem Hintergrund der Berichte bei Diogenes Laertius 54; Drittes Kapitel: Dialektiker und frühe Stoiker zur Theorie des Zeichens 66; II. Teil: Die Dialektiker bei Sextus Empiricus. Viertes Kapitel: Die Dialektische Klassifikation der Aussagen bei Sextus Empiricus 83; Fünftes Kapitel: Die Dialektische Klassifikation der Aussagen als Vorstufe der stoischen 108; Sechstes Kapitel: Die Dialektische und die stoische Klassifikation der Fehlschlüsse bei Sextus Empiricus 131; Siebtes Kapitel: Die Dialektiker über Trugschlüsse und ihre Auflösung 176; Anhang I zum II. Teil: Diodor und die 'Dialektiker' in AM 10.111 209; Anhang II zum II. Teil: Dialektiker und Stoiker bei Apuleius 213; III. Teil: Der Ursprung der stoischen Theorie des Beweis. Achtes Kapitel:

Der frühstoische Charakter der Theorie des Beweises bei Sextus Empiricus 219; Neuntes Kapitel: Ubereinstimmungen und Unterschiede in den Referaten des Sextus zur stoischen Beweistheorie und das genetische Verhältnis ihrer Quellen 232; Zehntes Kapitel: Von den Dialektikern zu Chrysipp -- der Weg einer Theorie in der Alten Stoa 287; Schlussbemerkung 303; Anhang: Texte aus Sextus Empiricus zu den Dialektikern und den Stoikern 311; Literaturverzeichnis 326; Register 337-346.English translation of the first part in: T. Ebert, *The Origin of the Stoic Theory of Signs in Sextus Empiricus* (1987).

70. ———. 1993. "Dialecticians and Stoics on the Classification of Propositions." In *Dialektiker und Stoiker. Zur Logik der Stoa und ihrer Vorläufer*, edited by Döring, Klaus and Ebert, Theodor, 111-127. Stuttgart: Franz Steiner

    "In his discussion and refutation of the logical theories of dogmatist philosophers in *Adversus Mathematicos* (M.) 8, Sextus Empiricus treats us, among other things, to an account of a classification of propositions (M. 8.93-129). The doctrine reported on here is usually taken to form part of Stoic logic.(1) Together with its apparent counterpart in Diogenes Laertius (D.L.) 7.68-76, this Sextian report is used to reconstruct a theory supposedly held by Stoic philosophers. In what follows I shall try to refute this view and I shall argue that Sextus' report encapsulates a doctrine worked out not by the Stoic, but by the Dialectical school whose most prominent members seem to have been Diodorus Cronus and Philo.(2)First I shall try to show that the two reports by Sextus and by Diogenes resp. are quite different indeed as to their systematic content and that, therefore, both reports must be drawn from different sources. In a second step it is then argued that Sextus' account is based on Dialectical material. Finally, I shall compare the Dialectical classification to be found in Sextus to the Stoic one in Diogenes with an eye to exploring these two divisions as different phases within the development of propositional logic." (p. 111)(1) Cp. Mates (1953) 30f, 54, Kneale (1962) 146, 148f., Mignucci (1965) 131, Egli (1967) 37f., Mueller (1969) 185, Frede (1974a) 49-62 passim, Brunschwig (1984) 9ff.; already v. Arnim put this text, omitting some parts, among the logical fragments of

Chrysippus: SVF fr. 205, 211, 216.(2) Cp. D. Sedley (1977).
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71. Egli, Urs. 1967. *Zur Stoischen Dialektik*. Basel: Sandoz

    Inauguraldissertation (Universität Bern).Inhaltsverzeichnis: 1. Allgemeines zur Rekonstruktion der stoischen Dialektik 2; 2. Diokles bei Diogenes Laertios 7.49-82 8; 3. Quellengeschichtliche Nebenergebnisse zu Diogenes und Sextos 59; 4. Nebenergebnisse zu Galens Einführung in die Logik 74; Zusammenfassung und Ausblick 87; Erklärung der wichstigsten Abkürzungen 106; Bibliographie 107-113.

72. ———. 1983. "The Stoic Theory of Arguments." In *Meaning, Use, and Interpretation of Language*, edited by Bäuerle, Rainer, Schwarze, Christoph and von Stechow, Arnim, 79-96. Berlin: Walter de Gruyter

    Contents: 1. Relevance of the topic; 2. Concepts involved; 2.1 Arguments; 2.2 Simple and logical concepts; 2.3 A hypothesis on Stoic deduction theory; 3. A commentary on Sextus' passage on invalidity [Adv. Math. 8, 292-294]; 3.1 The context; 3.2 The passage; 4. Deductions; 5. Completeness; 6. Conclusion; Appendix: Possible existence of cut free systems; Bibliography."1. Relevance of the TopicThe Stoic theory of arguments to my mind illustrates one point: If certain ancient doctrines had been properly understood, the corresponding modern theories would have been developed sooner. We would

have had a propositional logic by 1800, we would have had a serious syntax long before transformational grammar. Stoics, in addition, had already something like a speech act theory. In one or two cases modern theories have directly been elaborations of Stoico-Megarian developments: First, Prior's tense logic was influenced by reflections on Diodorus. Second, Kripke's semantics for modal logic was directly influenced by Prior's exposition of the theory of modality of Diodorus Kronos. Compare his truth definition of modal statements with that of Kripke:p is possible now iff p is true now or will be true later (Diodorus).p is possible in our world iff p is true in a world accessible from ours (Kripke).Kripke replaced points of time by possible worlds and the relation "to be now or later" by the accessibility relation. It is not impossible that further study of Stoic theories will contribute in a similar way to modern discussions.It has been proved by Lukasìewìcz and Mates that the Stoic theory of what they called syllogisms contained something we might call propositional logic in modern terms. Mates also brought up the problem of deciding whether1) Stoics contended that their propositional logic was complete; and whether2) Stoic logic actually was complete according to modern criteria (Mates 1961, 81-82).As to the first question, the evidence that Mates adduces is not wholly conclusive, for the passages are little more than consequences of the definition of syllogisms (= valid arguments): According to this definition a syllogism is either a basic syllogism (*anapodeiktos*) or derived from basic syllogisms by the deductive rules(themata) (DL 7.78). From this definition follows that every syllogism (which is not basic) is derived from the basic ones -- the passages adduced by Mates say just that. If it is not clear whether the Stoics actually held that their propositional logic was complete, Becker's attempt toprove the completeness of Stoic logic by reconstructing the missing pieces of the deductive apparatus may seem futile. He has also been severely criticised by Mueller, Frede and others because it is not clear(a) whether the Stoic conditional signei is to be taken as a truth-functional connective or not,(b) how the Chrysippean exclusion of arguments with but one premise can be reconciled with Becker's full use of such arguments in his proofs of semantic

completeness,(c) whether the completeness extended from the part of the system involving only conjunction and negation to other connectives.I now want to reopen the question by arguing that a kind of completeness is indeed to be found in Stoic passages (though not in those Mates adduced) and that an examination of the sources renders some plausibility to the thesis that the Stoics had a system of deduction rules which can be proved adequate according to modern criteria." (pp. 79-80)

73. ———. 1986. "Stoic Syntax and Semantics." In *The History of Linguistics in the Classical Period*, edited by Taylor, Daniel J., 281-306

    Also published in: *Historiographia Linguistica*, 13, 1986 and in J. Brunschwig (ed.), *Les Stoiciens et leur logique*, Paris, Vrin, 1986, pp. 135-147 (2nd edition 2006, pp. 131-148)."Let me now summarize the main points of my exposition of Stoic syntax:1. Stoic *loquia (lekta)* are designated by expressions of a normalized Greek. They have the same structure as these Greek expressions. Thus in most technical uses they serve approximately the same purpose as "semantic structures" or "semantic representations" in modem linguistics and philosophy of language.2. There is an infinity of *loquia* derived by a finite number of recursive rules of four types, lexical, inclusion, combination and transformation rules. Semantic categories like statement, predicate and subject are used in the formulation of these rules which enable us to build complex *loquia* of the various categories from atomar ones *(asuntheta)*. The structure of a compound *loquium* may be revealed by using Chomsky or Montague analysis trees.3. This infinity of *loquia* is related with real things by an analogue of modern model theory. General terms are said to denote individuals according to a variant of multiple denotation theory. Deictic subjects are assigned values, like their modern analogues: individual variables by an assignment *(deixis)*. Statements are either true or false. Complex expressions are valuated in function of their syntactic composition and the values of their parts.4. Denotations of Greek expressions are determined indirectly. *E.g*. appellatives signify appellative subjects, which refer to individuals. Thus appellatives indirectly denote these

individuals too.5. All this would have to be refined by taking into account tense.6. By neglecting tense, plural and subjectivization, Stoic *loquium* theory becomes an analogue of modern first order predicate logic bya) the introduction of n place predicates with arbitrary *n,*b) the introduction of a means to handle relative clausesStoic syntax and related model theory thus proves interesting and comparable to modern treatments." (from *Les Stoiciens et leur logique*, 2nd edition 2006, pp. 144-145)

74. ———. 1993. "Neue Elemente im Bild der stoischen Logik." In *Dialektiker und Stoiker. Zur Logik der Stoa und ihrer Vorläufer*, edited by Döring, Klaus and Ebert, Theodor, 129-139. Stuttgart: Franz Steiner.

75. Evans, John David Gemmill. 2011. "The Old Stoa ont the Truth-Value of Oaths." *Cambridge Classical Journal* no. 20:44-47

"Recent works on Stoic logic report that among complete λεκτα only a sub-class was regarded as capable of being true or false: by contrast with statements (αξιωματα), such other sentences as questions, orders and oaths do not bear a truth-value.(1) But the situation is a good deal more complicated than that, at least in the case of oaths, which I propose to examine.In characterising all such utterances as 'sentences' I do not wish to beg questions which will be discussed below. Surface grammar, with its distinctions of indicative, imperative, interrogative and optative, can mislead us as to the real force of an utterance. In the case of oaths there seems to be no preferred form of expression; and it is a matter for deeper philosophical probing to determine their true relation to other speech-acts.The standard view derives its best support from a passage in Diogenes Laertius, which expressly denies truth-value to non-statements.(2) But a similar report in Sextus Empiricus is not so clear. After giving a scheme of complete λεκτα which sets the declarative (αποφαντικον) co-ordinate with the questioning, cursing etc. types, he says that only some of them - namely αξιωματα - were regarded as bearing truth-values.(3) Although the passage may suggest that the declarative λεκτα are identical with the αξιωματα, it does not actually say this, and thus leaves it unclear which types of complete λεκτα do not bear a truth-

value. Ammonius' report of the topic says that the non-statement types 'are all bearers of falsity and truth and might be subsumed under the declarative';(4) but the grammar of his sentence makes it uncertain whether this is his or the Stoic view." (p. 44)(1) See Benson Mates, *Stoic logic* (Berkeley, 1961), pp. 18-19; W. and M. Kneale, *The development of logic* (Oxford, 1962), pp. 144-5.(2) *Stoicorum Veterum Fragmenta*, ed. J. von Arnim (photoreprint, Stuttgart, 1964), vol. 11. 186 [henceforth, SVF II etc.].(3) SVF II. 187. (4) SVF II 188.

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77. ———. 1974. "Stoic vs. Aristotelian Syllogistic." *Archiv für Geschichte der Philosophie* no. 56:1-32

Reprinted in: M. Frede, *Essays in Ancient Philosophy*, Minneapolis: University of Minnesota Press 1987 pp. 99-124.

78. ———. 2009. "The Stoic Notion of a *Lekton*." In *Language: Companions to Ancient Thought. Vol. 3*, edited by Everson, Stephen, 109-128. Cambridge: Cambridge University Press.

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    Abstract: "It has been noted before in the history of logic that some of Frege's logical and semantic views were anticipated in Stoicism. In particular, there seems to be a parallel between Frege's *Gedanke* (thought) and Stoic *lekton*; and the distinction between complete and incomplete lekta has an equivalent in Frege's logic.However, nobody has so far claimed that Frege was actually influenced by Stoic logic; and there has until now been no indication of such a causal connection. In this essay, we attempt, for the first time, to provide detailed evidence for the existence of this connection. In the course of our argumentation, further analogies between the positions of Frege and the Stoics will be revealed. The classical philologist Rudolf Hirzel will be brought into play as the one who links Frege with Stoicism. The renowned expert on Stoic philosophy was Frege's tenant and lived in the same house as the logician for many years."

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Logic, 21 and 22 April, 1972, edited by Corcoran, John, 151-168. Dordrecht: Reidel

"In their logical theory Stoic philosophers made use of a simple but important distinction alleged to hold among valid arguments, a distinction to which Aristotle had first called attention.(1) They distinguished those arguments whose validity is evident from those whose validity is not evident and so needs to be demonstrated. The Stoics, having supposed that the distinction obtains, raise and answer the question, how does one demonstrate the validity of those arguments whose validity is not plain? The Stoics appear to have set forth both a discursive method of demonstration and a test for validity. In this paper I examine these two facets of Stoic logic.(2)The paper is in three parts. The first is essentially terminological and taxonomic. There I record Stoic definitions of logical terms and I give three Stoic classifications of arguments, appending samples from the writings of Sextus Empiricus.(3) This provides and puts on exhibit an array of typically Stoic arguments to which I refer in the second part of the paper. There I examine Sextus' contention that the disagreement among the Stoics over the criterion of truth for a conditional proposition renders inefficacious the test that had been set forth as sufficient for judging the validity of an argument, and I argue that Sextus' charge has to be qualified. Even if an unqualified form of Sextus' accusation could be established, its importance, I maintain, would be diminished by the fact that the Stoics didn't make extensive use of this test anyhow. As I show in the third part of the paper, the Stoics ordinarily claim to prove the validity of all valid arguments(4) not by means of a test but by means of a calculus of propositions(5) having its base in a theory of deduction, which includes a language consisting of connectives and variables, axiomatic inference schemata, and rules of derivability. I conclude with a statement about the Stoic theory of deduction in relation to systems of logic developed in the 19th and 20th centuries and to Aristotelian syllogistic." (p. 151)(1) *Prior Analytics* I.24b22-26, 27a16-18. The distinction between plainly valid syllogisms and non-evidently valid syllogisms is for Aristotle the distinction

between 'perfect' syllogisms, on the one hand, and 'imperfect' syllogisms, on the other. A perfect syllogism is one in which, as Aristotle frequently puts it, the necessity (of the conclusion if the premises be assumed) is evident. That the Stoics presupposed this distinction is made clear in Part III of this paper.(2) I wish to thank my colleagues, James A. Thomas and Harold Morick, for helpful critical remarks on an earlier draft of this paper. I am also enormously indebted to John Corcoran for many incisive remarks and helpful suggestions on two later versions of the paper.(3) Sextus is the richest source we have for a knowledge of Stoic logic. Being a Sceptic he is extremely critical of the Stoics. He also tends to be tediously repetitious. He appears to have quoted and paraphrased with care, though there aren't always non-circular ways of checking this. As Mates has observed (*Stoic logic* (1961), p. 9), "any parts of Stoic logic which he found either too difficult or too good to refute will be absent from his account", but even so there is enough material in Sextus to extract a fairly good account of the elements of Stoic logic.(4) Mates refers in several places (pp. 4, 58, 82) to and gives evidence for the Stoics' claim that their propositional logic was complete.(5) The Stoics didn't call their logic a calculus of propositions (Diogenes Laertius groups Chrysippus' books dealing with the subject under the heading 'Logic in Relation to Arguments and Moods', *Vitae* VII. 193); but Stoic logic shares so many similarities with modern propositional logic, calling their logic 'a calculus of propositions' while anachronistic is at least not baneful, and it is, in fact, in my view illuminating to use this expression to refer to Stoic logic.

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    Reprinted in: A. Graeser, I*ssues in the Philosophy of Language Past and Presen*t, Bern: Peter Lang, 1999, pp. 121-144."Whether or not the Stoics conceived of any "science" corresponding in scope and methods to formal semantics in the sense described, for example, by J. Moravcsik (1) seems hard to determine. Evidence regarding this issue is scanty, particularly in view of the fact that some of the isolated testimonies relating to the Stoic theory of meaning are extremely difficult to assess and still require good deal of extensive analysis. From the meager reports concerning the bare essentials of this theory as incorporated into later manuals and elsewhere, it would appear, however, that in the course of their school's history the Stoics developed a fairly detailed semantic theory. It is a theory of meaning that has invited comparison with modern theories and obviously stood it well. In fact, it is generally agreed that the Stoic account of semantics is superior to and more sophisticated than the more influential one offered by Aristotle in theDe Interpretatione (16a3-18).(2) It is also considered to figure among the very few definitely modern-minded contributions to the systematic study of philosophical problems carried out by ancient Greek thinkers.Semantics in general, according to Stoic philosophers, seems to be an integral part of what they called "Logic" or "Dialectic" respectively, that is, the study of the utterance and the study of the utterance as meaningful. It is integral inasmuch as the Stoic conception of logic is one that depends again on their theory of meaning. In the analysis of meaning three components seem to been distinguished. The components or aspects under consideration are: first, the sign (sèmainon, i.e., that which signifies) which is a phoneme or grapheme; second, the significate (sémainomenon, i.e., that which is signified) which is expressed by the sound which we apprehend as it arises in our mind; and third, the external object referred to." pp. 77-78(1) *Understanding Language* (The Hague, 1975) 21.(2) On this most influential text in the history of semantics, see N.

Kretzman, "Aristotle on Spoken Sound," in J. Corcoran, ed., *Ancient Logic and its Modern Interpretations* (Dordrecht and Boston, 1974) 3-21.

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History of Logic

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   "Four different conditionals were known to the Stoics. The so-called ‘first’ (Philonian) conditional has been interpreted fairly uncontroversially as an ancient counterpart to the material conditional of modern logic; the ‘fourth’ conditional is obscure, and seemingly of little historical interest, as it was probably not held widely by any group in antiquity. The ‘second’ (Diodorean) and ‘third’ (Chrysippean) conditionals, on the other hand, pose challenging interpretive questions, raising in the process issues in philosophical logic that are as relevant today as they were then.This paper is a critical survey of some modern answers to four of the most tantalizing of these questions; the issues that I will discuss arise out of interpretations of the Diodorean and Chrysippean conditionals as expressions of natural law, and as strict implications.I will reject these interpretations, concluding with my own proposal for where they should be located on a ‘ladder’ of logical strength." (p. 206)

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Repris dans *Cahiers philosophiques* 2017/4 (n° 151), pp. 127-136.

3. Hay, William. 1969. "Stoic Use of Logic." *Archiv für Geschichte der Philosophie* no. 51:145-157

"To sum up. I began by reporting briefly the present widely held opinion that Stoic logic was a logic of propositions. I reminded us that in twentieth-century logic, the logic of propositions, consists of rules governing inferences according to their sentence-connectives and that it by no means exhausts the rules of logic. Rather propositional functions or predicates are added to that, and in turn many-place predicates are added. Some investigators have supposed that Stoic logic was confined to a logic of propositions. That restriction may be suggested by the concentration of the Stoics on singular propositions as those which express what exists most clearly and by their claim that all inferences depend on their logic. If, however, the Stoics had no more logic than the logic of propositions, they had no way of accounting for believing (much less for knowing) non-simple propositions in conditional or disjunctive forms, so that such non-simple propositions would be useful in inference.Evidence was introduced that the Stoics had and used a rule of instantiation in conditional propositions. This led us to see a use for their rules about the three kinds of simple propositions, those with indefinite subjects,tis,ti, 'someone,' 'something;' those with definite subjects, demonstrative articles such asoutos,touto, 'this one', 'that thing' and those with intermediate subjects, 'Socrates', 'Dion',anthropos, 'a man'.There is further evidence that the Stoics claimed to be able to rephrase universal propositions of the Peripatetic form as conditional propositions with indefinite subjects. Some philosophers from other schools acknowledged that the conditionals followed from the standard universal. There was disagreement about the converse. The charge was made that the Stoics failed to acknowledge eternal forms and that they replace them by things which existed in the mind only, or rather since they were corporealists in the body of the knower only. Another paper would be required to discuss the place of

these grasps in the Stoic account of knowledge and of ethics, for action involves how I take things." (pp. 155-156)

4. Hirzel, Rudolf. 1879. "De Logica Stoicorum." In *Satura Philologa. Hermanno Sauppio Obtulit Amicorum Conlegarum Decas*, 61-78. Berlin: Weidemann.

5. Hitchcock, David. 2005. "The Peculiarities of Stoic Propositional Logic." In *Mistakes of Reason. Essays in Honour of John Woods*, edited by Peacock, Kent A. and Irvine, Andrew D., 224-242. Toronto: University of Toronto Press

   "Aristotle, the founder of logic, nowhere defines the concepts of argument and of validity. He simply uses them in his definition of a syllogism as 'an argument in which, certain things being posited, something other than those things laid down results of necessity through the things laid down.'(1)(...)Between Aristotle, writing in the fourth century BCE, and Boole, writing more than two millennia later,(3) only one logician published a system of logic. That was Chrysippus (c. 280–207 BCE), the third head of the Stoic school. Chrysippus's system of propositional logic was dominant for 400 years, until bits of it were eventually absorbed into a confused amalgamation with Aristotle's categorical logic, a bowdlerization nicely described by Speca.(4) For centuries the system from which these surviving bits were extracted was forgotten. Only the careful work of such scholars as Mates,(5) Frede,(6) Hülser,(7) and Bobzien(8)One can show that a conjunction follows from its conjuncts, but not has allowed us to appreciate once again the achievement of Chrysippus.Despite its rigour and soundness, the system is oddly incomplete.One can show that a conjunction follows from its conjuncts, but not that either conjunct follows from the conjunction. One can detach the antecedent from a conditional, but not put it back on; in other words, there is no deduction theorem, no rule of 'conditional proof' or 'ifintroduction.' One can show what follows from an exclusive disjunction and the affirmation or denial of one of its disjuncts, but not what the exclusive disjunction follows from. Further, there is no evidence that anybody ever tried to extend the system.Why was Stoic propositional logic so incomplete? I shall argue that many of its peculiarities can be explained by

the rather restrictive accounts of argument and of validity that Chrysippus adopted as the foundation of his system. The omissions from the system were not accidental oversights, or not just accidental oversights, but were dictated by the requirement that everything demonstrable in the system be a valid argument. With much more complex and restrictive accounts of argument and of validity than those adopted by Woods (*) in his reconstruction of Aristotle's earlier logic, Chrysippus was forced into a much more restrictive formal system than contemporary classical propositional logic." (pp. 224-225)1 *Topics* I.1.100a25–27. Cf. Aristotle's *Sophistical Refutations* 164b27–165a2 and *Prior Analytics* I.1.24b18–20. Here and elsewhere, translations are my own. For Aristotle's works, I use the version of the Oxford Classical Texts, unless otherwise indicated.3 George Boole, *The Mathematical Analysis of Logic* (Cambridge: Macmillan, Barclay & Macmillan, 1847).4 Anthony Speca, *Hypothetical Syllogistic and Stoic Logic*, Philosophia Antiqua Volume 87 (Leiden: Brill, 2001).5 Benson Mates, *Stoic Logic* (Berkeley and Los Angeles: University of California Press, 1953).6 Michael Frede, *Die stoische Logik* (Göttingen: Vandenhoeck & Ruprecht, 1974).7 Karlheinz Hülser, *Die Fragmente zur Dialektik der Stoiker*, 4 vols. (Stuttgart-Bad Cannstatt: Friedrich Frommann, 1987–8). Cited henceforth as 'FDS' followed by the fragment number.8 Susanne Bobzien, 'Stoic Syllogistic,' *Oxford Studies in Ancient Philosophy* 14 (1996): 133–92. Susanne Bobzien, 'The Stoics,' in *The Cambridge History of Hellenistic Philosophy*, Kempe Algra, Jonathan Barnes, Jaap Mansfeld, and Malcolm Schofield, eds. (Cambridge: Cambridge University Press, 1999), 92–157.[(*) John Woods, Aristotle's Earlier Logic (Oxford: Hermes Science, 2001).]

6. Hossenfelder, Malte. 1967. "Zur Stoischen Definition von Axioma." *Archiv für Begriffsgeschichte* no. 11:238-241.

7. Hülser, Karlheinz. 1983. "The Fragments on Stoic Dialectic: A New Collection." In *Meaning, Use, and Interpretation of Language*, edited by Bäuerle, Rainer, Schwarze, Christoph and Stechow, Arnim von, 235-249. Berlin: Walter de Gruyter

"For the Stoics dialectic was the discipline where they developed their theory of cognition and of language as well as some kind of grammar und formal logic. All those topics were formed into a system and a lot of remarkable statements made about them. Hence, Stoic dialectic had much influence, and founded the western tradition of systematic linguistic theory. But the original writings of the Stoics are, nevertheless, lost. Thus, in order to study the origins of systematic linguistic thought, we have to collect the testimonies and fragments on Stoic dialectic from many scattered sources, i.e. from later authors who mentioned, reported or criticized Stoic ideas. In the last centuries this task was performed by different scholars. I only mention Rudolf T. Schmidt (1) and -- above all -- Hans v. Arnim whose '*Stoicorum veterum fragmenta*' is the famous standard collection of fragments on all the three parts of Stoic philosophy up to now (2). With regard to Stoic dialectic Prof. U. Egli came up with the idea that it would be worth the trouble to collect the fragments once again. He applied for a research program, sponsored by the 'Deutsche Forschungsgemeinschaft (DFG)', and asked me to realize what he had in mind, the result of which is a new collection of fragments on Stoic dialectic, the subject of this paper.The formal data of this new collection are the following ones: The collection which amounts to 1257 fragment-numbers (plus ca. 70 additional a-numbers) embraces about 1800 texts, the greatest part of which is quoted in Greek or Latin as well as translated into German; various commentaries are inserted. All this comes to 978 crowded typewritten pages. Superadded are some indices and an introduction by the editor. The book is entitled *Die Fragmente zur Dialektik der Stoiker* - zusammengestellt, ins Deutsche übersetzt und teilweise kommentiert - von K. Hülser (the abbreviation of which will be FDS), and is forthcoming: In 1982 it is published in 8 volumes within the publications of the 'Sonderforschungsbereich 99' at the University of Konstanz (Fed. Rep. of Germany). This edition, though it has a small number of copies and no ISBN-number, serves its purpose as a citable on for the time being (available in the library of the University of Konstanz), but will be replaced by a more 'genuine' one as soon as possible. [*]As for the kind and the

content of the new collection, three approaches will be offered in the following. The first one starts from the function of collections of fragments in general; it will explain why v. Arnim's collection is insufficient and a new one necessary, and consequently it leads to certain requirements concerning FDS. The second approach, then, starts from the arrangement of fragments in FDS and will show some systematic aspects of Stoic dialectic connected with it. The third one eventually is centered on the problem of intended completeness; in some cases this aim, being unterstood systematically, leads to interesting results though it widens the concept of fragments." (pp. 235-236)(1) R. T. Schmidt, *Stoicorum grammatica*, Halle 1839; repr. Amsterdam 1967. A German translation with an introduction and some additional notes by K. Hülser was published in Braunschweig / Wiesbaden 1979, completed by a bibliography on Stoic dialectic by U. Egli.(2) H. v. Arnim, *Stoicorum veterum fragmenta* Vol. IV (Indices, by M. Adler), Leipzig 1903-1905, 1924; repr. Stuttgart 1964.[* The definitive edition is: *Die Fragmente Zur Dialektik Der Stoiker,* Stuttgart: Frommann-Holzboog 1987-88, 4 volumes.]

8. ———. 1992. "Sextus Empiricus und die Stoiker." *Elenchos. Rivista di Studi sul Pensiero Antico* no. 13:233-276.

9. Iacona, Andrea. 2023. "Valid Arguments as True Conditionals." *Mind* no. 132:428–451

   Abstract: "This paper explores an idea of Stoic descent that is largely neglected nowadays, the idea that an argument is valid when the conditional formed by the conjunction of its premises as antecedent and its conclusion as consequent is true. As will be argued, once some basic features of our naïve understanding of validity are properly spelled out, and a suitable account of conditionals is adopted, the equivalence between valid arguments and true conditionals makes perfect sense. The account of validity outlined here, which displays one coherent way to articulate the Stoic intuition, accords with standard formal treatments of deductive validity and encompasses an independently grounded characterization of inductive validity."

10. Ierodiakonou, Katerina. 1990. *Analysis in Stoic Logic*, University of London, London

    Unpublished dissertation (a PDF version can be downloaded from British Library Document Supply Service).Abstract: "This thesis focusses on the notion of analysis in Stoic logic, that is to say on the procedure which the Stoic logicians followed in order to reduce all valid arguments to five basic patterns. By reconsidering the uses of its Aristotelian homonym and by examining the evidence on the classification of Stoic arguments, I distinguish two methods of Stoic analysis and I discuss their rules: (i) the analysis of non-simple indemonstrables, which constitutes a process of breaking up an argument by means of general logical principles ; and (ii) the analysis of (yllogistic) arguments, which replaces demonstration and is effected by employing standard well-determined rules. The ancient sources provide us with concrete examples illustrating the first type of analysis; however, there is no single text that reports the exact procedure of analysing (syllogistic) arguments. Modern scholars have reconstructed in different ways this type of Stoic analysis; I deal with all of them separately and show that the proposed reconstructions are insightful but historically implausible. Based on the textual materiel concerning the notion of analysis not only in its Stoic context but also in some other of its uses, and especially in mathematical practice, I suggest an alternative reconstruction of the Stoic method of reducing valid arguments to the basic indemonstrables."

11. ———. 1990. "Rediscovering Some Stoic Arguments." In *Greek Studies in the Philosophy and History of Science*, edited by Nicolacopoulos, Pantelis, 133-148. Dordrecht: Kluwer.

12. ———. 1993. "The Stoic Indemonstrables in the Later Tradition." In *Dialektiker und Stoiker. Zur Logik der Stoa und ihrer Vorläufer*, edited by Döring, Klaus and Ebert, Theodor, 187-200. Stuttgart: Franz Steiner

    "The Stoic logical system is commonly presented as based on five types of argument called “indemonstrables” (ἀναπόδεικτοι), and undoubtedly, our knowledge of them is

more certain than that of any other aspect of Stoic logic (*M*. 8.224-227; P. 2.157-158; D.L. 7.80-81 =FDS 1131,1128,1036). Fundamental though it may have been, however, even this part of Chrysippean doctrine has not escaped significant development overtime. In fact, there are brief remarks in our main sources that explicitly suggest the existence of alternative lists of indemonstrable arguments accepted by different groups of Stoic logicians:εἰσί δὲ καὶ ἀναπόδεικτοί τινες, τω μὴ χρὴ£ειν ἀποδείξεως, ἄλλοι μεν παρ' ἄλλοις, παρά δὲ τω Χρυσίππω πέντε (D.L. 7.79);πολλούς* μέν αναπόδεικτους ὀνειροπολουσιν, πέντε δὲ τούτους μάλιστα εκτίθενται (*?*. 2.157 = FDS 1128).Fortunately enough, some interesting passages, also belonging to the later tradition, elaborate extensively on the criticisms and alterations, which the standard list has undergone in the centuries following its introduction. The present paper concentrates on these texts and points out only a few of the issues raised by these accounts of unorthodox developments of the doctrine of the five basic indemonstrables. More specifically, I intend to focus on two alternative lists of indemonstrable arguments that differ from Chrysippus' list in adding extra types of inference as well as in objecting to the usefulness and application of others." (p. 187)ReferencesFDS = K. Hülser, *Die Fragmente zur Dialektik der Stoiker*. 4 Bde. Stuttgart/Bad Cannstatt 1987-1988

13. ———. 2006. "Stoic Logic." In *A Companion to Ancient Philosophy*, edited by Gill, Mary Louise and Pellegrin, Pierre, 505-529. Malden: Blackwell

    "Conclusion. As I indicated at the beginning of the chapter, it was only towards the middle of the twentieth century that Stoic logic began to be studied on its own merits and not as an appendix to Aristotle's syllogistic. To a great extent it was the revival of interest in the logical contributions of the Stoics that convinced scholars to investigate more carefully the other parts of Stoic philosophy, namely ethics and physics. The literature on Stoic logic that has since been published has managed to reconstruct a logical calculus, which still surprises us with its sophistication and its similarities to modern systems of logic. At the same time, though, it also has become clear that we

should not fail to take seriously into account what differentiates Stoic logic from its modern counterparts. For only in this way can we get a better understanding of how the history of logic has evolved in close connection to the other parts of philosophy, and more importantly, only in this way do we have a chance to appreciate the peculiar features and insights of ancient logic." (p. 527)

14. ———. 2014. "The Stoic System: Logic and Knowledge." In *The Routledge Companion to Ancient Philosophy*, edited by Warren, James and Sheffield, Frisbee, 438-454. New York: Routledge.

15. ———. 2019. "Dialectic as a subpart of Stoic philosophy." In *Dialectic after Plato and Aristotle*, edited by Bénatouil, Thomas and Ierodiakonou, Katerina, 113-133. Cambridge: Cambridge University Press.

16. Imbert, Claude. 1980. "Stoic Logic and Alexandrian Poetics." In *Doubt and Dogmatism. Studies in Hellenistic Epistemology*, edited by Schofield, Malcolm, Burnyeat, Myles and Barnes, Jonathan, 183-216. Oxford: Clarendon Press.

17. Jedan, Christoph, and Strobach, Nico. 2002. *Modalities by Perspective. Aristotle, the Stoics and a Modern Reconstruction*. Sankt Augustin: Academia Verlag.

18. Jennings, Raymond Earl. 1994. *The Genealogy of Disjunction*. New York: Oxford University Press

    See Chapter 10 *Stoic Disjunction*, pp. 252-275.

19. Kahn, Charles H. 1969. "Stoic Logic and Stoic LOGOS." *Archiv für Geschichte der Philosophie* no. 51:158-172

    '"I turn now to the principal claim of Professor Hay's paper (*): that the logic of the Stoics was not exclusively a logic of propositions but that it included arguments whose major premiss was, in effect, a universally quantified conditional, "(x) (If Ax, then Bx)," instead of the ordinary conditional composed of two self-contained sentences "If A, then B." Hay brings evidence of three sorts to bear in favor of this thesis. (1) First of all, there are the logical and historical considerations already

alluded to: how could the Stoics have claimed to reduce all valid arguments, including the Aristotelian syllogism, to their five undemonstrated schemata, if they did not have some device equivalent to quantification"? (2) Secondly, there is the question of the epistemic function of logic: where the major premiss is a conditional such asIf Plato lives, then Plato breathes interpreted truth-functionally, and I am able to draw the conclusionPlato breathes, how could I be in a position to know or believe the conditional premiss without already knowing or believing the conclusion? (For the truth of the conditional depends upon the truth of the consequent in this case, since the antecedent is taken as true.) But the epistemic problemwill not arise in this form if the major premiss may be universally quantified. I do not need to know that Socrates breathes - I do not need to know anything about Socrates at all - in order to agree that if anything is alive, that same thing (or animal) breathes. (3) Furthermore, Hay calls our attention (and apparently for the first time) to several decisive texts in which the Stoics make theoretical use of generalized conditionals of the form 'If anyone is born under the Dog Star, he will not die at sea.' Finally (4) Hay suggests that the Stoic motive for the alleged reformulation of universal propositions as conditionals was their desire to avoid positing essences or classes or universals of any sort.I am inclined to believe that Hay's principal thesis is correct, at least in principle; but it raises new problems almost as serious as those it solves. First of all, did the Stoics realize that they were introducing quantification when they offered a conditional compounded in this way of two indefinite propositions? If so, this seems to defeat their claim that all valid arguments could be reduced to their five undemonstrated forms. But if they didnot see this, they were poorer logicians than Aristotle at a crucial point they will have set up a propositional calculus only at the cost of distorting the facts concerning quantification. We seem to be faced with a dilemma. Either Stoic logic is based solely on the propositional connectives, and then it is epistemically sterile. (This appears to be Mueller's view.) Or else it involves generalized conditionals and a rule of instantiation, but then it is defective as logic since we are left without any account of the quantified conditional.

(a) I suspect that the latter is likely to be true, and that by formulating indefinite conditionals to achieve generality, and then instantiating for a definite, ostensibly indicated subject, the Stoics believed that they could in fact do without quantification, i. e. without any theory involving 'all' and 'none.' " (pp. 163-164)(*) [*Stoic Use of Logic*, 1969](a) I have oversimplified in order to put the problem sharply. It is worth noting that the decisive text fromDe Fato is explicitly meta-linguistic: "If G (a generalized conditional) is true, then C (an ordinary conditional) is also true" (see Hay, note 15). Therefore arguments making use of such a rule of instantiation will be valid but not necessarily reducible to one of the five undemonstrated schemata (compare the examples in Mates, p. 64 and p. 65 n. 32). In the Symposium discussion in St. Louis several suggestions were made for reconstructing the Stoic generalized conditional without quantification theory, as the meta-linguistic representation for a "bundle of individual conditionals" (Quine,Methods of Logic, p. 13), much as an axiom schema may represent an infinite set of individual axioms. I leave it to others to decide how far such a suggestion can be worked out systematically.

20. Kidd, Ian G. 1989. "*Orthos Logos* as a Criterion of Truth in the Stoa." In *The Criterion of Truth. Essays Written in Honour of George Kerferd*, edited by Huby, Pamela and Neal, Gordon, 137-149. Liverpool: Liverpool University Press.

21. Kneale, William, and Kneale, Martha. 1962. *The Development of Logic*. Oxford: Clarendon Press

    Reprinted 1975 with corrections.See Chapter III:The Megarian and the Stoics pp. 113-176.

22. Labarge, Scott. 2002. "Stoic Conditionals of Necessity and Explanation." *History and Philosophy of Logic* no. 23:241-252

    Abstract: "An examination of a particular passage in Cicero's *De fato* (*Fat*. 13-17) is crucial to our understanding of the Stoic theory of the truth-conditions of conditional propositions, for it has been uniquely important in the debate concerning the kind of connection the antecedent and consequent of a Stoic conditional should have to one another. Frede has argued that

the passage proves that the connection is one of logical necessity, while Sorabji has argued that positive Stoic attitudes toward empirical inferences elsewhere suggest that that cannot be the right interpretation of the passage. I argue that both parties to the debate have missed a position somewhere between them which both renders a connection between antecedent and consequent that is not merely empirical and makes sense of the actual uses to which the Stoics put the conditional. This will be an account which grounds the connection between antecedent and consequent in *aprolêpsis*, a special kind of concept which plays a special epistemological role for the Stoics, especially in grounding scientific explanations. My contention will be that Stoic conditionals are true when there is a conceptually necessary connection between antecedent and consequent such that the former explains the latter via *aprolêpsis*."

23. Leeman, Anton Daniël. 1954. "Posidonius the Dialectician in Seneca's Letters." *Mnemosyne* no. 7:233-240

    "In this article, which is the fourth and last of a series of papers on some aspects of the relations between Posidonius and Seneca's later epistles, I shall discuss a number of dialectical passages in these epistles, their philosophical source - Posidonius, as I hope to establish - and finally, the philosophical attitude of this source (1).In my examination of Seneca's conception of dialectics, I have already stressed his scepticism and distrust of this way of arguing (III). In his earlier letters especially he appears to regard dialectics as a waste of time. More than once he indicates how, in his opinion,the sophisms of the dialecticians ought to be treated, viz. with the help of striking examples from history and every-day life, in the form of rhetorical *sententiae*. This opinion, however, does not keep him from paying more and more attention to dialectical disputations.He apparently records them from technical, philosophical sources." (p. 17)(1) The previous articles are to be found in this periodical, S. IV, Vol, IV, 1951, p. 175 sqq. (*The Epistolary Form of Sen.* Ep. 102) [indicated as I]; Vol. V, 1952, p. 57 sqq. (*Seneca and Posidonius: Philosophical Commentary on Sen. Ep.* 102, 3-19)

[indicated as II]; Vol. VI, 1953, p. 307 sqq. (*Seneca's Plans for a Work "Moralis philosophia" and. their Influence on his later Epistles*) [indicated as III].

24. Lefebvre, René. 2007. "Représentation et évidence : les stoïciens face à leurs adversaires de l'Académie." *Elenchos.Rivista di Studi sul Pensiero Antico* no. 28:337-367.

25. Löbl, Rudolf. 1986. *Die Relation in der Philosophie der Stoiker*. Amsterdam: Rodopi

    Inhaltsübersicht: Literaturangaben 7; Einleitung 13; Teil I: 17; A. Physis 19; B. Logos 62; Teil II: 111; A. Die äusseren Relationen 113; B. Die inneren Relationen 129; C. Die transcendentale Relationen 134; Excursus: Zu Physik 141-150.

26. Long, Anthony Arthur. 1978. "Dialectic and the Stoic Sage." In *The Stoics*, edited by Rist, John M., 101-124. Berkeley: University of California Press

    Reprinted in: A. A. Long, Stoic Studies, Cambridge: Cambridge University Press, 1996, pp. 85-106.

27. López-Astorga, Miguel. 2016. "Pseudo-Conditionals and Causal Assertibles in Stoic Logic." *Principia* no. 3:417-426.

28. Luhtala, Anneli. 2000. *On the Origin of Syntactical Description in Stoic Logic*. Münster: Nodus Publikationen

    Contents: Acknowledgments 9; 1. Introduction 11; 2. Ancient Grammar 16; 3. Truth, Meaning and Existence 30; 4. Aristotle 40; 5. The Stoics; 6. Apollonius Dyscolos 146; 7. General conclusions 193; Bibliography 197; Index Nominum 209-214."This study examines the dialectical origin of syntactical description in our traditional grammar. Two famous texts take pride of place in containing the first descriptions of a 'clause' in Greek literature, namely Plato's *Sophist* and Aristotle's *Peri hermeneias*. These descriptions arose in the context of a more general inquiry into the nature of truth and language which gave rise to the first speculations on the form of the logical proposition in Greek Antiquity. By establishing as the unit of propositional analysis a combination of two linguistic items, *Onoma* (`name', 'noun') and *rhema* (`verb', 'predicate') these

philosophers laid the foundation for the doctrine of the parts of speech which later constituted the core of ancient grammar. Their concern was to establish the two functional constituents of the proposition, roughly the subject and the predicate, by means of which true and false statements could be made. The object of their concern -- the minimal statement consisting of a noun and a verb -- came to figure as the point of departure for syntactical analysis when it began to be pursued in independent grammatical treatises. In the grammar of Apollonius Dyscolus (2nd century A.D.), which is our first extant grammatical treatise on syntax, syntactical description proceeds from the minimal self-sufficiency (*autoteleia*) of the linguistic expression. But the description of the minimal sentence by Apollonius bears witness to the distinctly Stoic origin of the notion of self-sufficiency." (p. 11)

29. Łukasiewicz, Jan. 1967. "On the History of the Logic of Propositions." In *Polish Logic 1920-1939*, edited by McCall, Storrs, 66-87. Oxford: Oxford University ress

    Originally published in Polish as: "Z historii logiki zdan", *Przeglad Filozoficzny*, 37, 1934; translated by the author in German as:" Zur Geschichte der Aussagenlogik", *Erkenntnis*, 5, 1935, pp. 111-131.Translated in English also in: Ludwik Borowski (ed.), Jan Łukasiewicz, "Selected Works", Amsterdam: North-Holland, 1970, pp. 197-217.

30. ———. 1967. "Philosophical Remarks on Many-Valued Systems of Propositional Logic." In *Polish Logic 1920-1939*, edited by McCall, Storrs, 40-65. Oxford: Oxford University Press

    Originally published in German as: "Philosophische Bemerkungen zu mehrwertighen Systemen des Aussagenkalküls", *Comptes rendus des séances de la Société des Sciences et des Lettres de Varsovie*, 23, 1930.Translated in English also in: Ludwik Borowski (ed.), Jan Łukasiewicz, *Selected Works*, Amsterdam: North-Holland 1970, pp. 153-178.

31. Mates, Benson. 1949. "Stoic Logic and the Text of Sextus Empiricus." *American Journal of Philology* no. 70:290-298

"The text of Sextus Empiricus contains a number of corrupt places which can easily be corrected by reference to a few technical terms and elementary concepts of Stoic logic. It is the aim of the present paper to prove this assertion with respect to a certain class of cases and, in so doing. to show that any future editor of Sextus ought to have a clear understanding of Stoic logic." (p. 290)

32. ———. 1953. *Stoic Logic.* Berkeley: University of California Press

Second revised edition 1961.Contents: I. Introduction 1; Chapter I. § 1: The problem § 2: Stoic authors to be considered §3: Sources for Stoic logic; Chapter II. Signs, sense, and denotation 11; § 1: Exposition of the Stoic theory § 2: Comparison with modern theories; Chapter III. Propositions, truth, and necessity 27; § 1: Propositions § 2: Truth § 3: Necessity and Possibility; Chapter IV. Propositional connectives 42; § 1: Implication § 2: Disjunction § 3: Conjunction and the other logical connectives § 4: The interdefinability of the connectives; Chapter V. Arguments 58 § 1: Definition and Classification § 2: The five basic types of Undemonstrated Argument § 3: The Principle of Conditionalization § 4: The analysis of non-simple arguments § 5: Invalid arguments; Paradoxes; Chapter VI. Evaluations of Stoic logic 86; § 1: The judgments of Prantl and Zeller § 2: The confusion about συννεμένον § 3: Conclusion; Appendix A. Translations 95; Appendix B. Glossary 132; Bibliography 137; Indices -141-148."There are those who cannot write history without praising and blaming.Such persons, if they are favorably impressed by the newer studies of ancient and medieval logic, will feel that just as Prantl and Zeller praised Aristotelian logic and disparaged that of the Stoics, so now we should praise the Stoic logic and condemn the Aristotelian.There are also those who cannot write history without embracing certain huge generalizations which are supposed to make history intelligible.This sort of investigator will admit that Prantl, Zeller, and many others have been greatly misled by one such generalization, according to which Hellenistic times were times of decadence and decay in all

branches of learning, and especially in philosophy. But he will conclude nothing more than that Prantl, Zeller, and the others have embraced the wrong generalization.In other words, he would propose that we excogitate another (and presumably better) hypothesis about Greco-Roman history and then proceed as before.Both tendencies are inimical to honest historical writing. There is no reason whatever to believe that an adequate history of logic or of anything else will have the relatively simple structure of a novel. The great generalizations, which are supposed to make the chaos of events intelligible, are, at best, of heuristic value. It must be remembered that they require more evidence than would be required for the support of any of the particular conclusions to be deduced from them. Hence, any conclusion based on such a generalization either can be established without the generalization or else is not warranted at all. But these grand views may well have no heuristic value either, for, as is amply demonstrated by the comments of Prantl and Zeller on Stoic logic, they sometimes have the effect of blinding the scholar to facts which he would otherwise be able to see.It is difficult to understand how any historian motivated by a desire to discover the truth (rather than by the desire to tell a good story) could share the satisfaction of Prantl and Zeller over the loss of the Stoic writings." (pp. p3-94)

33. Mau, Jürgen. 1957. "Stoische Logik. Ihre Stellung gegenüber der Aristotelischen Syllogistik und dem Modernen Aussagenkalkül."

34. Meyer, Herman. 1956. "Le prolongement de la logique stoïcienne dans la logique contemporaine." *Revue Philosophique de la France et de l'Étranger* no. 146:387-392

    "La logique contemporaine formalise des expressions de la forme suivante : << Il existe un x tel que ... >>, et << tous les x tels que ... >>. Les Stoïciens, en revanche, n'avaient pas poussé la théorie logique au delà des énoncés non analysés. C'est-à-dire que, dans leur logique, des expressions particularisées ou généralisées n'interviennent pas. Cependant, la logique des énoncés non analysés se trouve toujours à la base de la logique des mathématiques. Nous essayerons de brossér une esquisse

visant à présenter les découvertes des logiciens stoïciens et à montrer de quelle façon, en se prolongeant au travers des siècles, elles figurent toujours parmi les thèmes principaux de la logique théorique contemporaine." (pp. 387-388)

35. Mignucci, Mario. 1965. *Il significato della logica stoica*. Bologna: Patron

    Indice: Avvertenza 7; Introduzione 9; Cap. I - LO STATUS QUAESTIONIS. 1. Le interpretazioni del Prantl e dello Zeller 17; 2. La rivalutazione della logica stoica 19; 3. L'interpretazione del Lukasiewicz 29; 4. Le posizioni successive al Lukasiewicz 33; 5. Discussione dell'interpretazione del Lukasiewicz 40; Cap. II - LA CONCEZIONE DELLA LOGICA. 1. La rappresentazione 67; 2. La conoscenza intellettuale 80; 3. La definizione di esprimibile 88; 4. L'incorporeità degli esprimibili 96; 5. La logica come scienza filosofica 103; 6. La natura della dialettica 109; Cap. III - LA DOTTRINA DELLE PROPOSIZIONI. 1. La definizione di proposizione 119; 2. La polemica della scuola megarica sulla validità del condizionale 130; 3. La concezione stoica del condizionale 139; 4. Le proposizioni congiuntive e disgiuntive 148; Cap. IV. LA TEORIA DEGLI ARGOMENTI. 1. La definizione di argomento 157; 2. Gli argomenti anapodittici 166; 3. La teoria degli anapodittici e la sillogistica aristotelica 178; Bibliografia 191; INDICI. Luoghi citati 201; Nomi di persona 209-212.

36. ———. 1967. "Il problema del criterio di verità negli stoici antichi." In *Posizione e criterio del discorso filosofico*, edited by Giacon, Carlo, 145-169. Bologna: Patron.

37. ———. 1988. "The Stoic Notion of Relatives." In *Matter and Metaphysics. Fourth Symposium Hellenisticum (Pontignano, August 21-28, 1986)*, edited by Barnes, Jonathan and Mignucci, Mario, 129-221. Napoli: Bibliopolis

    "The fragments of the Stoics which are explicitly concerned with a theory of relations are few, scattered and difficult to interpret. The largest of them is preserved in Simplicius' commentary on the *Categories* (165.32 ff.;SVF ii 403) and it expounds an important distinction which the Stoics made between two kinds of relatives. This doctrine is attributed to the

Stoics, but no representative of the school is mentioned. Echoes of it are reflected in some sceptical arguments reported by Sextus Empiricus (*M* VIII 455-456) and Diogenes Laertius (IX 87-88) (1). Besides, there are some related passages in the scholia on Dionysius Thrax's *Ars grammatica* which are supposed to go back to Apollonius Dyscolus (II century A.D.), where, although the Stoics are not explicitly named, Stoic material is believed to be used and referred to (2). There is also a text of Sextus (*M* VIII 453-454; *SVF* II 404) in which a general definition of relatives is attributed by him to the Dogmatists and reasons can be given for saying that his Dogmatists must be identified with the Stoics. Finally, some passages in which the name of Chrysippus is tied to questions which are supposed to concern our problems are difficult to interpret and on closer inspection they reveal themselves not to pertain to the theory of relatives (3).In the face of this complicated situation in our sources, I will examine first Simplicius' passage, trying to disentangle it from spurious connections with other parts of the Stoic doctrine which have generated more than one misunderstanding of it. Secondly, I will inquire to what extent a possibly general definition of relatives implied in Simplicius' distinction is consistent with the statements reported by other sources, in order to determine whether Simplicius' report can be inserted in a coherent framework.This sketch of the plan of our inquiry shows that we confer a central role on Simplicius' passage, and this assumption might be disputed, since Simplicius is a late authority and no Stoic master of the first generation is mentioned in it. We will discuss these problems later. Whatever their solution might be, it must be pointed out that Simplicius' text is almost the only one in which a relevant aspect of the Stoic doctrine of relatives is expounded and discussed. The other sources are much vaguer and mostly concerned with a general characterization of the notion of relative. Therefore, it is difficult in this situation not to confer a special position on Simplicius passage." pp. 129-1301) These texts are not found in von Arnim's collection. They will be discussed in section VIII. (2) These passages too are not in von Arnim. We will examine them later (cf. sections XI-XII).(3) I am thinking especially of

three passages we will consider later, namely Varro *De lingua latina* X 59 (SVF a 155); Plutarch, *De Stoicorum repugnantibus* 1054EF (*SVF* II 550); Aulus Gellius *Noctes atticae* VII 1, 1-6 (*SVF* II 1169): cf. sections XIV and XV.

38. ———. 1993. "The Stoic *Themata*." In *Dialektiker und Stoiker. Zur Logik der Stoa und Ihrer Vorläufer*, edited by Döring, Klaus and Ebert, Theodor, 217-238. Stuttgart: Franz Steiner

    Reprinted in Andrea Falcon, Pierdaniele Giaretta (eds.), *Ancient Logic, Language, and Metaphysics: Selected Essays by Mario Mignucci*, New York: Routledge 2020, Part I, Essay III."One of the classical problems of Aristotle's syllogistic is how to interpret the reduction of imperfect to perfect syllogisms. Second- and third-figure syllogisms are imperfect, that is, not self-evident syllogisms, and they are shown to be valid by linking them to the perfect ones, namely the syllogisms of the first figure. (1) This link is normally interpreted as a deduction of imperfect syllogisms from perfect ones by means of some implicit rules of inference and some previously stated theorems mainly concerning the conversions of propositions. Aristotle does not make explicit the arguments by which imperfect syllogisms are derived from perfect syllogisms, and scholars have proposed different ways to formalize these deductions. (2) What is common to all these views is that they impose something on the text, that is, a formalization of an informal reasoning that is only sketched.It is the Stoics who produced a sort of formalization of a metalinguistic theory of deduction, although the Aristotelians, as usual, claimed that Aristotle had already thought of everything and that the Stoics merely copied him by adding a few useless details.(3) The Stoics presented five types of arguments, which they called ‘ἀναπόδβικτοι’, "indemonstrables." Among them were a version of *Modus Ponens,* a version of *Modus Tollens*, and three other elementary inferences of conjunction and disjunction." (p. 217) (1) Cf. Patzig (1969) 51 ff.(2) It is sufficient to refer to the reconstruction put forward by Lukasiewicz (1957) 51 ff. and, on the other hand, of the more recent proposal of Corcoran (1974a) 85-131, where natural deduction is used to formalize Aristotle’s proof. The Lukasiewicz approach has been

considerably improved by Patzig (1969) 137 ff.(3) l am thinking in particular of a passage from Alexander (*in AP*r. 284.12 ff.; cf. text [G]). We will discuss it in detail later.ReferencesCorcoran, J. (1974a). *Aristotle's natural deduction system*. In: Corcoran, J. (1974b) 85-131Corcoran, J. (ed.) (1974b). *Ancient logic and its modem interpretations*. Dordrecht/ Boston 1974Lukasiewicz, J. (1957). *Aristotle's syllogistic from the standpoint of modem formal logic*. Second ed. enlarged, Oxford 1957 (reprint 1963)Patzig, G. (1969). *Die Aristotelische Syllogistik. Logisch-philologische Untersuchungen über das Buch A der „Ersten Analytiken"*. Göttingen 1969

39. Milne, Peter. 1995. "On the Completeness of Non-Philonian Stoic Logic." *History and Philosophy of Logic* no. 16:39-64

    Abstract: "The majority of formal accounts attribute to Stoic logicians the classical truth-functional understanding of the material conditional and exclusive disjunction.These interpretations were disputed, some Stoic logicians favouring modal and/or temporal analyses; moreover, what comes down to us of Stoic logic fails to secure the classical interpretations on purely formal grounds.It is therefore of some interest to see how the non-classical interpretations fare. I argue that the strongest logic we have good grounds to attribute to Stoic logicians is not complete with respect to the non-classical interpretations of disjunction and the conditional."

40. Mueller, Ian. 1969. "Stoic and Peripatetic Logic." *Archiv für Geschichte der Philosophie* no. 51:173-187

    "We know that one of the issues dividing the Stoics and the Peripatetics concerned the use of logic. Alexander [of Aphrodisias] (1) insists that only Peripatetic logic is an organon for philosophy, an instrument for making unknown things known through known premisses. Since the Stoics called logic a part of philosophy, they may well have considered their propositional logic a theoretical discipline for which epistemological considerations were irrelevant. This modern attitude seems quite commensurate with the Stoics' presentation of logic. They seem to have been interested in technical devices and formalization for its own sake.I suggest,

then, that an important disagreement between the Peripatetic and Stoic logicians concerned the power of their respective logics to represent arguments. The Peripatetic claims were that all scientific proofs are categorical syllogisms and that the inference schemata of the Stoics represented techniques of argument having no place in science. The Stoic reply was that the first claim is false since there are very elementary relational arguments in mathematics which are not syllogisms. Moreover, they pointed out that all conclusive arguments, including categorical syllogisms, could be represented as propositional arguments by a (trivial) technical device. Formally the Stoics held an unassailable position, but they were vulnerable to attack on methodological grounds, since establishing the truth of the premisses of the newly formulated argument seemed to involve making an inference in terms of the old logic. The Peripatetics therefore insisted on the claim, believed for many centuries after them, that their logic was the instrument of science. We do not know the Stoic response to this claim, but it is reasonable to suppose that they retreated to the view that the theory of deductive inference was a technical discipline studied for some ethical end perhaps, but not as the method of scientific discovery." (p. 184)(1) *In Analyticorum Priorum* 1 ff.

41. ———. 1978. "An Introduction to Stoic Logic." In *The Stoics*, edited by Rist, John M. Berkeley: University of California Press

    "The charge of uselessness permeates the ancient literature on Stoic logic. Alexander [of Aphrodisias] is very concerned to defend Aristotelian logic as the tool(organon) of philosophy and science, a means for making unknown things known through known premises. For Sextus no logic is capable of serving these functions. The gist of both men's attack on Stoic logic is that with its arguments there is no way to establish the premises without first establishing the conclusion. The attack is usually made in terms of the first undemonstrable argument and depends upon the truth-functional interpretation of the conditional. Suppose one wishes to prove 'the second' by establishing 'the first' and 'If the first the second.' Then if 'the first' is established, the only way to establish 'if the first the second' is to establish 'the second,' i.e., to establish the

conclusion one is trying to prove. Similar objections could be raised against the other undemonstrable arguments. In each case, when the second premise is taken as true, then the obvious truth-functional argument for the first premise requires establishing the truth of the conclusion. There is no way out of this situation, a fact that strongly suggests that Sextus's insistence on applying the truth-functional interpretation to the conditional represents an argumentative device rather than an accurate reflection of standard Stoic doctrine. If the first premise of an undemonstrable argument expresses a stronger than truth-functional connection between its component propositions, there is no reason why the first premise cannot be established independently of the conclusion.Of course, the position I have just ascribed to the Stoics means that philosophically a great deal of weight must be placed on the knowledge of necessary connections between propositions. Many of Sextus's arguments are directed against the possibility of such knowledge. To consider these arguments would take us outside the domain of logic and into epistemology. The point I wish to make is that the Stoics could have claimed universality for their propositional logic without subjecting themselves to attacks on grounds of uselessness. But to what use did the Stoics put their logic? It is tempting to suppose that the Stoics might have treated logic as a technical discipline developed for its own sake. The picture of Chrysippus analyzing innumerable arguments into the undemonstrable points makes it seem certain that to some extent logic was pursued for its own sake. But at least some Stoics thought of logic as more than a self-sufficient technical discipline.(...)The most important inferences from signs would be those based on he first undemonstrable syllogism. Questions about the viability of inferences from sign to thing indicated or commemorated would almost certainly end up as questions about the connection asserted to hold in the first premise, i.e., as questions of metaphysics or epistemology. One cannot expect logic to settle such questions, nor is there any reason to think the Stoics expected it to. The thrust of their logic was to provide a framework in which questions of inferential validity could be settled and questions that fell outside of logic, e.g.,

whether sweat implies the existence of pores, made precise. It seems fair to say that Stoic achievement in this area remained unparalleled until the time of Leibniz." (pp. 22-25)

42. ———. 1979. "The Completeness of Stoic Propositional Logic." *Notre Dame Journal of Formal Logic* no. 20:201-215

    "In this paper I wish to pursue in more detail the question of the completeness of Stoic propositional logic. I shall bring out certain anomalies in Becker's [1957] argument which obscure the precise sense in which his system is complete. The Kneales' system (*) will be shown to be complete in a stronger sense than Becker's but not to be as historically plausible a reconstruction of the Stoic theory. In conclusion I shall suggest a modification of both systems which is historically more plausible than either and also complete in the stronger sense. In the course of the paper I will also discuss other logical and historical points about the systems.I shall take for granted the truth-functionality of the Stoic propositional connectives but disregard interdefinability relationships. I will also formulate the systems of Becker and the Kneales in ways which diverge slightly but unproblematically from their own presentations." (p. 202)(*) William and Marta Kneale, *The Development of Logic*, Oxford, 1962.

43. Mühl, Max. 1962. ""Der *Logos Endiathetos* und *Prophorikos*" Von der älteren Stoa bis zur Synode von Sirmium 351." *Archiv für Begriffsgeschichte* no. 7:7-56

    On the history of the distinction between "internal discourse" and "uttered discourse".

44. Nasieniewski, Marek. 1998. "Is Stoic Logic Classical?" *Logic and Logical Philosophy* no. 6:55-61

    Abstract: "In this paper I would like to argue that Stoic logic is a kind of relevant logic rather than the classical logic. To realize this purpose I will try to keep as close as possible to Stoic calculus as expressed with the help of their arguments."

45. Nasti de Vincentis, Mauro. 1981. "Logica scettica e implicazione stoica. A proposito di *Adv. Math.* VIII 462-481." In *Lo*

scetticismo antico. Vol. II, edited by Giannantoni, Gabriele, 501-532. Napoli: Bibliopolis.

46. ———. 1984. "Stopper on Nasti's Contention and Stoic Logic." *Phronesis.A Journal for Ancient Philosophy* no. 29:313-324

    Reply to M. R. Stopper [pseudonym of Jonathan Barnes], "Schizzi Pirroniani", *Phronesis,* 28, 1983, pp. 265-297.

47. ———. 1988. "The Third and Fourth Acccount of Conditionals in Sextus Empiricus." In *Temi e prospettive della logica e della filosofia della scienza contemporanee. Vol. I: Logica*, edited by Cellucci, Carlo and Sambin, Giovanni, 219-226. Bologna: CLUEB.

48. ———. 1989. "Stoic Implication and Stoic Modalities." In *Le teorie delle modalità. Atti del Convegno Internazionale di storia della logica*, 258-263. Bologna: CLUEB

    "A new account of Stoic connexive conditional is given, according to which (in order to agree with textual evidence) the truth-conditions for the so-called Chrysippean implication are a function of the modality of the clauses."

49. ———. 2002. *Logiche della connessività. Fra logica moderna e storia della logica antica*. Bern: Haupt

    Indice: Premessa 7; Introduzione 11; 1. L'interpretazione classica e le sue varianti 39; 2. Lapars destruens: le difficoltà dell'interpretazione classica 69; 3. Lapars construens: verso una nuova interpretazione 95; 4. Obbiezioni, risposte e conferme 123; 5. Implicazione crisippea e implicazione boeziana 151; 6. Considerazioni conclusive e problemi aperti 173; Appendice: La dottina boeziana dellarepugnantia - Scelta di testi 193; Riferimenti bibiografici 231-232.Recensione di Luca Castagnoli, *Elenchos*, 25, 2004, pp. 179-192.

50. ———. 2004. "From Aristotle's Syllogistic to Stoic Conditionals: *Holzwege* or Detectable Paths?" *Topoi. An International Review of Philosophy* no. 23:113-137

    "This paper is chiefly aimed at individuating some deep, but as yet almost unnoticed, similarities between Aristotle's syllogistic and the Stoic doctrine of conditionals, notably between

Aristotle's metasyllogistic equimodality condition (as stated at *Prior Analytics* I 24, 41b27-31) and truth-conditions for third type (Chrysippean) conditionals (as they can be inferred from, say, Sextus Empiricus *Outlines of Pyrrhonism* II 111 and 189). In fact, as is shown in §1, Aristotle's condition amounts to introducing in his (propositional) metasyllogistic a non-truth-functional implicational arrow ", the truth-conditions of which turn out to be logically equivalent to truth-conditions of third type conditionals, according to which only the impossible (and not the possible) follows from the impossible. Moreover, Aristotle is given precisely this non-Scotian conditional logic in two so far overlooked passages of (Latin and Hebraic translations of) Themistius' Paraphrasis of *De Caelo* (CAG V 4, 71.8-13 and 47.8-10 Landauer). Some further consequences of Aristotle's equimodality condition on his logic, and notably on his syllogistic (no matter whether modal or not), are pointed out and discussed at length. A (possibly Chrysippean) extension of Aristotle's condition is also discussed, along with a full characterization of truth-conditions of fourth type conditionals."

51. ———. 2006. "*Boethiana*. La logica stoica nelle testimonianze di Boezio: nuovi strumenti di ricerca." *Elenchos* no. 27:377-408

    "In view of the importance of Boethius' "In Ciceronis Topica" as a source for Stoic logic, argues for the constitution of an index of divergent readings between the editions of Orelli (Zurich 1833) and Migne, including those omitted by Stangl (1882). Such an index would show that while Orelli's edition is better, sometimes the reading of Migne is to be preferred. Includes considerations on the gradual Stoicization of Aristotelian syllogistics, on Boethius' reliability as a source for Stoic logic, and on the genuine *editio princeps* of Boethius' "De topicis differentiis" (Rome 1484, rather than Venice 1492."

52. ———. 2006. "Conflict and connectedness: between modern logic and history of ancient logic." In *Logic and philosophy in Italy: Some trends and perspectives*, edited by Ballo, Edoardo and Franchella, Miriam, 229-251. Monza: Polimetrica

"The goal of this paper is to present a self-contained sketch, if not a comprehensive, account, of the Stoic logic of conditional propositions in terms of the related notions of conflict and connectedness. Since what I take those notions to be departs from the standard view in significant ways, I sketch in this Introduction the familiar contours of both the standard view and its main variants and I also present very general reasons that show why we might consider rejecting central aspects of such a view." (p. 229)

53. Normore, Calvin G. 1991. "Medieval Connectives, Hellenistic Connections; the Strange Case of Propositional Logic." In *Atoms, Pneuma, and Tranquillity. Epicurean and Stoic Themes in European Thought*, edited by Osler, Margaret J, 25-38. Cambridge: Cambridge University Press.

54. Nuchelmans, Gabriel. 1973. *Theories of Proposition. Ancient and Medieval Conceptions of the Bearers of Truth and Falsity*. Amsterdam: North-Holland

    Chapter 4. The Stoic *lekton* 45; 5. The Stoic *axioma* 75-88."The Stoic conception of the bearers of truth and falsity centres around the notion of *axioma*. As an *axioma* is a species of the genus *lekton*, I shall first discuss the nature of the *lekton*. It will be maintained that the word *lekton* must have had several shades of meaning, although the deplorable state of our sources makes it impossible to reach a high degree of certainty about the exact borderlines between these different nuances and their ascription to definite authors or periods." (p. 45)"As we saw in the foregoing chapter, an *axioma* is a complete and independent *pragma* which is expressed in a speech act of asserting. The complete and independent *pragma* is the thought of an action or passion and its indispensable complements. In so far as this *pragma* is put into words it is a *Iekton*; in so far as it is expressed in a speech act of asserting it is an *apophanton* or *axioma*, an asserted thought-content. A *pragma* such as 'Plato liking Dion' can be expressed in different speech acts: for instance, in a yes-or-no question, 'Does Plato like Dion?', in a wish, 'May Plato like Dion', or in an assertion, 'Plato likes Dion'. On the other hand, the same type of speech act, say asserting, may be related to different *pragmata*; for I

may assert many different things. Reflections of this kind must have led the Stoics to a distinction between the generic element of the *pragma* or *Iekton* and the specific element of the speech act in which a certain thought is expressed.As a rule, then, an *axioma* is a thought-content which is in fact asserted. Nevertheless, the Stoics used the name *axioma* also for the antecedent and consequent of a conditional, although as parts of the composite whole these are not actually asserted. This may be accounted for by the fact that *axioma* originally meant that which is assumed or taken to be true. Or, as I suggested at the end of 4.2.5, the Stoics may have regarded the antecedent and consequent as potential *axiomata*, just as they held that a privative assertion of the form 'Un(kind he is)' contains the potential *axioma* 'Kind he is'. Such an assertable would lie somewhere between the neutral *pragma* or Iekton and the factually asserted *axioma*." (p. 75)

55. O'Toole, Robert R., and Jennings, Raymond. 2004. "The Megarians and the Stoics." In *Greek, Indian and Arabic Logic. Handbook of the History of Logic, Vol. 1*, edited by Gabbay, Dov and Woods, John, 397-522. Amsterdam: Elsevier.

56. Orth, Emil. 1959. "Lekton = Dicibile." *Helmantica* no. 32:221-226

    "L'article est en latin. L'Auteur y explique le sens de *lekton*, terme stoïcien, en analysant la gnoseologie stoïcienne, sans faire appel aux textes. Il ajoute un bref aperçu de l'histoire du terme où il signale, entre autres choses, qu'Apulée, *Peri hermeneias*, emploie *pronuntiabile* pour *lekton* et Augustin, *Principia Dialecticae*, 5, P.L., 32, 1411, *dicibile;* Isidore de Seville, *Etymol.* 2, 22, 2, *dictio*. L'article n'est pas conçu comme une recherche philologique, mais comme un exposé théorique." *Bulletin Augustinien pour 1959*.

57. ———. 1962. "Stoicorum *Lekton* = Iudicium, Dicibile." *Emerita* no. 30:59-61.

58. Pozzi, Lorenzo. 1974. "Il nesso di implicazione nella logica stoica." In *Atti del Convegno di storia della logica (Parma, 8-10 Ottobre 1972)*, 177-187. Padova: Liviana.

59. Preti, Giulio. 1956. "Sulla dottrina del *Semieion* nella logica Stoica." *Rivista Critica di Storia della Filosofia* no. 10:5-14

    Ristampato col titolo: *La dottrina del segno nella logica Stoica* in: G. Preti, *Saggi filosofici. Storia della logica e storiografia filosofica*. Vol. II, Firenze: La Nuova Italia, pp. 3-16.

60. Repici, Luciana. 1993. "The Stoics and the *Elenchos*." In *Dialektiker und Stoiker. Zur Logik der Stoa und Ihrer Vorläufer*, edited by Döring, Klaus and Ebert, Theodor, 253-270. Stuttgart: Franz Steiner

    "1. The problemTo the best of my knowledge, there is no positive definition of *elenchos* in the surviving evidence on Stoic logic. What we find instead is the well-known definition of irrefutability (ἀνελεγξία) as that "strength in the *logos*, so as not to be carried off by it into the contradictory" (ισχύν εν λόγω, ώστε μή ἀπάγεσθαι ὑπ' αὐτου εις* τό αντικείμενου) (Diogenes Laërtius 7.47). Yet, an account of the former could be inferred turning upside down the latter. For, if an irrefutable *logos* is a *logos* that cannot be carried off into the contradictory because of its strength, conversely a refutable *logos* might plausibly be a *logos* that can be carried off into the contradictory because of its weakness. Accordingly, to carry the *logos* of an interlocutor off into the contradictory (to 'refute' it) might mean to reduce it to the contradictory of what it assumes to be the case and hence to self-contradiction. If so, *elenchos* should not be thought of here in terms of a generic dependence on the intention of those who use it. More specifically, it should be taken as the procedure by which in the Socratic fashion inconsistent and paradoxical consequences are drawn starting from the interlocutor's own assumptions - from the premisses of his logos.(1) But what would an operation of this sort mean in a philosophical system like the Stoic one? What sort of *elenchos* would we be faced with? In what follows an attempt is made to look into the matter from the standpoint both of the logical theories of the Stoics and the technical strategies they are said by the ancient sources to have adopted in their arguments." (p. 253)(1) For different viewpoints on the aim of Socratic *elenchos*, Robinson (1951) 24-28; Vlastos (1983) 27-57, 71-74.

For some discussions on Vlastos' conclusions, Kraut (1983) 59-70 and (1984) 245-79; Brickhouse-Smith (1984)185-95; Polansky (1985) 247-59; loppolo (1985) 151-62; Waterfield (1989) 39-56.ReferencesBrickhouse, Th. C./Smith, N. D. (1984). *Vlastos on Elenchus*. In: *Oxford Studies in Ancient Philosophy* 2 (1984) 185-195Huby, P./Neales, G. (eds.) (1989). *The criterion of truth. Essays written in honour of George Kerferd*. Liverpool 1989loppolo, A. M. (1985). *Vlastos e l'elenchos socratico*. In: *Elenchos* 6 (1985) 151-162Kraut, R. (1983). *Comments on Gregory Vlastos, „The Socratic Elenchus"*. In: *Oxford Studies in ancient Philosophy* 1 (1983) 59-70Kraut, R. (1984). *Socrates and the state*. Princeton 1984.Polanski, R. M. (1985). *Professor Vlastos's analysis of Socratic Elenchus*. In: *Oxford Studies in Ancient Philosophy* 3 (1985) 247-259Robinson, R. (1951). *Plato's earlier dialectic*. Oxford 1951Vlastos, G. (1983). *The Socratic Elenchus. Afterthoughts on the Socratic Elenchus*. In: *Oxford Studies in Ancient Philosophy* 1 (1983) 27-57, 71-74Waterfield, R. (1989). *Truth and the Elenchus in Plato*. In: Huby, P. /Neales, G. (1989) 35-96

61. Rist, John M. 1981. "The Importance of Stoic Logic in the *Contra Celsum*." In *Neoplatonism and Early Christian Thought. Essays in Honour of A. H. Armstrong*, edited by Blumenthal, Henry Jacob and Markus, Robert Austin, 64-78. London: Variourum.

62. Roberts, Louis. 1970. "Origen and Stoic Logic." *Transactions and Proceedings of the American Philological Association* no. 101:433-444

    "A principle of Neoplatonic theurgy was that in working magic spells one must never translate foreign words.(1) Origen, the Christian Neoplatonist of Alexandria, refers to this principle several times.These reference as well as numerous other problems cannot be understood apart from Origen's use of certain principles derived from Stoic logic. How deep in debt Origen was to Stoicism has not yet been determined, but his use of Stoic logic has been almost entirely ignored(.2)In this paper I shall indicate three areas in Origen's works which may have been greatly influenced by Stoic logic, the problem of

names, the question of the truth-value of propositions and the use of argument schemes.The thread connecting all three areas is the general Stoic doctrine of truth. I suggest that a good deal more Stoic logic may lurk hitherto undetected in Origen." (p. 433)(1) See E. R. Dodds, "Theurgy and its Relationship to Neoplatonism," *Journal of Roman Studies* 37 (1947) 63. Sufficient bibliography may be found in this article. The principal classical statement is Iamblichus, *De Myst*. 7, 5.(2) The chief work on the subject of Stoicism in the Fathers, Michel Spanneut, *Le stoïcisme des Pères de l'Église* (Paris 1957) ignores Origen completely, treating the period ending at A.D. 230. Other works which treat the problem but ignore the question of logic are: Henry Chadwick, *Early Christian Thought and the Classical Tradition* (New York 1966); A. H. Armstrong and R. A. Markus, *Christian Faith and Greek Philosophy* (New York 1960); Henry Chadwick, "Origen, Celsus and the Stoa," *The Journal of Theological Studies* 48 (1947) 34-48.

63. ———. 1972. "Lucretius 1.857-58 and Stoic Logic." *The Classical World* no. 65:215-217

"Let us consider lines 857-58 of Book 1:*at neque reccidere ad nilum res posse neque autemcrescere de nilo testor res ante probatas*The *res* of line 857 refers to something physical, whereas res in the next line refers to a series of previous proofs or propositions. I suggest that Lucretius is using res in line 858 in the Stoic logical sense of *pragmata* and that he is consciously doing so. The Stoic usage is given, for example, in a passage of Sextus Empiricus. The sense is "the meaning of the proposition" and it is contrasted with the physical bodies of "the sound" and the "object" or "existing referent."This is the same contrast we find in lines 857-58 above. The first *res* refers to physical bodies and the second to the *lekton* which Seneca explains as an *enuntiativum quiddam de corpore, quod alii effatum vocant, alii enuntiatum, alii dictum*.(5)The *enuntiativum* or proposition to which *res* in 858 refers is the series of proofs in 665-75. These lines are in turn a summary of arguments against creation *ex nihilo*." (p. 216)(5) *Ep. mor*. 117.13. The larger context reads: Sunt, inquit, naturae

corporum, tamquam hic homo est, hic equus. Has deinde sequuntur motus animorum enuntiativi corporum. Hi habent proprium quiddam et a corporibus seductum, tamquam video Catonem ambulantem. Hoc sensus ostendit, animus credidit. Corpus est, quod video, cui et oculos intendi et animum. Dico deinde: Cato ambulat.Non corpus, inquit, est quod nunc loquor, sed enuntiativum . . .

64. Rüstow, Alexander. 1910. *Der Lugner. Theorie, Geschichte, und Auflösung*. Leipzig: Teubner

    Nachdruck: New York, Garland, 1987.

65. Schubert, Andreas. 1993. "Die Stoischen Vorstellungen." In *Dialektiker und Stoiker. Zur Logik der Stoa und ihrer Vorläufer*, edited by Döring, Klaus and Ebert, Theodor, 271-290. Stuttgart: Franz Steiner.

66. Sedley, David. 1982. "On Signs." In *Science and Speculation. Studies in Hellenistic Theory and Practice*, edited by Barnes, Jonathan, Brunschwig, Jacques, Burnyeat, Myles and Schofield, Malcolm, 239-272. Cambridge: Cambridge University Press.

67. ———. 1982. "The Stoic Criterion of Identity." *Phronesis.A Journal for Ancient Philosophy* no. 27:255-275.

68. ———. 1984. "The Negated Conjuction in Stoicism." *Elenchos. Rivista di Studi sul Pensiero Antico* no. 5:311-316.

69. ———. 1989. "Le critère d'identité chez les Stoïciens." *Revue de Métaphysique et de Morale* no. 94:513-533

    Traduction française deThe Stoic Criterion of Identity (1982).

70. Speca, Anthony. 2001. *Hypothetical Syllogistic and Stoic Logic*. Leiden: Brill

    Contents: Acknowledgments VII; Abstract IX; Preface XI-XIII; 1. The Aristotelian Background 1; 2. The Greek Commentators on Aristotle 35; 3. Boethius:On hypothetical syllogisms 67; 4. Boethius:On Cicero's Topics 101; References 135; General index 139; Index locorum 141.Abstract: "Aristotle recorded his intention to discuss hypothetical syllogistic fully (*An. pr.*

50a39), but no such treatment by him has been available since at least A.D. 200, if even it ever existed. The contributions of his successor Theophrastus have also perished, as have those of his followers of the subsequent few centuries. At the same time, almost all of the surviving sources, especially the Greek commentators and Boethius, did not report hypothetical syllogistic accurately.Rather, they conflated it with Stoic logic, which it resembles in some respects, but from which it is significantly different. Modern scholars, who have not appreciated the nature or extent of this conflation, have unintentionally perpetuated the problem. As a result, the original form of hypothetical syllogistic has been misunderstood, and part of the influence of Stoic logic in late antiquity has remained unclear.This book is an account of the conflation of hypothetical syllogistic and Stoic logic. The first chapter is a study of Aristotle's remarks on hypothetical syllogistic, which suggest that it was not a sentential logic such as the Stoics would develop. The second chapter details the conflation as it appears in the Greek commentaries on Aristotle, which consists principally in a confusion between the original Peripatetic division of hypothetical statements and syllogisms, whose criteria are semantic, and the Stoic division of complex propositions and inference schemata, whose criteria are syntactic. The third and fourth chapters focus on Boethius's *On hypothetical syllogisms* and *On Cicero's Topics*, in which even further conflation demonstrates that hypothetical syllogistic and Stoic logic had completely ceased to retain their distinct natures by the end of antiquity."

71. Stakelum, James W. 1940. *Galen and the Logic of Propositions*. Romae: Angelicum

    "These pages, restrictedly entitled *Galen and the Logic of Propositions*, originally formed part of an academic dissertation, *Galen's Introduction to Dialectic*. The threefold purpose of the larger study was to present Galen's *Dialectic* in a clear light, to examine his doctrine and weigh its importance as to originality or historical precedent, and from these considerations to draw conclusions as to its influence on succeeding generations. The doctrine, scattered throughout the

Galenic text, was gathered under five headings: I. Galen's Introductory Remarks; II. Logic of Propositions; III. Aristotelian Term Logic; IV. Other Classes of Syllogisms; V. Applied Logic. Owing to the limited size of the volumes of this series, published under the sponsorship of Father I. M. Bochenski, O. P., it is impossible to publish here the whole result of the inquiry. Accordingly, we have selected for presentation our Introduction -- rearranged as Part One in several short chapters -- and the most important portion of our examination of Galen's *Dialectic*, dealing with the logic of propositions. The latter section is divided into three parts. A brief conclusion completes the essay.It is traditional to attribute to Galen an eminent position in the field of logic, but rarely do we find specific reasons assigned for this eminence. The composition of this dissertation has, for me, definitely determined Galen's position in the history of logic. It is hoped that it will serve a similar purpose for others."

72. Stopper, M.R. 1983. "Schizzi Pirroniani." *Phronesis.A Journal for Ancient Philosophy* no. 28:265-297

    Critical notice of: Gabriele Giannantoni (ed.), *Lo scetticismo antico. Atti del convegno organizzato dal Centro di studio del pensiero antico del C.N.R., Roma 5-8 novembre 1980*, Napoli: Bibliopolis, 1981.M. R. Stopper is a pseudonym of Jonathan Barnes.

73. Stump, Eleonore. 1987. "Boethius's in Ciceronis Topica and Stoic Logic." In *Studies in Medieval Philosophy*, edited by Wippel, John F., 1-22. Washington The Catholic University of America
"Besides what In *Ciceronis Topica* shows us about Boethius, it is also a valuable source for us as a witness to the thought and culture of his period.(...)"But perhaps the most interesting unexplored section in In *Ciceronis Topica* is Boethius's presentation of Stoic logic, and that is the part I want to concentrate on in this paper. Rather than dwell on the main theme of *In Ciceronis Topica*, the art of discovery and its instruments, the *Topics*, I want to focus instead on just that small part of Boethius's commentary in which he relates the *Topics* to Stoic dialectic or logic and reveals his understanding of that part of Stoicism. We are beginning to understand the

ancient art of discovering arguments, and it has garnered increasing attention among contemporary scholars. But as far as I know, Michael Frede (30) is alone among recent historians of philosophy in considering Boethius's contribution to our understanding of Stoic logic; and even he gives only a brief discussion of a small part of the relevant Boethian text. So in what follows I will concentrate on just the fifth book of *In Ciceronis Topica*, in which Boethius discusses the so-called undemonstrated modes or argument forms of the Stoics. I need to make plain here that my area of interest and expertise is Boethius and not the Stoics; but I think that in *In Ciceronis Topica* Boethius sheds some light on a vexing problem which has troubled students of Stoic logic for some time." (pp. 6-7) (30) Michael Frede, *Die stoische Logik*, (Göttingen: Vandenhoeck and Ruprecht, 1974), pp. 148-53, 160-62.

74. Tracy, Kevin. 2006. *The Development of Dialectic from Aristotle to Chrysippus*, University of Pennsylvania

Available at ProQuest Dissertation Express order number: 3225558.Abstract: "From Aristotle onward, formal logic was an element of ancient Greek dialectic (*dialektiké*). Aristotle'sPrior Analytics (4th century BCE) is the earliest evidence of a formal logic in antiquity. The evidence for the formal logic of the Stoic philosopher Chrysippus (3rd century BCE) is fragmentary; nonetheless it makes clear that not more than a century or so after *Prior Analytics*, Chrysippus revolutionized formal logic. The scholarship on Stoic logic has not yet presented the history of dialectic from Aristotle to Chrysippus as an intelligible narrative. Without such a narrative, one cannot explain what, in general, motivated the innovations of Chrysippus, what made Stoic logic coherent as a unified project, or what relationship that project had to earlier work in logic. This dissertation approaches the problem through the presentation and interpretation of the ancient source material. First it describes the logical doctrines of Aristotle, Theophrastus, and the 'Megarics' in such a way as to make clear what questions these predecessors left for Chrysippus. It then describes how Chrysippus addressed these questions. Finally, it uses the resulting narrative to give a detailed account of Stoic formal

logic. The dissertation yields five principal conclusions. First, neither the Peripatetics or the 'Megarics' described logical forms of propositional logic; Chrysippus was the first to do so. Second, the guiding aim of Chrysippus' logic was to avoid adopting a semantic stance in describing logical forms and explaining logical relationships. Third, the Stoics distinguished 'valid' (*hugies*) from 'true' (*aléthes*), so that *sunartésis* is a standard for the validity rather than the truth of the Stoic conditional (*sunhémmenon*). Fourth, the Stoics produced derivations for categorical arguments in their deduction system. Fifth, the Stoic deduction system is roughly analogous to the first-order fragment of Frege's system, except on two points: it most likely was not designed to accommodate the use of polyadic predicates with multiple quantifiers, although the possibility for doing so inheres in its approach to the analysis of propositions, and it uses the 'natural' approach rather than the 'axiomatic' approach of Frege."

75. Verbeke, Gérard. 1977. "Der Nominalismus Der Stoischen Logik." *Allgemeine Zeitschrift für Philosophie* no. 3:36-55.

76. ———. 1991. "Ethics and Logic in Stoicism." In *Atoms, Pneuma, and Tranquillity. Epicurean and Stoic Themes in European Thought*, edited by Osler, Margaret J, 11-24. Cambridge: Cambridge University Press.

77. ———. 1996. "Meaning and Role of the Expressible (Lekton) in Stoic Logic." In *Knowledge through Signs. Ancient Semiotic Theories and Practices*, edited by Manetti, Giovanni, 133-154. Turnhout: Brepols

    "In his critical survey of Stoic dialectic Sextus states that the doctrine of the expressible, which plays an important part in the theory of knowledge, has been repeatedly put into question: (1) the *lekton* is an incorporeal, together with time, place and empty space, it belongs to the group of incorporeal objects generally accepted by the Stoics. In their opinion incorporeals are not active, they are unable to effect or produce something: yet they are indispensable in view of a coherent understanding of the universe.(2) Within this framework it was agreed that each argument is composed of incorporeal expressibles, since it

is a combination of sentences which are considered to be complete *lekta*.(3) The question however was asked whether expressibles are really necessary, if they are totally ineffective. Even the meaning of the notion is questionable: it is obviously related to language, but it is not a component neither of spoken nor of written language. In other words it is not a verbal utterance and yet it is referred to by linguistic terms.(4) So it seems to have a definite function in the Stoic theory of knowledge." (p. 133)(1) Sextus,M 8. 336. The author states that the existence of expressibles has been heavily discussed: there was no agreement about this issue. In some other passage Sextus even speaks of an unending debate (8. 262). Sextus lived in the second half of the second century and in the beginning of the third A.D.: at that time Stoicism was still very influential. No other philosophical school ever accepted this doctrine, but it was not disregarded: philosophers had to cope with it especially in their dialectic.(2) Sextus,M 8. 262. An incorporeal object could not affect anything, nor could it be affected. For it could only be affected by something corporeal, and that is excluded, since corporeal and incorporeal are not on the same level.(3) Sextus,M 8. 260-261; 8. 404: every proof is composed of incorporeal expressibles. In Sextus' opinion a vicious circle is unavoidable.(4) Sextus,M 8. 264: according to Sextus *lekta* are signified and among them are also propositions, which are regarded as complete expressibles.

78. Viano, Carlo Augusto. 1958. "La dialettica stoica." *Rivista di Filosofia* no. 49:179-227

    Ristampato in: Autori Vari, *Studi sulla dialettica*, Torino: Taylor, 1969 pp. 63-111.

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80. ———. 1984. "L'originalité de la logique mégaro-stoïcienne par rapport à la logique d'Aristote." *Diotima* no. 12:172-174.

81. White, Michael J. 1986. "The Fourth Account of Conditionals in Sextus Empiricus." *History and Philosophy of Logic* no. 7:1-14

Abstract: "This paper develops an interpretation of the fourth account of conditionals in Sextus Empiricus's *Outlines of Pyrrhonism* that conceptually links it with contemporary 'relevance' interpretations of entailment. It is argued that the third account of conditionals, which analyzes the truth of a conditional in terms of the joint impossibility of antecedent and denial of consequent, should not be interpreted in terms of a "relative" incompatibility of antecedent and denial of consequent because of stoic acceptance of the truth of some conditionals of the form p → -p and its converse. Rather, It is suggested, ancient attempts to avoid the so-called paradoxes of implication involve the fourth account of conditionals. I hypothesize that this account is related to stoic attempts to define truth conditions for conditionals in terms of a theory of the concludency (validity) of arguments in opposition to the more common procedure (represented by the first three accounts of conditionals) of specifying truth conditions for conditionals 'semantically' and using those truth conditions in the development of a theory of argument validity."

82. Zarnecka-Bialy, Ewa. 1979. "Stoic Logic as Investigated by Jan Lukasiewicz." *Reports on Philosophy* no. 3:27-40.

83. Zoecklein, Walter O. 1969. *The Ontological Commitments in Stoic Logic*, University of California, San Diego

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History of Logic

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   Zweiter Teil: Die philosophischen Grundlagen 59, 1. Voraristotelische Belege 60; 2. Aristoteles 119; 3. Stoa 138, 3.1 Vorbemerkung 138, 3.2 Belege auusserhalb der stoischen Dialektik 141, 3.3 Diogenes Laertios VII 55-57 15,; Exkurs: *phoné - dialektos - audé* - ein konkurrierendes Modell? 207, Zusammemfassung 210-211.

3. ———. 1993. "Der Einfluss des Peripatos auf die Sprachtheorie der Stoa." In *Dialektiker und Stoiker. Zur Logik der Stoa und ihrer Vorläufer*, edited by Döring, Klaus and Ebert, Theodor, 11-32. Stuttgart: Franz Steiner.

   Nachdruck: W. Ax, *Lexis und Logos. Studien zur antiken Grammatik und Rhetorik*, Stuttgart, Franz Steiner, 2000, pp.

73-94.

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   "There has been considerable growth in the understanding and estimation of Stoic logic in the last thirty years, yet an important dimension of this Stoic achievement has not been grasped. Stoic logic was broadly conceived to include their theories of knowledge and perception, and the theory of perception provides the starting point and foundation of their logic. It is essential to the structure and unity of that logic that the Stoics take perception to be propositional. Starting from a new interpretation of the Stoic conception of *phantasia* as propositional perception, this study offers a view of Stoic logic that brings out the continuity linking perception, predication, inferential signs and proof.

   For Plato and Aristotle the basic objects of perception are qualities. In effect they develop a phenomenological analysis, underpinned by a physiological conception of sensation. The Stoics take this over as an account of sensation, but they establish the theory of perception at a higher level of complexity. For the Stoics the objects of perception are not qualities nor discrete things or bodies but rather have the form of fact, event or situation, relating qualities to things and things to each other. In perceiving we are trying to make sense of things. This means that both inference (drawing on past perception) and judgment (i.e. judging that something holds in reality) are involved in perception from the start. Conversely,

the logical capacities of the mind, extending through logical signs to proof, carry forward a revelatory power inherent in perception.

The propositional character of perceptions does not derive from language. In the Stoic analysis perceiving picks out a focus or subject and links a predicate to it, and these are logical entities, strictly distinguished, terminologically and in their discrete treatment, from what are linguistic elements, the grammatical subject and predicate. What is predicated of the subject is generally doing or undergoing some action. This linking of elements within perception is at the same time propositional in the sense that it pro-poses something, that is, makes a truth- or reality-claim. What is perceived is by that very act taken to be the case, to be real.

To translate '*phantasia'* as 'perception' is unusual but justified, even required, in Stoic contexts. The term undergoes striking changes in meaning from Plato through Aristotle to the Epicureans, Sceptics and Stoics, which must be reflected in differing translations. For Plato it is misleading 'appearance', sensation wrongly taken as revealing reality. In some of the applications of the term in Aristotle the translation `imagination' seems appropriate, while in others something like `representation' or 'impression' is called for, either in a neutral sense or with a problematic cast akin to the Platonic and Sceptic versions.

In the Hellenistic schools '*phantasia'* (often in the plural) designates not a faculty but particular mental events. It is usually taken to mean `impression' or 'mental presentation'. This is apt for the Sceptics, for whom a further act would be needed to add belief to what is present to the mind and affirm it as real. But 'perception' is the translation called for by Stoic usage. To translate it as 'presentation' in Stoic arguments would be to concede a damaging point of contention to their Sceptic critics by eliding its intrinsic reality claim, its propositional character.

To understand what the Stoics are doing to and with the idea of *phantasia,* we must see it in relation to the different purpose

and character given the term first in Plato, then in Aristotle, and in those contemporary antagonists of the Stoics, the Sceptics and Epicureans. The starting point is Plato's origination of the notion *phantasia,* taken together with his analysis of predication or what constitutes 'statement', in the *Theaetetus* and *Sophist*. Building on the connection of *phantasia* and statement, the Stoics reverse the tendency which Plato embodies in his coinage in that they try to establish confidence in what *phantasia* reveals, whereas Plato took such confidence to be necessarily misplaced.

Indeed, the purpose of his coinage (derived from '*phainesthai',* 'to appear', meaning appearance in contrast to reality or being) was to embody the confusion of 'it seems to me' and 'it is' and so to show up the fundamental error of those who rely on the senses as revealing reality. To trust the senses as a basis of knowledge opens one to distortion from perspective and the illusory character of objects that never are the same." pp. 1-2.

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   On the Stoics see pp. 87-96.

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13. Egli, Urs. 1970. *Zwei Aufsätze zum Vergleich der stoischen Sprachtheorie mit modernen Theorien*. Bern: Institut für Sprachwissenschaft.
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18. Ildefonse, Frédérique. 1992. "Perception et discours dans l'ancien Stoicisme." *Histoire Épistemologie Langage* no. 14:3-34.

    "As the Stoics (particularly through the status they grant to apprehensive representation) work out the relationship between perception and discourse, their definition of representation as alteration rather than impression may be understood as an effort to uphold perceptive multiplicity. I endeavour to find out how the multiplicity which perception implies is to be transcribed into discourse, and why such a transcription requires us to distinguish between two ways of partitioning discursive language, which are hinted at by the two expressions *mérè tou logou* and *stoicheia tou logou*."

19. ———. 1999. "La théorie stoïcienne de la phrase (énoncé, proposition) et son influence chez les grammairiens." In *Théories de la phrase et de la proposition de Platon à Averroés*, edited by Büttgen, Philippe, Dieble, Stéphane and Rashed, Marwan, 151-170. Paris: Éditions Rue d'Ulm.

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22. ———. 1996. "Stoic psychology and the elucidation of language." In *Knowledge Through Signs. Ancient Semiotic Theories and Practices*, edited by Manetti, Giovanni, 109-131. Turnhout: Brepols.

    "(1) During the creative period of Stoicism grammar was still in its infancy as a determinate field of study. I mention this fact because, as is well known, the Stoics were enormously influential on the Graeco-Roman grammatical tradition, which extends from the later Hellenistic epoch into the Christian period of the Roman Empire. Recourse to the Stoic influence on that tradition, excellently facilitated now by Karlheinz Hülser's collection (1987), can give the impression that these philosophers were merely pioneers in starting what the grammarians carried forward more fully and systematically. I want to suggest that such an impression may be seriously misleading in two respects.(2) First, it implies, incorrectly I believe, that the Stoics approached language as a phenomenon calling *primarily* for the kind of grammatical and syntactical description later grammarians developed. Secondly, it fails to identify the philosophical considerations that underpin the Stoics' principal interests in language. The Stoics had some splendid intuitions about the phonetic, grammatical and semantic levels of linguistic structure. Although these bear directly on the development of traditional grammar, they also seem to have clear affinities with what contemporary experts in linguistics call universal grammar.

    The material I have chosen in order to make this point will be drawn primarily from sections of Diogenes Laertius' doxography of Stoicism (7.41-83). This is our only comprehensive account of "the logical part" of Stoic philosophy. I shall be dealing mainly with Diogenes' section "on utterance" (*peri phonés*) or "on signifiers" (*peri semainonton*), which forms the first part of the subdivision of "dialectic" (D.L. 7.55-62). The second part of that subdivision (D.L. 7.63-82) is "on

significations" (*peri semainomenon*). This division of dialectic into signifiers and significations has a clear rationale, as we shall see, but it too can yield misleading impressions, especially if it is taken to imply that the subdivisions are independent of one another or that there are no superordinate concepts that unite them. I shall argue that there are two such concepts, (*phantaisia* and *logos*, and that these together provide the foundations of the Stoic theory of language and logic.(3)

There is a third general point that I want to address. Scholars have become accustomed to making a sharp distinction between the Stoic concept of linguistic signs (words and sentences) and their concept of *semeion*.(4) They applied the latter term (as distinct from the term *semainon*) to a pattern of sign-inference from a fact or proposition that is evident to a fact or proposition that is non-evident. It so happens that nothing is said about sign-inference in Diogenes Laertius' doxography of Stoic logic.(5)

Whatever the explanation for this omission may be, it cannot be doubted that the Stoics classified sign-inferences under the "significations" heading of the division of dialectic. As such, they are not linguistic signs but a class of propositions *signified by* linguistic signs. The antecedent or "if' clause of a sign inference is a meaning or sayable (*lekton*), not the sentence by which this meaning is expressed, and what the "if' clause is the sign for is the truth value of its consequent and the connexion of that truth value to itself. However, what we should conclude from this is not that sign-inference is a function of logic *as distinct from* language, but that it is a normative function of language, i.e., language in its epistemic and truth-signifying capacity. Not only do sign-inferences require language for their expression; they are also tied to language as *lekta*, or sentence content. Correspondingly, language is tied to *lekton* (including sign inferences) for its semantic content. The Stoics appl,ÁÿÖ5òied the term *logos* both to significant utterances (linguistic signifiers) and to sign-inferences of the form: if *p,* then *q*. The presence of *logos* on both sides of the division of dialectic is hardly inadvertent. I take it as an indication that what the Stoics were seeking to elucidate was a unitary science

of discourse, which would comprehend both linguistic signs and sign-inferences without reducing one to the other." pp. 109-110

(1) (...) I have deliberately focused upon a limited range of texts, and I say virtually nothing about the antecedents of Stoic doctrines or their reception by later philosophers and grammarians. That is due in part to reasons of time and space, and also to the excellent studies covering these matters by Ax (1986), Frede (1977, 1978) and others. However, given the extremely fragmentary nature of our evidence, it also seemed to me important to focus rather narrowly on texts which have at least the appearance of being systematically Stoic and uncontaminated by other material. Hence my concentration on the "logical" doxography of Diogenes Laertius 7.

(2) The three studies from which I have learned most about the complex relation between Stoicism and the work of grammarians are Lloyd (1971) and Frede (1977, 1978).

(3) There is no novelty about this claim. Its implications are explored by Imbert (1978) and Manetti (1988), and I dealt with them at some length in Long (1971b). My main point here is to elucidate the primacy attached to *phantasia* in Stoic logic.

(4) See for instance Long (1971b: 84-88).

(5) This is noted and explored by Ebert (1991: 54 ff.).

23. Manetti, Giovanni. 1988. "Perception, encyclopaedia, and language among the Stoics." *Versus.Quaderni di Studi Semiotici* no. 50%1:123-144.

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Original Italian edition: *Le teorie del segno nell'antichità classica,* Milano: Gruppo Editoriale Fabbri, 1987, translated by Christine Richardson.

See Chapter Six: *Theory of language and semiotics in Stoic philosophers,* pp. 92-106.

25. Melazzo, Lucio. 1975. "La teoria del segno linguistico negli Stoici." *Lingua e Stile* no. 10:199-230.

26. Panaccio, Claude. 1999. *Le discours intérieur. De Platon à Guillaume d'Ockham*. Paris: Editions du Seuil.

    Sur ce livre voir: *Laval Théologique et Philosophique*, vol. 57 n. 2 (June 2001).

    Sur les Stoiciens, voir le Chapitre 2. *Logos endiathetos* 53-93.

27. Pinborg, Jan. 1962. "Das Sprachdenken der Stoa und Augustins Dialektik." *Classica et Medievalia* no. 23:148-177.

28. Pohlenz, Max. 1939. "Die Begründung der abendländischen Sprachlehre durch die Stoa." *Nachrichten der Gesellschaft der Wissenschaften zu Göttingen, philosophische-historische Klasse* no. 1, 3.6:151-198.

    Nachdruck: Heinrich Dörrie (Hrsg.), *Max Pohlenz Kleine Schriften*, Hildesheim: Georg Olms, 1965, vol. I, pp. 39-86.

29. Sandbach, Francis Henry. 1971. "*Phantasia Kataleptike*." In *Problems in Stoicism*, 9-21. London: Athlone Press.

30. Schubert, Andreas. 1994. *Untersuchungen zur stoischen Bedeutungslehre*. Göttingen: Vandenhoeck & Ruprecht.

    Inhalt: Vorwort 7; Einleitung 9; I. Kapitel: Die Identität des Lektons 15; II. Die Identität der unvollständingen Lekta und die stoischen "Fälle" 57; III. Die Unkörperlichkeit der Lekta 110; IV. Das Konzept des Lektons in seiner Genese und in der philosophischen Diskussion 131; V. "hyparchein" und "hyphistasthai" bei den Stoikern 149; VI. "Bedeutungslehre" bei Aristoteles und Augustinus und ihr Verhältnis zur stoischen Semantik 175; VII. Die stoische "Kategorienlehre" 199; Appendix: Bemerkungen zu "hyparchein" und "hyphistasthai" im philosophischen Schriftttum und im Corpus Hippocraticum 246; Abkürzungsverzeichnis 261; Bibliographie 263; Index nominum 275; Index locorum 278-284.

31. Shields, Christopher. 1993. "The Truth Evaluability of Stoic *Phantasiai*: *Adversus Mathematicos* VII 242-46." *Journal of the History of Phiosophy* no. 31:325-347.

32. Sluiter, Ineke. 2011. "Language and Thought in Stoic Philosophy." In *History of Language Sciences / Geschichte der Sprachwissenschaften / Histoire des sciences du langage I.1*, edited by Auroux, Sylvain, Koerner, Konrad, Niederehe, Hans-Josef and Versteegh, Cornelis H.M., 375-384. Berlin: Walter de Gruyter.

33. Steinthal, Heymann. 1890. *Geschichte der Sprachwissenschaft bei den Griechen und Römern mit besonderer Rücksicht auf die Logik*. Berlin: Ferdinand Dümmlers Verlagsbuchhandlung.

    Two volumes: I (1890); II (1891).

    Reprint: Hildesheim, Georg Olms, 1961.

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36. ———. 1988. *Phantasia in Classical Thought*. Galway: Galway University Press.

    Contents: Acknowledgements VII; Preface IX-XIII; 1. Phantasia in Plato 1; 2 Phantasia in Aristotle and Theophrastus 14; 3. The Epicureans and Stoics 38; 4. The transformation of phantasia 59; 5. The Neoplatonists 96; 6. The transition to imaginatio 134; Bibliography 163; General Index 170; Index of Names 174-176.

    On the Stoics see pp. 44-59.

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1. Allen, James. 2005. "The Stoics on the Origin of Language and the Foundations of Etymology." In *Language and Learning. Philosophy of Language in the Hellenistic Age. Proceedings of the Ninth Symposium Hellenisticum*, edited by Frede, Dorothea and Inwood, Brad, 14-35. Cambridge: Cambridge University Press.

   "James Allen shows that this assumption explains the Stoics' preoccupation with etymology as part of their concern with a time 'when language was still young' and the product of a primordial wisdom. Since they held a naturalist rather than a conventionalist view the Stoics assumed that there had been a primary stock of words that somehow 'imitate' the nature of the objects in question and could therefore be used as a natural standard of correctness. Since they assumed that there had been a high level of rationality among humans at a primordial stage, the Stoics saw nothing unnatural in proposing the notion of an original 'name-giver' as a hypothetical construct. Such a construct escapes the sceptic's ridicule because it merely assumes that the human need and the ability to converse rationally with each other, which manifests itself in every individual at a certain age, must also have been part of the nature of the (assumed) first generation of human beings. The 'naturalness' of names consists, then, in their suitability for communication with others; though it presupposes a mimetic relation between words and certain kinds of objects, it is not confined to onomatopoetics; instead it makes use of other means to augment language by associations and rational derivations of further expressions that are gradually added to the original stock of words. This explanation, as Allen points out, may make the etymologies less interesting and relevant in our eyes; but though the Stoics did not assume mechanical laws of derivation that would allow them to recover the 'cradle of words', attempts at rational reconstruction of the relation between different expressions provided them with a means to discover and to correct later corruptions of thought and so to play a crucial role in philosophical progress. Despite certain similarities of concern with the naturalist position in the *Cratylus,* the Stoic position therefore differs in more significant

ways from the Platonic position than is usually acknowledged." From the *Introduction* by Dorothea Frede and Brad Inwood, (pp. 4-5)

2. Amsler, Mark. 1989. *Etymology and Grammatical Discourse in Late Antiquity and the Early Middle Ages*. Philadelphia: John Benjamins.

3. Atherton, Catherine. 1993. *The Stoics on Ambiguity*. Cambridge: Cambridge University Press.

4. Auroux, Sylvain, ed. 1989. *La naissance des metalangages en Orient et en Occident*. Liège: Mardaga.

   Histoire des idéèes linguistiques, Vol. 1.

   Chapitre III. *La naissance de la réflexion linguistique occidentale*: Marc Baratin: Section 3. *La constitution de la grammaire et de la dialectique* 186; Section 4: *La maturation des analyses grammaticaes et dialectiques* p. 207; Section 45. *Les difficultés de l'analyse syntaxique* pp. 228-242.

5. Ax, Wolfram. 1993. "Der Einfluß des Peripatos auf die Sprachtheorie der Stoa." In *Dialektiker und Stoiker. Zur Logik der Stoa und ihrer Vorläufer*, edited by Döring, Klaus and Ebert, Theodor, 11-32. Stuttgart: Franz Steiner.

   Nachdruck in: W. Ax: *Lexis und logos: studien zur antiken Grammatik und Rhetorik*, Hrsg. von Farouk Grewing, Stuttgart: Franz Steriner 2000, ss. 95-115.

   "Als Zenon von Kition (ca. 333/2-262/1 v. Chr.) etwa um das Jahr 300 seine Vorlesungen in der Stoa poikile in Athen begann, stand der Peripatos unter seinem Leiter Theophrast (ca. 372/69-288/5 v. Chr.) ohne Zweifel schon auf seinem Höhepunkt. 2000 Schüler - so berichtet Diogenes Laertios 5.37 - soll Theophrast gehabt haben, eine eindrucksvolle Zahl, auch wenn man die Gesamtzahl seiner Schüler, nicht die Besucherzahl einzelner Kurse darunter versteht. Daß er jedenfalls mehr Hörer als Zenon hatte, wissen wir von Zenon selbst. Es dürfte von vornherein einleuchten, daß eine derart angesehene und erfolgreiche Philosophenschule auf die sich zu dieser Zeit erst etablierende Stoa Zenons ihren Einfluß ausübte,

auch wenn für die älteren Stoiker, etwa für Zenon und Chrysipp (ca. 282/77-208/4 v. Chr.), kein peripatetisches Studium bezeugt ist.

Bevor ich jedoch auf diesen Einfluß unter dem Lemma Sprachtheorie zu sprechen komme, muß ich einige zeitliche und sachliche Präzisierungen vorausschicken, zunächst eine zeitliche. Ich beschränke mich auf den Zeitraum der sog. Älteren Stoa, also auf die Zeit von etwa 300 bis zum Tod des Diogenes von Babylon (ca. 240-ca. 150 v. Chr.). Diese Eingrenzung ist dadurch begründet, daß die stoische Sprachtheorie zur Zeit der bekannten und einflußreichen τἐχνη πσρὶ φωνὴς des Diogenes etwa um 200 v. Chr. den Punkt einer gewissen Fertigkeit im Ausbau des sprachbeschreibenden Systems, zugleich auch der Bestandsaufnahme des bis dahin Erarbeiteten erreicht hatte, den Punkt also, von dem aus die Wirkung auf die pergamenische und alexandrinische Grammatik beginnen konnte. Entsprechend kommen natürlich nur Peripatetiker bis zu diesem Zeitpunkt (um 200 v. Chr.) für mein Thema in Frage." (s. 11, die Hinweis wurden weggelassen)

6. Baratin, Marc. 1981. "Les origines Stoiciennes de la théorie augustinienne du signe." *Revue des Études Latines* no. 59:260-268.
7. ———. 1982. "L'identité de la pensée et de la parole dans l'ancien stoïcisme." *Langages* no. 16:9-21.
8. ———. 1989. "La constitution de la grammaire et de la dialectique." In *Histoire des idées linguistiques. I. La naissance des métalangages en Orient et en Occident*, edited by Auroux, Sylvain, 186-206. Liège: Mardaga.
9. ———. 1991. "Aperçu de la linguistique stoïcienne." In *Sprachtheorien der abendländischen Antike. Geschichte der Sprachtheorie Band II.*, edited by Schmitter, Peter, 193-217. Tübingen: Gunter Narr Verlag.
10. Baratin, Marc, and Desbordes, Fraçoise. 1981. *L'analyse linguistique dans l'Antiquité classique. 1. Les théories*. Paris: Klincksieck.

Avec la participation de Philippe Hoffman et Alain Pierrot.

11. Barnes, Jonathan. 1962. "Medicine, experience and logic." In *Science and Speculation: Studies in Hellenistic Theory and Practice*, edited by Barnes, Jonathan, Brunschwig, Jacques, Burnyeat, Myles and Schofield, Malcolm. Cambridge: Cambridge University Press.

12. Berrettoni, Pierangiolo. 1989. "An Idol of the School: the Aspectual Theory of the Stoics." *Rivista di Linguistica* no. 1:33-68.

13. ———. 1989. "Further Remarks on the Stoic Theory of Tenses." *Rivista di Linguistica* no. 1:251-275.

14. ———. 1997. "La formazione di un paradigma stoico-alessandrino nella teoria dei tempi verbali." *Quaderni dell'Istituto di Glottologia dell'Università di Chieti* no. 8:5-28.

    "The article seeks to identify the philosophical premises of the theory of tense developed by the Stoics in the formation of a propositional logic and a temporal logic. It also indicates the presence of a number of suggestions derived from mathematical theories."

15. Blank, David Leslie. 1982. *Ancient Philosophy and Grammar. The Syntax of Apollonius Dyscolus*. Chico: Scholars Press.

16. ———. 1983. "Remarks on Nicator, the Stoics and the ancient theory of punctuation." *Glotta* no. 61:48-67.

17. Blank, David Leslie, and Atherton, Catherine. 2003. "The Stoic Contribution to Traditional Grammar." In *The Cambridge Companion to Stoics*, edited by Inwood, Brad, 310-327. Cambridge: Cambridge University Press.

18. Brunschwig, Jacques. 1984. "Remarques sur la théorie stoïcienne du nom propre." *Histoire Épistemologie Langage* no. 6:3-19.

    Répris dans: J. Brunschwig, *Études sur les philosophies hellénistiques: Epicurisme, stoïcisme, scepticisme*, Paris: Presses Universitaires de France, 1995.

19. Caujolle-Zaslawsky, Françoise. 1985. "La scholie de Stéphanos. Quelques remarques sur la théorie des temps du verbe

attribuée aux Stoiciens." *Histoire Épistemologie Langage* no. 7:3-19.

"Although this testimony is isolated, the historians of ancient grammar, who are aware of the part played by the Stoics in the formation of an independent grammatical field, unreluctantly take for granted the indications of a scholium by Stephanos -- the commentator on Dionysios Thrax -- which imply the existence of stoic theory of verbal tenses; yet none of the reconstructions of this theory as the basis of the scholium can be taken as conclusive, for want of complementary documents. This paper offers neither a new reconstruction nor a critical survey of former ones, but tries to follow another path; it investigates whether elements which, in the scholium, are undoubtedly of stoic origin, did not stand up to the scholiast's skill in his attempt to integrate them within a framework which may be foreign to them."

20. Dinneen, Francis P. 1985. "On Stoic Grammatical Theory." *Historiographia Linguistica* no. 12:149-164.

21. Ebert, Theodor. 1987. "The Origin of the Stoic Theory of Signs in Sextus Empiricus." *Oxford Studies in Ancient Philosophy* no. 5:83-126.

    "In his critical discussion of the dogmatic philosophers Sextus Empiricus expounds a Stoic doctrine which has conveniently been labelled 'the theory of signs'. This chapter of Stoic philosophy offers a blend of logic and epistemology, a mixture bound to attract the interest of present-day 'ancient philosophers'. Hence, with the growing discussion focusing on the philosophy of the Hellenistic period, this part of Stoicism was to get a fair share of attention. (1) Controversy has been flourishing over the merits and weaknesses of this theory; it has been compared with tenets about the topic of signs held by earlier and later philosophers, yet in these discussions it has almost universally been taken for granted that there is a single theory of signs and that it can be attributed unqualifiedly to the Stoics. (2)

    Part of what I want to do in this paper is to challenge this assumption. I shall argue that the material relating to the

theory of signs which is preserved in Sextus does not reflect Chrysippan teaching, but goes back to Stoics antedating Chrysippus. To have a convenient term, I shall refer to the pre-Chrysippan Stoics as 'early Stoics'. (3) I shall further argue that the theory of signs of the early Stoics was a harvest not grown in the fields of Stoic philosophy, but that it originated from the 'Dialecticians', a group of philosophers confused for a long time with the Megarians and rediscovered as a group in its own right by David Sedley. (4) I shall further try to point out some modifications which this theory underwent as it was integrated into the epistemology of the early Stoics. I shall not discuss the doctrine of signs advocated by the opponents of the Epicureans in Philodemus' *de Signis* -- almost certainly Stoic philosophers -- a doctrine which has been ably discussed by David Sedley in a recent paper. (5)" pp. 83-84.

(1) Cf. G. Verbeke, 'La philosophie du signe chez les Stoiciens', in *Les Stoiciens et leur logique*, ed. J. Brunschwig (Paris, 1978), 401-24; J. M. Rist, 'Zeno and the origins of stoic logic', ibid. 387-400; M. Baratin, 'Les origines stoiciennes de la théorie augustinienne du signe', *Revue des Etudes Latines*, LIX (1981), 260-8; M. F. Burnyeat, 'The Origins of Non-deductive Inference', in *Science and Speculation: Studies in Hellenistic Theory and Practice*, ed J. Barnes *et al.* (Cambridge/Paris, 1982), 193-238; D. Sedley, 'On Signs', ibid. 239-72; D. Glidden, 'Skeptic Semiotics', *Phronesis*, XX (1983), 213-55. For discussions in the older literature cf. R. Philippson, *De Philodemi Libro qui est peri semeion kai semeioseon et Epicureorum doctrina logica* (Berlin, 1881); P. Natorp, *Forschungen zur Geschichte des Erkenntnisproblems im Altertum* (Berlin, 1884), 127 ff.; W. Heintz, *Studien zu Sextus Empiricus* (Halle, 1932), 42-51; G. Preti, 'Sulla dottrina del *semeion* nella logica stoica', *Rivista Cntica di Storia della Filosofia*, XI (1956), 5-14.

(2) The only exception known to me is D. Sedley who wants to 'put into abeyance the widespread belief that Stoic doctrine is under discussion by Sextus Empiricus throughout *M* VIII. 141-298 and *PH* II. 97-133' (Sedley, above n. 1, 241).

(3) The traditional division of Stoicism puts Chrysippus' Stoic predecessors together with his own school into the Old Stoa, separating it from middle Stoicism inaugurated by Panaetius. This classification seems to be based on Stoic ethics, and understandably so. After all, it was their moral philosophy which, beginning with Cicero, made the Stoics so immensely influential, and here the affinity between Zeno and Chrysippus is clearly stronger than the one between Chrysippus and Panaetius. Yet in logic and epistemology, there is no similar relationship between Chrysippus and his predecessors. Here the great break comes about with Chrysippus, and we should group Stoic philosophers in this field accordingly.

(4) Cf. D. Sedley, 'Diodorus Cronus and Hellenistic Philosophy', *Proceedings of the Cambridge Philological Society*, CCIII, N S 23 (1977), 74- 120.

(5) Cf. D. Sedley, above n 1.

22. Egli, Urs. 1979. "The Stoic Concept of Anaphora." In *Semantics from Different Points of View*, edited by Bäuerle, Rainer, Egli, Urs and Stechow, Arnim von, 266-283. New York: Springer.

23. ———. 1986. "Stoic Syntax and Semantics." In *The History of Linguistics in the Classical Period*, edited by Taylor, Daniel J., 281-306.

    Also published in: *Historiographia Linguistica*, 13, 1986 and in J. Brunschwig (ed.), *Les Stoiciens et leur logique*, Paris, Vrin, 1986, pp. 135-147 (2nd edition 2006, pp. 131-148).

    "Let me now summarize the main points of my exposition of Stoic syntax:

    1. Stoic *loquia (lekta)* are designated by expressions of a normalized Greek. They have the same structure as these Greek expressions. Thus in most technical uses they serve approximately the same purpose as "semantic structures" or "semantic representations" in modem linguistics and philosophy of language.

    2. There is an infinity of *loquia* derived by a finite number of recursive rules of four types, lexical, inclusion, combination and

transformation rules. Semantic categories like statement, predicate and subject are used in the formulation of these rules which enable us to build complex *loquia* of the various categories from atomar ones *(asuntheta)*. The structure of a compound *loquium* may be revealed by using Chomsky or Montague analysis trees.

3. This infinity of *loquia* is related with real things by an analogue of modern model theory. General terms are said to denote individuals according to a variant of multiple denotation theory. Deictic subjects are assigned values, like their modern analogues: individual variables by an assignment *(deixis)*. Statements are either true or false. Complex expressions are valuated in function of their syntactic composition and the values of their parts.

4. Denotations of Greek expressions are determined indirectly. *E.g*. appellatives signify appellative subjects, which refer to individuals. Thus appellatives indirectly denote these individuals too.

5. All this would have to be refined by taking into account tense.

6. By neglecting tense, plural and subjectivization, Stoic *loquium* theory becomes an analogue of modern first order predicate logic by

a) the introduction of n place predicates with arbitrary *n,*

b) the introduction of a means to handle relative clauses

Stoic syntax and related model theory thus proves interesting and comparable to modern treatments."

Les Stoiciens et leur logique, 2nd edition 2006, pp. 144-145.

24. ———. 2000. "Anaphora from Athens to Amsterdam." In *Reference and Anaphoric Relations*, edited by Heusinger, Klaus von and Egli, Urs, 17-29. Dordrecht: Kluwer.

"Excavating the prehistory of dynamic predicate logic in the Stoic theory of methodical arguments makes us aware of an interrupted tradition, in a way that is possible only by philological reconstruction and the use of similar facts

independently invented in modern times. That such interrupted traditions can become important has been shown by the use of ancient temporal logic and its resurrection in Kripke's (1963) semantics of modal logic. Kripke combined Prior's reconstruction of the Diodorean system of time-logical modality with ideas from Carnap on modal logic in order to get his semantic

characterization of the Lewis systems of modal logic. Modern developments offer scholars of classical logic a modern foil that can help them to understand ancient texts and to see interesting developments in them which otherwise would be incomprehensible.

The modern representatives of this tradition also gain an advantage from such research, in that they can build on a tradition which helps to strengthen confidence in the new methods.

The adherents of Stoicism gave their logic high priority, saying that if the Greek gods had a logic, then it must be that of Chrysippus. As we have seen, this logic was a form of dynamic predicate logic. It is equivalent to classical predicate logic and contains it as the static part. Classical predicate logic is according to Hilbert's thesis a privileged form of logic, and according to Quine it is the right regimentation of language. Perhaps the Stoic saying was not so false after all. But we can also learn something about our own form of predicate logic, classical and dynamic, because the Stoic developments can be considered as a finalized whole. Even if the Stoic version of dynamic predicate logic is no logic of the gods, it still is an important logic for human beings." p. 28

25. Frede, Michael. 1977. "Some Remarks on the Origin of traditional Grammar." In *Historical and Philosophical Dimensions of Logic, Methodology, and Philosophy of Science*, edited by Butts, Robert E. and Hintikka, Jaakko, 51-79. Dordrecht: Reidel.

Reprinted with the title: *The Origins of Traditional Grammar* in: M. Frede, *Essays in Ancient Philosophy,* Oxford: Clarendon Press, 1987, pp. 338-359.

26. ———. 1978. "Principles of Stoic Grammar." In *The Stoics*, edited by Rist, John M., 27-75. Berkeley: University of California Press.

    Reprinted in: M. Frede, *Essays in Ancient Philosophy,* Oxford, Clarendon Press, 1987, pp. 301-337.

    "Historians of grammar have usually proceeded as if their subject had a continuous history starting in the fifth century B.C., with the Sophists. But even if one is willing to credit Sophists like Protagoras and Prodicus, and later philosophers like Plato and Aristotle, with a theory of language, It is obvious that their theories were not grammatical theories: they were not interested in finding out how a particular language, Greek, actually works in such detail as to be in a position even to attempt to start formulating the canons for correct Greek. Hence to treat them as part of one continuous tradition along with the later grammarians is to invite neglect of important questions. We may, for example, assume that those who actually started grammar had certain notions concerning the nature of language, and that these and other philosophical views influenced the way they set up their subject and thus also its later development. We may also assume that they had certain reasons for starting this enterprise and that these reasons influenced the way they went about it and hence, indirectly, the outlines of later grammar. For reasons of this sort it is important that we should have a better notion of the actual origins of the grammatical tradition.

    Now our question concerning the Stoics is important, since it has been claimed that it was the Stoics themselves who first formulated traditional grammar, To substantiate this claim it will not be sufficient to show that traditional grammar is Influenced in many respects by Stoic notions. For such a state of affairs would be completely compatible with the assumption that the Stoics still formed part of the earlier philosophical tradition, though they contributed more to this tradition than their predecessors, but that grammar itself only began among the classical scholars of Alexandria, who exploited the available philosophical tradition and the Stoic contributions to it. To

substantiate the claim that grammar originated with the philosophers we have to show that it formed a definite part of Stoic philosophy (the evidence seems to rule out the other schools of philosophy as plausible candidates). But the origin of traditional grammar is not the concern of this paper. Even if grammar originated with the Alexandrians, it would be important to know whether in matters of language the Stoics still formed part of the earlier philosophical tradition or whether they were already engaged in doing grammar. For the evidence on the Stoic theory of language is so fragmentary that the context of the fragments and testimonies makes an enormous difference to their interpretation and evaluation."

27. ———. 1993. "The Stoic Doctrine of the Tenses of the Verb." In *Dialektiker und Stoiker. Zur Logik der Stoa und ihrer Vorläufer*, edited by Döring, Klaus and Ebert, Theodor, 141-154. Stuttgart: Franz Steiner.

    "In traditional grammar, but also in modem linguistics, we talk of “the tenses of the verb”. We have inherited this notion from the Greek grammarians. The Greek grammarians, as a rule, distinguish 6 tenses of the verb: present, imperfect, aorist, perfect, plusquamperfect, and future. Sometimes they add a second aorist and the so-called Attic future. The linguistic phenomena which this grammatical doctrine tries to capture are notoriously difficult to understand. But the facts themselves are obvious enough: (i) Greek verbs have a pattern of inflection which in paradigm cases provides a characteristic form for each of the tenses distinguished, (ii) there are syntactical rules which govern the use of these tenses, and (iii) the choice of the tense very clearly affects the meaning of sentences, it makes a crucial difference to what gets said. One major difficulty is to understand how precisely the choice of tense does affect the meaning. There also is a good amount of controversy concerning the question to which extent this traditional grammatical scheme of the tenses of the verb, as originally developed for Greek, and then adapted by the Roman grammarians for Latin, is suitable for the classical languages; let alone for our modem languages. But in what follows it is not my primary concern to elucidate the linguistic phenomena

themselves, nor to answer the question of the adequacy of the traditional grammatical doctrine concerning these phenomena. I am just concerned to understand the traditional doctrine itself. Indeed, my aim here is even more modest: I will try to get clearer about the historical origins of the traditional scheme of tenses. Perhaps this will help us to come to a better understanding of the doctrine itself.

The first time we encounter this traditional doctrine in its fully developed form is in the *Ars grammatica* attributed to Dionysius Thrax (ed. G. Uhlig, Leipzig 1883), a treatise which presumably goes back to the end of the 2nd century B.C." (p. 141)

28. ———. 1994. "The Stoic Notion of a Grammatical Case." *Bulletin of the Institute of Classical Studies* no. 39:13-24.

29. Gaskin, Richard. 1997. "The Stoics on Cases, Predicates and the Unity of the Proposition." *Bulletin of the Institute of Classical Studies* no. 41:91-108.

30. Gourinat, Jean-Baptiste. 1999. " La théorie stoïcienne et ses enjeux." In *Théories de la phrase et de la proposition de Platon à Averroés*, edited by Buttgen, Philippe, Dieble, Stéphane and Rashed, Marwan, 133-150. Paris: Éditions Rue d'Ulm.

31. ———. 2009. "Épistémologie, rhétorique et grammaire." In *Lire les Stoïciens*, edited by Gourinat, Jean-Baptiste and Barnes, Jonathan, 23-39. Paris: Presses Universitaires de France.

32. Hadot, Pierre. 1966. "La notion de "cas" dans la logique stoïcienne." In *Le langage. Actes du XIII Congrés des Sociétés de philosophie de langue française. Genève, 2-6 août 1966*, 109-112. Neuchâtel: La Baconnière.

33. Hagius, Hugh. 1979. *The Stoic Theory of the Parts of Speech*.

    Ph. D. Dissertation, Columbia University available at: ProQuest Dissertation Express n. 8008733.

    Contents: Preliminary remarks IV--IX; Chapter I. Chrysippus 1; Chapter II. The *Techne concerning sounds* of Diogenes of Babylon 101; Chapter III. Aristarchus and the Aristarcheans 171; Chapter IV. The *Dialectica* of Augustine 249; Concluding

remarks 260; Appendix I 265; Appendix II 280; Bibliography 283-290.

Abstract: "This dissertation relates the history of the theory of the parts of speech from its origin in the Stoic school of dialectics through its passage into the Alexandrian school of literary criticism in the second century B.C.

It pays especial attention to the way in which the theory was transformed in that passage. The Stoics had used it as part of their general system of dialectics, intended to give an account of the truth of true sentences and the validity of valid deductions. The Alexandrians, whose main activity was textual criticism, used the parts of speech as a system of naming and classifying the forms of Greek. The dissertation argues that for each of these purposes a different theory is required, and that in the Alexandrian grammarians' application of the theory two different ways of analyzing language were confused.

The chief figures in this history are the Stoics, Chrysippus of Soloi (c. 281 to 208 B.C.) and his student, Diogenes of Babylon (c. 238 to 150 B.C.), and the Alexandrian, Aristarchus of Samothrace (c. 216 to 144 B.C.). One chapter is devoted to each of them.

The first chapter is a reconstruction of Chrysippus's version of the theory of the parts of speech. It discusses the terminology which he inherited, such as "element of logos," the forerunner of our phrase "part of speech," as well as the notions of noun, verb, conjunction and article. It examines Chrysippus's theory of the significate (alternatively called the *lekton*), which was described as being what "the barbarians, although hearing the sound, do not understand," and also as being "just what is true or false." The several parts of speech were distinguished according

to their association with significates.

The second chapter is a reconstruction of a lost work of Diogenes of Babylon, his *Techne Concerning Sound*. This was a handbook which treated language as a single topic, beginning with acoustics and proceeding to the parts of speech.

Diogenes's *Techne* probably was the vehicle by which the theory of the parts of speech reached Alexandria.

The third chapter discusses Aristarchus's adaptation of the parts of speech to the purposes of textual criticism, and some of the ways in which he used it in his own edition of the *Iliad*. It also considers the difficulty which the confusion within the theory caused for Aristarchus's successors. Finally it compares the grammatical theory of the Alexandrians with that of the great Indian grammarian Panini and his commentators.

The fourth and final chapter is devoted to a post-classical Latin text which has come down to us as the *De Dialectica* of Augustine. Its sources are obscure, but it appears to represent a development of Stoic theory later than Diogenes. It considers questions of metalanguage, and draws a distinction between use and mention very like the one made by Panini. This stage of Stoic theory did not pass into the grammatical tradition, but the *De Dialectica* was read during the medieval and Renaissance periods in Europe.

The dissertation contains two appendices. The first is a collection of fragments upon which the reconstruction of Diogenes's *Techne Concerning Sound* was based. The second discusses Aristarchus's pupil Dionysius Thrax, and the grammar attributed to him."

34. Hennigfeld, Jochem. 1994. *Geschichte Der Sprachphilosophie. Antike und Mittelalter*. Berlin: Walter de Gruyter.

    Kapitel V. *Die Stoa. Laut und Bedeutung* pp. 104-124.

35. Householder, Fred Walter. 1981. *The Syntax of Apollonius Dyscolus*. Amsterdam: John Benjamins.

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36. Hülser, Karlheinz. 1979. "Expression and Content in Stoic Linguistic Theory." In *Semantics from Different Points of View*, edited by Bäuerle, Rainer, Egli, Urs and Stechow, Arnim von, 284-303. New York: Springer.

37. Ildefonse, Frédérique. 1997. *La naissance de la grammaire dans l'Antiquité grecque*. Paris: Vrin.

Chapitre II: *Les Stoïciens* - pp. 119-251.

38. ———. 1998. "Petite histoire de la *metabasis*." *Histoire Épistemologie Langage* no. 20:63-80.

    "I will try to illustrate the dynamics of the passage as described by metabasis in a few stoic texts and several grammatical analysis of Apollonius Dyscolus. I believe the concept of « décrochement », which I borrow from Claude Lévi-Strauss, helps to clarify it. The adjective metabatikos qualifies the type of human representation, logical representation, which, in as much as it is « transitive », allows an information to open into another, as well as their mutual articulation, therefore founding the conception of the sign « if this, then this » and the possibility of the conditional « if it is day, there is light ». According to the grammarian Apollonius Dyscolus, metabasis intervenes in the analysis of the transitive diathesis and in the definition of the person. I will procède to show the part played by metabasis in the grammatical treatment of conjunction and how it allows to throw some light upon the obscure part of the definition of conjunction in the *Technè Grammatikè* attributed to Dionysus the Trhax."

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40. Lohmann, Johannes. 1968. "Über die Stoische sprachphilosophie." *Studium Generale* no. 21:250-257.

    Summarizes the important unpublished Dissertation by Hans-Erich Müller (1943).

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    "Anthony Long also elaborates on the influence of Plato's *Cratylus* on Stoic theory. But he goes much further than Allen with his hypothesis that the Stoics not only made use of Plato's dialogue, but did so in a way that justifies he presentation of

many central features of their linguistic theory as being he result of a revisionary reading of the *Cratylus*. It is a reading that makes Socrates' suggestions about the 'natural' relation of names to things much more coherent than they are in the dialogue itself. This also applies to their etymological explanation of the names of the gods that they suggested as a revision of a corrupted tradition and a return to the original name-givers' comprehension of the true nature of the universe. Given their `synaesthetic' reconstruction of the relation between phonetics and semantics, the Stoics could avoid the *Cratylus'* more absurd features of onomatopoetics, as Long shows by analysing different forms of 'naturalism', including 'formal and phonetic naturalism', and their application by the Stoics that not only ins hides names but also the famous *lekta* or 'sayables'. Long contends that the Stoics not only found a better balance between the phonetic and the formal constituents of meaningful discourse than emerges from Plato's dialogue itself, but restricted their use of etymology as a back-up to their theology, i.e. the naturalistic reconstruction of the names of the gods. As an additional witness to the sophistication of the Stoic linguistic theory Long adds an appendix on the four-fold semantic distinction (between *dicibile, res, verbum,* and *dictio)* in St Augustine's *De dialectica,* which he takes to be largely of Stoic origin.

The Epicureans also held that language is part of the natural emergence of human culture. But here the similarity between the Stoic and the Epicurean theory of language ends. For instead of an early stage of rationality and inspired `name-givers', the Epicureans proposed a quite different account of the evolution of language as part of their mechanical reconstruction of the order in nature, which includes an animal-like primitive stage of human beings. Unfortunately the information on this early stage in the development of humans as cultural beings in Epicurean theory is extremely meagre; attempts to reconstruct it have to rely on a few lines in Epicurus' *Letter to Herodotus* and in Lucretius' poem." From the *Introduction* by Dorothea Frede and Brad Inwood, pp. 5-6

42. Müller, Hans-Erich. 1943. *Die Prinzipien der stoischen Grammatik*.

Unpublished dissertation (University of Rostock).

43. Ophuijsen, Johannes M.Van. 2003. "Parts of *what* speech? Stoic notions of statement and sentence; or, how the dialectician knew voice and began syntax." In *Syntax in Antiquity*, edited by Swiggers, Pierre and Wouters, Alfons, 77-94. Louvain: Peeters.

44. Pinborg, Jan. 1975. "Classical Antiquity: Greece." In *Current Trends in Linguistics. Vol 13: Historiography of Linguistics*, edited by Sebeok, Thomas A., 69-126. La Haye: Mouton.

45. Schenkeveld, Dirk Marie. 1984. "Stoic and Peripatetic Kinds of speech Act and the Distinction of Grammatical Moods." *Mnemosyne* no. 37:291-353.

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52. Schmidt, Rudolf T. 1839. *Stoicorum grammatica*. Halis Eduardum Anton.

53. ———. 1979. *Die Grammatik der Stoiker*. Braunschweig/Wiesbaden: Friedr. Vieweg & Sohn.

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55. Telegdi, Zsigmond. 1982. "On the formation of the concept of 'linguistic sign' and on Stoic language doctrine." In *Hungarian Linguistics*, edited by Kiefer, Ferenc, 537-588. Philadelphia: John Benjamins.

56. Versteegh, Cornelis H. M. 1980. "The Stoic Verbal System." *Hermes* no. 108:338-357.

    "The difficulties one meets in studying Stoic grammatical theory may well be illustrated by the verbal system, whose reconstruction has been undertaken in various ways. It is our aim in this paper to study first the data provided by the Greek grammarians, and to determine the influence of Stoic theories on this corpus with the help of the direct quotation in the scholia (scholia Dyonisios Thrax 250, 26 - 251, 25). Then we will analyse the data from Varro (*De Lingua Latina* VIII - X) and from the Latin *Corpus Grammaticorum*, in connection

with the direct quotation by /Priscianus (*Inst*. 414, 21 sqq.). Finally, we will compare the various reconstructions which have been proposed, and give our own proposal." (p. 338)

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History of Logic

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Selected Bibliography on the Early Stoic Logicians: Zeno, Cleanthes, Chrysippus

Zeno of Citium

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   "The article questions the standard perception of Stoic philosophy as materialist and nominalist in nature. Rather than being materialistic, Stoic ontology represents a consistent

hylemorphism in which nothing exists without matter and which is intended to circumvent and the matter-form dualism in Aristotle's metaphysics and to avoid Aristotle's epistemological problem of the unknowability of matter. Similarly, Stoic semantics is not entirely nominalistic. Although Stoic universals ("ennoemata", "ennoiai") are "post rem", unlike word or sentence meanings ("lekta") they are nonmental noematic or conceptual structures."

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   See in particular: Teil I. *Zur Logik,* pp. 8-81.

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"The formula "the elements of *logos*" in the Zeno quotation by Epictetus at Arrian, *Diss*. 4.8.12 need not, pace e.g. von Arnim, pertain to the parts of speech, but more probably means the elements, i.e. primary theorems of philosophical theory, or doctrine. Theory moreover should become internalized to the soul and "lived": philosophy is also the so-called "art of life". These theorems are to be distinguished but should reciprocally entail each other. Philosophy according to Zeno is both tripartite and one, and tripartite especially in that its parts (and subparts) cannot be transferred simultaneously: of necessity these have to taught and learned one after the other."

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    Première édition 1978; deuxième édition, revue, augmentée et mise à jour (reproduit la pagination de l'édition originale).

    "I I have attempted to sketch what Zeno left behind for Chrysippus to develop (63). Cleanthes has been mentionned in passing, and his contributions are, so far as we can see, largely limited to additional work of the same general sort as his master. He too took an interest in the work of Diodorus Cronus, and as we have seen, is the first recorded Stoic to have discussed the notorious Master Argument and its theory about

the possible and the necessary. Probably some form of a theory of *lekta* may be ascribed to him, as Clement of Alexandria tells us. But how much he said on the topic is beyond our ken; probably not very much. For I am personally even Inclined to think that it is more likely to have been Chrysippus who formally added *lekta* to the list of incorporeals, though such an addition might be implicit in the thought of anyone who postulated that there are "non-existents": subjects of *meaningful* discourse which cannot be put in category One, the category of what exists. For it is hard to see how that which does not exist can be corporeal. Perhaps it was from some such considerations that the notion of "meaning" itself arose, as well as the thesis that words may have a sense but no reference." p. 27

"Résumé. Avant le développement systématique que Chrysippe donna à la logique stoicienne, peut-on préciser l'eeuvre de Zénon dans ce domaine? Souhaitant donne à l'idée de nature un contenu plus positif que ne le faisait la morale cynique, il devait rencontrer l'hypothèque éléatique; il fut l'élève et le condisciple de plusieurs dialecticiens mégariques (bien qu'on ne lui attribue pas de position dans le problème du Dominateur et des possibles). Il a dû s'intéresser aussi à la théorie des signes et au problème du critère de validité du conditionnel, sur lequel il adopte la position de Philon (que Chrysippe abandonnera sous la pression des critiques de Diodore). Ce problème est lié à celui de la nature du sage; en reconnaissant dans l'aptitude à inférer un aspect fondamental de la nature humaine, Zénon accélérait sa rupture avec le cynisme. Des Mégariques, Zénon a hérité certaines divergences de vocabulaire et de fond avec la logique aristotélicienne; de Stilpon, notamment, il peut avoir reçu l'idée du primat de l'individuel, contre les Formes platoniciennes et peut-être aussi contre les universaux aristotéliciens. Parmi les domaines que Zénon n'a apparemment pas touchés, on peut compter: la théorie des signifiants et des signifiés; peut-être, la notion même du *lekton* (qui aurait été rajouté, après Zénon, aux trois incorporels primitifs, nés en terrain physique), et du même coup la classification systématique des *lekta*; enfin, la théorie des

indémontrables. En matière de théorie de la connaissance, c'est en revanche Zénon qui a jeté les bases de la doctrine stoïcienne; le problème était urgent, après le platonisme et le pyrrhonisme, comme le démontre l'attitude contemporaine d'Épicure.

Le Professeur Rist n'a pas souhaité rédiger de compléments pour la deuxième édition. (Note de l' éditeur)" pp. 27-28.

(63) *Ibid*. p. 153-154.

16. Scaltsas, Theodore, and Mason, Andrew S., eds. 2002. *The Philosophy of Zeno: Zeno of Citium and his Legacy*. Larnaca: The Municipality of Larnaca.

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   "Le syllogisme sur la loi était un syllogisme stoïcien attribué à Diogène le Cynique dans la doxographie que lui consacre Diogène Laërce. Il n'est que l'écho d'un ensemble de syllogismes sur la loi et la cité dont l'auteur est vraisemblablement Cléanthe. La source de Diogène Laërce pourrait être Apollodore de Séleucie."

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   Text, translation and commentary.

   "Although the *Hymn to Zeus* is often cited as one of the most important documents of early Stoic philosophy -- indeed the only text to survive more or less intact -- it has not yet received a detailed treatment in a monograph by itself. Besides its indubitable philosophical interest, the poem also provides crucial evidence for the way philosophy came to function as a form of religion from the Hellenistic period onwards. The present study strives to pay due attention to the most relevant factors which make this poem exceptional: the philosophical and moral ideas conveyed in poetic form, the religious underpinning given to Stoicism, and the intricate interaction with the preceding literary tradition. Cleanthes offers his own philosophical answer to the human moral dilemma in terms of

the Greek cultural heritage; the *Hymn to Zeus* should therefore not simply be interpreted against the background of Stoicism in general." (From the Preface).

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3. ———. 1993. "Galen and the Utility of Logic." In *Galen und das hellenistische Erbe*, edited by Jutta, Kollesch and Nickel, Diethard, 33-52. Stuttgart: Franz Steiner.

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   Reprinted in: J. Barnes, *Mantissa: Essays in Ancient Philosophy IV*, Oxford: Clarendon Press, 2015, pp. 479-494.

   The catalogue of the works of Chrysippus preserved by Diogenes Laertius (7, 189 ff.) may derive from a handbook by Chrysippus himself; this makes it a fairly reliable guide to his thought.

5. Barreau, Hervé. 2006. "Cléanthe et Chrysippe face au maître-argument de Diodore." In *Les Stoiciens et leur logique*, edited by Jacques, Brunschwig, 283-301. Paris: Vrin.

   Deuxième édition revue, augmentée et mise a jour (Première edition 1978, pp. 21-40).

6. Bobzien, Susanne. 1993. "Chrysippus' Modal Logic and its Relation to Philo and Diodorus." In *Dialektiker und Stoiker. Zur Logik der Stoa und ihrer Vorläufer*, edited by Döring, Klaus and Ebert, Theodor, 63-84. Stuttgart: Franz Steiner.

   " Introduction. Chrysippus knew and discussed Philo's and Diodorus' concepts of the conditional (συνημμένον), and it is usually assumed that he developed his own in order to overcome their shortcomings. It is clear from the surviving testimonies that Chrysippus was acquainted with Philo's and Diodorus' modal notions as well and also that he developed his own in contrast with those of Diodorus and in some way incorporated Philo's modal notions.

The goal of this paper is to make clear the exact relations between the modal systems of the three logicians and to expound the philosophical reasons that might have led Chrysippus to modify his predecessors' modal concepts in the way he did. It should become apparent that Chrysippus in fact skilfully combines Philo's and Diodorus' modal notions, making only a minimal change to Diodorus' concept of possibility and obtaining thus a modal system which perfectly suits his Stoic philosophy.

A preliminary note: in order to understand the Hellenistic discussion of modalities, one has to ascribe to the Hellenistic logicians the idea that there is a 'right' modal system which 'fits the world' - or at least that different modal systems can have different degrees of adequacy in describing the world. It is this conception of modal logic that makes it such an important topic in Hellenistic philosophy. The 'right' modal theory will specify what is necessary and what is possible in the world and therewith to what extent the world is determined. Philo, Diodorus and Chrysippus provide different answers here." (P. 63)

7. ———. 2002. "Chrysippus and the Epistemic Theory of Vagueness." *Proceedings of the Aristotelian Society* no. 102:217-238.

8. ———. 2011. "The Combinatorics of Stoic Conjunction: Hipparchus refuted, Chrysippus Vindicated." *Oxford Studies in Ancient Philosophy* no. 40:157-188.

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10. Brunschwig, Jacques. 1991. "On a book-title by Chrysippus: "On the fact that the Ancients admitted Dialectic along with Demonstrations"." In *Aristotle and the Later Tradition*, edited by Blumenthal, Henry and Robinson, Howard, 81-95. Oxford: Clarendon Press.

    "On what can be inferred from the title and from its place in the list of Chrysippus' works at Diogenes Laertius 7, 201; on its

relevance to Plutarch's criticism of Stoic consistency at *Stoic rep*. 1035a."

11. Burke, Michael B. 1994. "Dion and Theon: An Essentialist Solution to an Ancient Puzzle." *The Journal of Philosophy* no. 91:129-139.

    "The puzzle of Dion and Theon was pondered more than 2000 years ago by the Stoic philosopher Chrysippus. Puzzles of the same type engage identity theorists today. After surveying the many solutions currently on offer, and noting their drawbacks, this article presents a new solution, one that affirms the long-ignored position of Chrysippus, although not the reasoning by which he arrived at it. The solution employs (and assumes) the recently resurgent doctrine of Aristotelian >Essentialism, which provides a hitherto unexploited resource for dealing with the full range of putative exceptions to the principle that different objects cannot simultaneously occupy the same place."

12. Burnyeat, Myles. 1982. "Gods and Heaps." In *Language and Logos. Studies in Ancient Greek Philosophy Presented to G. E. L. Owen*, edited by Schofield, Malcolm and Nussbaum, Martha, 315-338. Cambridge: Cambridge University Press.

    On the *Sorite* paradox.

    Reprinted in M. Burnyeat, *Explorations in Ancient and Modern Philosophy, Volume 1*, Cambridge: Cambridge University Press 2012, pp. 90-111.

13. Castagnoli, Luca. 2004. "Il condizionale crisippeo e le sue interpretazioni moderne." *Elenchos.Rivista di Studi sul Pensiero Antico* no. 25:353-395.

14. ———. 2009. "*Synártesis* crisippea e tesi di Aristotele." In *La logica nel pensiero antico*, edited by Alessandrelli, Michele and Nasti de Vincentis, Mauro, 105-164. Napoli: Bibliopolis.

    "This paper aims at analysing the logic and truth-conditions of the Chrysippean conditional. In its first part some influential interpretations of s*unártesis* are examined, their shortcomings are disclosed, and two distinct possible versions of the truth-

conditions of s*unártesis* are proposed and spelled out in outline. In the second part the question is investigated of whether the so-called Aristotle's thesis and Boethius' thesis can be regarded as genuine properties of the Chrysippean conditional, as some scholars have interestingly maintained. Textual evidence is exhibited suggesting that it is likely that such theses were valid in Stoic logic. Finally, the problem of how to reconcile the purported truth of these theses with some prima facie incompatible arguments attested by our sources is explored: some possible explanations for the alleged inconsistency are examined."

15. Cavini, Walter. 1972. "I sillogismi ipotetici del papiro parigino attribuito a Crisippo." In *Studi classici in onore di Quintino Cataudella. Vol I*, 39-43. Catania: Università di Catania. Facoltà di lettere e filosofia.

16. ———. 1993. "Chrysippus on speaking truly and the Liar." In *Dialektiker und Stoiker. Zur Logik der Stoa und ihrer Vorläufer*, edited by Döring, Klaus and Ebert, Theodor, 85-109. Stuttgart: Franz Steiner.

    "Introduction. Semantics as a philosophical discipline is the study of notions like meaning, reference and truth, i.e. of the relationship between language and the world, between what we say and what we talk about. A ‘semantic assertion’, in particular, is the ascription of a truth value to a proposition by applying semantic predicates like the adjectives ‘true’ and ‘false’ in their predicative use or position.1 A salient feature of ancient Greek, in this regard, is the occurrence both of semantic adjectives, like αληθή? and ψευδή?, and of semantic verbs, namely ἀληθεύω and ψεύδομαι {speak truly and speak falsely respectively).

    The philosophical import of Greek semantic verbs is at least threefold. First, they are a way of expressing basic semantic principles like Bivalence or the Correspondence and the Equivalence Theses. Second, they are the way of formulating semantic paradoxes like the Liar or the Truth-teller: for, presumably, the Greek Liar says nothing but ‘εγώ ψεύδομαι’ (T am speaking falsely’), and the Greek Truth-teller (by analogy)

nothing but ‘εγὼ αληθεύω’ (T am speaking truly’). Third, they are the main ‘non-logical’ ingredients of Stoic ‘semantic arguments’, namely of the ἀμεθόδω? περαίνοντε? λόγοι which have semantic verbs among their ‘non-logical constants’.

My overall aim in this paper is to show that in Stoic logic semantic principles are the ground both for the validity of the semantic arguments and for the formulation (and solution) of the semantic paradoxes. The paper falls into three main sections. First, an outline is given of Stoic semantic principles and arguments, mainly on the basis of Alexander of Aphrodisias’ and Galen’s testimony on the Stoic ‘unmethodicals’, and of Cicero’s report on the Stoic Liar. Second, on this basis a Stoic formulation of the Liar argument as a chain of semantic unmethodicals is provided. And finally, a Chrysippean solution to the Liar is suggested, mainly on the basis of Plutarch’s report on Chrysippus’ Liar and by analogy with the Truthteller. The ‘upsetting’ final result is that on Chrysippus’ view the Liar assertion ‘εγὼ ψεύδομαι’ (and nothing else) proves to be not only ‘ungrounded’ as to its truth value but also logically consistent, on a par with the Truth-teller." (p. 85)

(1) For 'semantic assertion' and the Liar cf. in particular Usberti *Logica, verità e paradosso*, Milano, Feltrinelli Bocca, 1980.

17. Celluprica, Vincenza. 1977. "L'argomento dominatore di Diodoro Crono e il concetto di possibile in Crisippo." In *Scuole socratiche minori e filosofia ellenistica*, edited by Giannantoni, Gabriele, 55-73. Bologna: Il Mulino.

18. Croenert, Wilhelm. 1901. "Die *logika zetemata* des Chrysippos und die übrigen Papyri logischen Inhalts aus der Herculanensischen Bibliothek." *Hermes* no. 36:548-579.

    Traduzione italiana: W. Crönert, *Studi Ercolanesi*, Introduzione e traduzione di Enrico Livrea, Napoli, Morano, 1975, pp. 65-86.

19. Del Mastro, Gianluca. 2005. "Il PHerc 1380: Crisippo, *Opera logica*." *Cronache Ercolanesi* no. 35:61-70.

20. ———. 2007. "Un'opera logica di Crisippo nel *PHerc.* 1380." In *Proceedings of the 24th Congress of papyrology. Helsinki, 1-7 August 2004*, edited by Frösén, Jaakko, Purola, Tiina and Salmenkivi, Erja, 249-258. Helsinki: Societas Scientarum Fennica.

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    Bibliography 210; Index 217-222.

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    "More than twenty years ago, Myles Burnyeat (1982) published an important article on the sorites;(3) a few years earlier he had

written two ground-breaking pieces on Protagorean self-refutation.(4) So, if nothing else, at least the title of this article is an appropriate one for something written in honour of and out of admiration for my former graduate supervisor.

My aim is relatively modest. I do not seek to discern a generalized ancient 'solution' to the 'paradox',(5) or to offer one in my own voice (although I will make one or two tentative suggestions). My main purpose is to take seriously a passing hint of Cicero's, one which has generally been either ignored or treated simply as a joke,(6) that the sorites may be applied to itself, or to the more general notion of coherent argument, with potentially devastating results. I say 'potentially devastating', since it is unclear whether the threatened disaster must occur, and if it does, which of the opposing sides in the dispute it is potentially disastrous for. As such, the debate as I shall reconstruct it mirrors that between Sceptics and Dogmatists as to the question of whether sceptical arguments against argument are self-refuting, and if so, what the appropriate upshot of that ought to be.(7)" (pp. 351-352)

(3) 'Gods and Heaps'.

(4) 'Protagoras and Self-Refutation in Later Greek Philosophy' (1976a); 'Protagoras and Self-Refutation in Plato' (1976b).

(5) 'Paradox' in scare-quotes since the puzzle does not have the logical form of a true paradox: viz. of a sentence that is true if and only if it is false (rather, it has the form of an apparently sound argument with an apparently false conclusion: of course that's bad enough); 'solution' similarly flagged because I am doubtful whether the puzzle—or puzzles—as such can yield to a single authoritative diagnosis. But these issues are largely irrelevant to the concerns of the present paper.

(6) A partial exception to this general neglect is Myles himself (Burnyeat 1982: 327 n. 33). It was thinking about this footnote (and that of Barnes (1982: 57 n. 60)) that first started me down the road followed by this paper more than twenty years ago.

(7) See Sext. *Pyr*. 2. 185–92; *Math*. 8. 465–80; and see McPherran 1987.

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McPherran, M. L. (1987), ‘Skeptical Homeopathy and Self-Refutation’, Phronesis, 32: 290–328.

Schofield, M., and Nussbaum, M. C. (1982) (eds.), *Language and Logos*. Cambridge.

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30. Ide, Harry A. 1992. "Chrysippus’s Response to Diodorus’s Master Argument." *History and Philosophy* no. 13:133-148.

    Abstract: "Chrysippus claims that some propositions perish. including some true conditionals whose consequent is impossible and antecedent is possible, to which he appeals against Diodorus's Master Argument. On the standard interpretation. perished propositions lack truth values, and these conditionals are true at the same time as their antecedents are possible and consequents impossible. But

perished propositions are false. and Chrysippus's conditionals are true when their antecedent and consequent are possible, and false when their antecedent is possible and consequent impossible. The claim of the Master Argument that Chrysippus rejects, then, is stronger that usually supposed."

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    La disposition du texte dans le Papirus Paris 2 (= P. Louvre inv. 2326), fragment d'un ouvrage de logique attribué traditionnellement à Chrysippe.

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    "The paper explores the logical paradox of the sorites and its scope. By examining the original sources in Diogenes, Sextus, and Cicero and contemporary commentators (Barnes and Burnyeat), and elaborating upon the context in which the paradox arose (the debate between the Stoics and the Skeptics), I hope to illuminate what the paradox can and cannot accomplish. By focusing on the dialogical nature of the original presentation of the paradox, I outline a better understanding than has been offered previously of the strategy that the Stoics deployed, under their leader Chrysippus, in dealing with the skeptical challenge."

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36. ———. 1987. "Testi stoici ercolanesi." *Cronache Ercolanesi* no. 17:181-184.

37. ———. 1987. "Testi stoici ercolanesi II." *Cronache Ercolanesi* no. 18:223-225.

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    "Un nouvel examen des col. 4-14 de ce papyrus montre que cette oeuvre a bien, comme le veut le genre des *zetemata*, un caractère aporétique, présentant des propositions dans lesquelles le *semainomenon* n'est pas exprimé clairement. La variété et la vivacité de ce texte important pour notre connaissance de la dialectique des stoïciens traduit l'existence d'un milieu culturel riche en innovations et en provocations."

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41. ———. 1999. "Logica nei papiri ercolanesi." In *Testimonianze matematiche a Napoli. Atti del Convegno di Napoli, 19 marzo 1991*, edited by Carbone, Luciano and Palladino, Franco, 153-163. Napoli: La Città del Sole.

42. ———. 2000. "La logica degli epicurei e degli stoici: Filodemo e Crisippo." *Cronache Ercolanesi* no. 30:111-118.

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Abstract: "It is widely held that as a nego suppositum, Chrysippus' response to Diodorus Cronus' Master Argument is that the impossible "this man has died" follows from the possible "Dio has died". A principal claim of this article is that Chrysippus was not actually committed, against Diodorus, to the tenet that there are deductions and conditionals whereby from the possible the impossible follows. I argue that this is most likely part of a Chrysippean exemplum fictum of a real dialectical discussion and it merely reflects a Chrysippean dialectical strategy, a merely instrumental agreement (συγχώρησις) with Diodorus on the admissibility of some single-premised arguments. As historical evidence for my conjecture I highlight two key passages by Sextus Empiricus which help to understand that Chrysippus' real tenet was an ancient implicational counterpart of a deictic version of the Identity-Elimination Rule, whereas most likely, according to Diodorus the identitarian major premiss of this rule is redundant, so that it must be eliminated."

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    "One of the most intriguing claims of Stoic logic is Chrysippus's denial of the modal principle that the impossible does not follow from the possible. Chrysippus's argument against this principle involves the idea that some propositions are 'destroyed' or 'perish'. According to the standard interpretation of Chrysippus's argument, propositions cease to exist when they are destroyed. Ide has presented an alternative interpretation according to which destroyed propositions persist after destruction and are false. I argue that Ide's alternative interpretation as well as some versions of the standard interpretation conflict with Stoic doctrines about the nature of propositions. I propose another version of the standard interpretation based on Frede's account of the Stoic theory of the proposition. I hold that this version of the standard interpretation both escapes Ide's objections and is consistent with Stoic logic and philosophy of language."

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    "A sentence *p* is necessary, according to Chrysippus if *p* is true and, *p* being susceptible of being false, the external circumstances prevent it from being false. This explanation is used in order to construct the modal square or rather the two modal squares. Something is specific in the chrysippean logic: from the necessity of *p* we may validly conclude that it is impossible that *not p,* while the converse conclusion is not valid."



[History of Logic from Aristotle to Gödel]

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History of Logic

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History of Ancient Logic in the Hellenistic Period

The succession of thinkers and Schools

The history of ancient philosophy covers about eleven centuries, from Thales who lived during the sixth century B.C. to Boethius and Simplicius who flourished at the beginning of the sixth A.D. From the point of view of the history of formal logic this long epoch may be divided into three periods.

(1) The pre-Aristotelian period, from the beginnings to the time at which Aristotle started writing his *Topics* (about 340 B.C.). There is no formal logic during this period, i.e. no *study* of logical rules or laws; but some of them are *used* consciously since Zeno of Elea, and Plato tries, if unsuccessfully, to build up a logic.

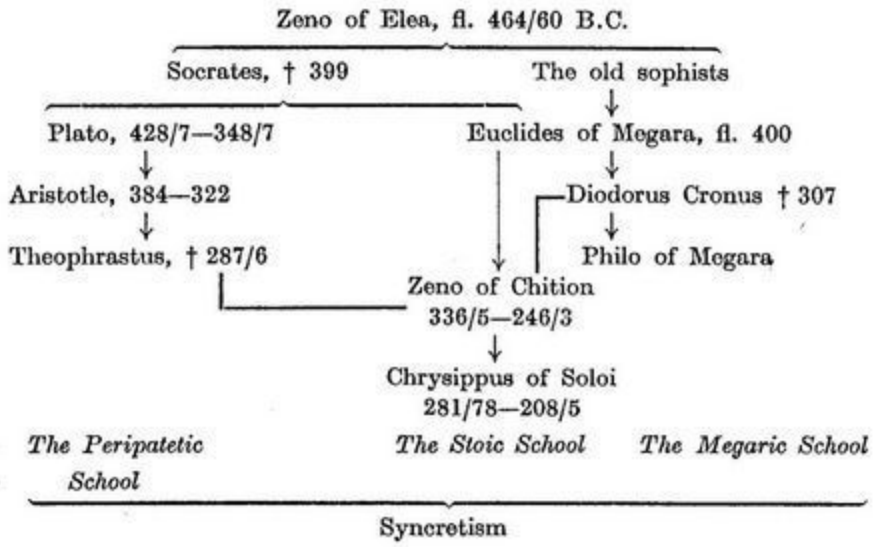
(2) The creative period, from the time of Aristotle's *Topics* to the death of Chrysippus of Soloi (205/8 B.C.). During this period Logic was founded and considerably developed.

(3) The period of schoolmasters and commentators, from the death of Chrysippus until the end of Antiquity. In that period no more creative work is done, as far as we know; moreover, a continuous decline of formal logic seems to take place. Boethius and Simplicius who are considered as the last ancient philosophers are also the last ancient logicians.

It appears, consequently, that out of the eleven centuries mentioned above only about 150 years are of real importance; but those years are of enormous importance -- they are, indeed, among the best years of logic in the whole history of humanity until now.

The succession of different trends of logical thought -- for there were several such trends -- can be briefly stated in the following terms. If Zeno is, according to Aristotle, "the inventor of dialectics", Socrates seems to have been the real father of formal logic ; at least both Plato and Euclides, the head of the Megaric School, claim to be his disciples. Plato was the teacher of Aristotle, the founder of formal Logic; Aristotle was succeeded by Theophrastus, Eudemus and some others, who, if far less important than he, are nevertheless productive logicians. This is one line of development of logic, the peripatetic. The other line starts with Euclid of Megara and in the second generation after him bifurcates into the properly Megaric School, with Diodorus Cronus, and Philo of Megara his pupil, as most important logicians on one hand -- the Stoic School founded by Zeno of Chition and having as chief thinker Chrysippus of Soloi on the other. After Chrysippus' death one hears no more of the Megaricians, and, later on, a syncretism of the Peripatetic and Stoic-Megaric Schools appears.

Here is a scheme which may help in comparing the respective dates and mutual influences; it contains only the most important names:" (pp. 9-10)



From: I. M. Bochenski, *Ancient Formal Logic*, Amsterdam: North-Holland 1951.

First philosophy and ontology

"Let us begin then -- according to our program -- with the question: What, in the Greek philosophy, is the relation between *First Philosophy* and reflexion on language?

Why -- to put the question directly -- did *ontology* become the *First Philosophy* at that time rather than *philosophy of language?* From our historical distance and level of reflexion one could consider the last question as somewhat curious, and one might answer it by calling attention to the fact that language as a condition of knowledge is much more difficult to grasp and to analyze than the realm of things given by the senses. At first -- one might say -- attention focuses on what can be shown in unreflective experience, in the so called *intentio recta* or *prima;* later one comes to reflect -- within the so called *intentio obliqua or secunda* -- on cognition itself as function of consciousness and, finally, one may reflect on the function of language as a condition of the possibility and intersubjective validity of knowledge.

Certainly, this answer is not false; we will even accept it as a guideline for understanding the sequence of periods in the history of philosophy. However, it must be stressed, that Greek philosophy itself went through this cycle of stages in a way. In the age of Socrates and the Sophists it already turns away from ontological questions about the nature (φύσις) and origin (ἀρχή) of things, and raises questions as to the correctness of names (ορθοτες ονομάτων), the function of speech (λόγος) and the meaning of words as concepts or definitions (ὁροί, δρισμοί). Plato, through whom we know about these discussions, already achieves the insight, that the truth is not to be sought in the quality of single names but that it is a function of their connection into a statement (λόγος) (5). And Aristotle especially in his "De Interpretatione" laid the foundations of a philosophy of grammar, which was further elaborated by the Stoics and thus decisively influenced the grammar of the schools in the western world up to the present day.

But why did not Plato already, as Wittgenstein suggests, look for the rule of the use of words in order to find an answer to the famous questions of Socrates into *what* courage or justice is? And why did he not see in his own definition of thinking as a voiceless dialogue of the soul with itself a clue to the fact that thinking is to be considered as a

function of communication by language? And Aristotle, who so often opens his questions about the essence (σὐσία) of being (όν) by an inquiry into the use of the words -- why did he not consider the possibility that his ontological categories are relative to the Greek language?

The answer to these questions, in my opinion, has to be a twofold one: On the one hand Plato and Aristotle would have had good reasons for being dissatisfied by doctrines which claim to "reduce" their question as to the *essence of things* to mere question about the *use of words*. (...) On the other hand, however, we must not overlook that Plato and Aristotle did not have a concept of language adequate to enable them to see that their very questions, not to speak of the answer, were dependent on the learned use of a certain language.

The classical philosophy of the Greeks had at its disposal essentially four concepts for comprehending the essence of human speech or communication: ὀνομα (name), σὐμβολον, σημεϊον (symbol or sign), δρος; (concept) and λὀγος; (speech, oratio, ratio, statement, etc.) (It is worth mentioning that it had no concept of a special language. Only the Romans had the word "lingua latina".) (7) By means of these four concepts it was impossible to grasp that meaning is essentially a function of a language. For these four concepts form two clusters between which the problem of linguistic meaning slips through: λὀγος (ratio) and δρος (concept) were a priori directed to something universal which was thought to be independent of the use of language; ὀνομα (name) and σὐμβολον or σημεἰον (sign), on the other hand, did in fact mean something which differs according to the use of different languages, but for Aristotle, at least, it had nothing to do with the meaning of thoughts; it was only a conventional means of designating, in the service of the "logos". (Perhaps it was precisely this progressive step of no longer asking for the correctness of single names but rather for the truth of statements that caused the Greek philosophers to overlook the cognitive function which languages have by virtue of the determinate meanings of their words and phrases.) (8)" (pp. 34-36)

Notes

(5) Cf. Plato, *Sophist* 261c - 262e

(6) Cf. Plato, *Sophist* 263d

(7) See J. Lohmann, "Über den paradigmatischen Charakter der griechischen Kultur", in: *Festschrift für H. G. Gadamer*, Tübingen 1960, pp. 171-89; see further J. Lohmann's papers in *Lexis,* I, 1948, pp.49-106, *Lexis,* III, 1, pp. 5-49, *Lexis,* III, 2, p. 169-217, and in: Festschrift fur L. Weisgerber, Düsseldorf 1958.

(8) So it is not quite surprising that the Neoplatonist tradition which interpreted Plato's "Cratylus" as defending the theory of the correctness of names had some beneficial influence by preserving the notion that words are not simply sounds arbitrarily used as signs. Finally, the strongest argument of the *θέσει*-theory of names was answered in the Neoplatonist tradition by the fruitful idea that the variety of words standing for the same things must not necessarily be explained by different conventions but could also be explained by a variety of experienced aspects of things. This view may be traced in, for instance, Nicolaus Cusanus, Leibniz and still in W. von Humboldt. Cf. K. O. Apel, "Die Idee der Sprache bei Nicolaus von Cues", in *Archiv für Begriffsgeschichte,* Bd. 1, Bonn 1955, pp. 200-221.

From: Karl-Otto Apel, "The Transcendental Conception of Language-Communication and the Idea of a First Philosophy" in: Herman Parrett (ed.), *History of Linguistic Thought and Contemporary Linguistics*, Berlin: Walter de Gruyter 1975, pp. 32-61.

Logical form and logical matter

"The mediaeval distinction between material and formal consequence derives ultimately, both in name and in substance, from ancient texts. (60)

Form and matter, *eidos* and *hyle*, are Peripatetic twins, and the mediaeval distinction -- and hence the modern notion of 'formal' logic -- comes in the end from Aristotle.

These claims are indisputable -- but they are vague. If we inquire more closely into the business, dispute and controversy appear. For some historians of logic have claimed that the later Peripatetics, at least, had a clear understanding of the notion of logical form and hence of the essential nature of formal logic; (61) whereas others

have maintained, to the contrary, that the modern ideas of formal validity and of the logical form of an argument have no genuine counterparts in the ancient texts. (62) In fact -- and predictably --, the truth lies dully between these two exciting extremes; and if we are to see just how and where it lies, we must proceed by a plodding examination of the relevant texts.

Aristotle himself only once applies the concepts of matter and form to the syllogism: at *Phys* 195a18-19 he observes laconically that "the hypotheses are matter for the conclusion". (By "hypotheses" he here means "premisses".) The later commentators pick up the point. Alexander, it is true, was not happy with it, (63) and he does not make use of it in his own logical writings. But Philoponus had no such qualms: he repeats the idea that the premisses of a syllogism are, as it were, the stuff out of which the conclusion is made (64) Yet whatever we make of*Phys* 195a18-19, the text has nothing to do with the distinction between formal and material validity.

Several other logical applications of the twin concepts are found in the later commentators: thus the modal status or *skesis* of a proposition is called its 'matter'; (65) or the subject of a proposition stand to the predicate as matter to form; (66) or an unquantified proposition is matter, the quantifier form; (67) and so on. (68) None of these applications of the Aristotelian distinction is illuminating; and none is relevant here.

Alexander preferred to invoke matter and form in a different logical context; and it is his preferred distinction between logical matter and logical form which is to the present point. (69) The idea first appears early in Alexander's commentary on the *Prior Analytics*:

The figures of the syllogism are like a sort of common matrix. You may fit matter into them and mould the same form for different matters. Just as, in the case of matrixes, the matters fitted into them differ not in respect of form or figure but in respect of matter, so too is it with the syllogistic figures. (*in APr* (6.16-21).

Alexander says no more than this to explain what distinguishes the form from the matter of an argument. Similarly, the distinction enters his commentary on the *Topics* in its first pages (*in Top* 2.1-3.4) -- and again, there is no serious explanation. After their

Introduction, the concepts are used with frequency and without apology throughout the commentaries.

The twins reappear in the later Peripatetic commentators. Ammonius presents them in a cautious manner near the beginning of his commentary on the *Prior Analytics*:

In every syllogism there is something analogous to [*analogon*] matter and something analogous to form. Analogous to matter are the objects [*pragmata*] themselves by way of which the syllogism is combined, and analogous to form are the figures. (*in APr* 4.9-11).

As this passage suggests, Ammonius does not greatly like the term *hyle;* and to convey the Alexandrian distinction he will in fact more often employ the word *pragma*. (70) But his pupil Philoponus was content with the term *hyle* and he simply equates *pragmata* and *hyle* as though nothing turned on the point (*in APr*9.6.)

(...)

Thus the later authors used a variety of linguistic turns. But it would be rash to look for any substantial difference behind the linguistic facade. Boethius and the later Greeks adopted and deployed an established and apparently uncontroversial distinction. How the distinction was referred to and by what names it was called were questions of taste and style.

Alexander too had taken the thing for granted; and we must infer from his commentaries that earlier Peripatetics had applied the concepts of matter and form to logic. On independent grounds we may believe that Alexander's teacher, Herminus, (75) had probably spoken of the form and matter of arguments. (76) As far as I know, there is no other evidence for the use of matter and form in logical theory before Alexander: it is not found in Aristotle's own works; nor is there any text ascribing it to Theophrastus or Eudemus, or to Boethus or Aristo. But the silence proves little, and Alexander's attitude shows that by his time it was already thoroughly familiar. (77)

If we ask *why* some Peripatetic scholar thought to apply matter and form to logic, we can give no worthwhile answer. Was the idea part of a general attempt to systematise Aristotle, so that his customary

analytical concepts should be applied in every part of his philosophy? Was it rather reflexion on the *Analytics* themselves (perhaps on the sense and function of Aristotle's dummy letters (78) which encouraged the invocation of matter and form? Was it the influence of the Stoics, whose own distinction between a *logos* and a *tropos* might have put a Peripatetic in mind of matter and form? (79) There is no evidence from which to answer these questions." (pp. 39-43)

Notes

(60) For the links between the ancient and the mediaeval accounts see esp. Ebbesen pp. 95-101; cfr. Pinborg pp. 74-80. For the importance of the distinction in Arabic texts see Zimmermann pp. XXXVIII-XLI. (But Zimmemann claims too much for Al-Farabi. "Striking an individual note in the very first sentence of his *Commentary* al-Farabi says that the *De Int*. is about the "composition" [*ta'lif*], not the "matter" [*madda*], of propositions. I do not find this opposition of terms, which recurs as a kind of leitmotiv throughout the work, in the Greek commentaries; and the fact that it is usually in criticizing his predecessors that he invokes it confirms that here we have a new departure in the exegesis of the *De Interpretatione*" (pp. XXXVIII-XXXIX). Not entirely new, I think -- and in any case, the opposition of terms which al-Farabi deploys was thoroughly familiar to the Greek commentators on the *Analytics*.)

(61) Thus the Peripatetic commentators "show us that they had an excellent conceptual grasp of the essence of what is today called 'formal' logic" (Lee, p. 38); and Alexander had "a clear insight into the essence of formal logical laws" (Bochenski, p. 157).

(62) Thus "it seems that neither the Stoics nor the Peripatetics ever say that an argument is valid because of its logical form, which would be strange if they actually had thought that the validity had to be explained as being due to the form. And even when it is said that a certain form of argument is valid for every matter (i.e. for every suitable substitution of the letters), this does not seem to be the same as saying that the validity is due to the form" (Frede, p. 103). (In a note, Frede admits that there are apparent counterexamples to his thesis -- he cites Boethius, *Hyp syll* II ii 4-5, iii 6, iv 2 [see below, p. 42] --, and says that these passages "would have to be dealt with individually" (p. 368 n. 3).) -- I am not sure exactly what Frede

concedes and what he denies. But the main point appears to be this: the ancient logicians do not ever say of an argument that it is valid because of its form. Now, taken absolutely literally, this may well be true; at least, I have not come across a text in which a conclusion is said*sunaghestai dia to eidos*. But there are, as Frede allows, a few passages which say something very close to this (e.g. that a conclusion is drawn *dia ten plochen*); and there are numerous passages which imply something like it (e.g. passages which contrast syllogisms with arguments which conclude *dia ten hylen*). -- My own reasons for qualifying the enthusiastic view exemplified in the last footnote are not Frede's. Rather, first, I hold that the use of the matter/form distinction by Alexander (and the later commentators) is not always coherent [see below, pp. 58-65]. And secondly, I doubt if the ancients had any dear or coherent notion of form. They had (*contra* Frede) a rough and ready notion of formal validity; but (*contra* Lee) they had no precise and rigorous notion. (Of course, if the reflections in the previous Part of this paper are correct, then the ancients were in this respect no worse off than most moderns.).

(63) See the passage quoted by Simplicius, in Phys 320.1-10.

(64) See e.g. *in APr* 6.10-14; 32.31-33.2. The idea survived to become a commonplace of traditional logic: see e.g. 59 of Kant's Logik

(65) See below, pp. 44 and 48.

(66) E.g. Philoponus, *in APr* 65.11-13; [Ammonius], *in APr* 71.14-16.

(67) E.g. Ammonius, *in Int* 111.19-23.

(68) For yet other uses of matter and form see e.g. [Ammonius], *in APr* 68.33-69.11; Philoponus, *in APr* 6.2-3 (cfr. 10.18); 44.24-26; 66.7-26

(69) On Alexander's use of matter and form in logic see esp. Lee, pp. 38-44.

(70) Alexander too occasionally uses pragma (e.g. *in APr* 295.1; 301.12-13); and he takes this usage from Aristotle (*APr* 43b3-4).

(75) On whom see P. Moraux, *Der Aristotelismus bei den Griechen*, vol. II, Berlin, de Gruyter 1984 ("Peripatoi", 6), pp. 361-363.

(76) See [Ammonius], in *APr* 39.32: I say "probably" because [Ammonius] is paraphrasing rather than quoting, and because we cannot be sure of the reliability or the accuracy of his paraphrases. (See below, p. 80).

(77) Bochenski is therefore wrong when he says (p. 157) that "Alexander seems to have been the first to give an explicit account of the difference between form and matter in logic".

(78) See below, p. 51.

(79) See below, pp. 65-66.

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Later Antiquity

"The last period of ancient logic is characterized by the following traits, some of which have already been touched upon (chapter 2 C). First of all, as far as we know, it is no longer a creative period: we cannot quote a single logician comparable -- not only with Aristotle, Diodorus or Chrysippus, but even with Theophrastus. Logic seems to have still been much studied, however, and its knowledge must have been widely spread. At the same time there was the unfortunate phenomenon of the struggle between the Peripatetic and the Stoic Schools. Slowly a mixture of both trends formed. Thus, we hear that Boethus of Sidon, pupil of Andronicus Rhodos, who lived at the time of Augustus and was the head of the Peripatetic School, asserted the priority of the Stoic undemonstrated in regard to the categorical syllogism; syncretism is often met with later on, e.g. in the *Dialectical Introduction* of Galenus. On the other hand there are still some rigid peripateticians who deny any merit to the Stoic-Megaric School; Alexander of Aphrodisias is an instance. In the long run, however, a kind of commonly received doctrine, composed of rather poor remains of both Aristotelian and Stoic-Megaric doctrines was formed. Yet the work of the commentators and authors of textbooks has not been, as it seems, completely irrelevant to logic -- here and there they probably were able to bring some complements and perfections of the old doctrines. Unfortunately, we know nearly nothing about their work.

The Logicians.

There follows here a (incomplete) list of important logicians who lived during that long period. Ariston of Alexandria is reported to have stated the "subaltern modes" of the syllogism (1); he lived during the II century A.D. Another important logician of the same period is the famous physician Galenus (129 - c. 199 A.D.); his "Dialectical Introduction" is the only ancient Greek textbook of logic preserved; it has been studied by Fr. Stakelum. His contemporary Apuleius of Madaura (125 A.D.) wrote among others a Latin book *Peri hermenias* which seems to be of great interest. Alexander of Aphrodisias, who lived during the third century, is probably one of the most penetrating logicians of the peripatetic School and one of the best commentators of the Organon in history. Porphyrius of

Thyrus (232/3 - beginning of the IV century) is another important commentator of Aristotle, if inferior to Alexander: his Introduction was destined to have a brilliant career during the Middle Ages. Sextus Empiricus (3rd century) our main source for the Stoic-Megaric School can hardly be called a logician, yet he knew logic well and some of his criticisms might be of interest. Later authors - such as Iamblichus of Chalkis c. 330), Themistius (330-390), Ammonius Hermeiou, the disciple of Proclus, David Ioannes Philoponus (died after 640), are of far lesser importance. But at the end of our period we have again some men of interest: Martianus Capella, who wrote between 410 and 439 his celebrated "De nuptiis Philosophiae et Mercurii" with a book devoted to logic; Simplicius, pupil of Ammonius, and the last important Athenian Philosopher (he was driven from Athens by a decree of Justinian in 529) is also an intelligent logician; finally Boethius, himself a not very good thinker, is highly important because of his influence on the Middle Ages, but also because of the mass of information his logical works contain." (pp. 103-104)

Notes

(1) *Apul. 193, 16ff.;* there is much confusion in this text.

From: I. M. Bochenski, *Ancient Formal Logic*, Amsterdam: North-Holland, 1951.

"Very little is known about the development of logic from c. 100 BCE to c. 250 CE. It is unclear when Peripatetics and the Stoics began taking notice of the logical achievements of each other. Sometime during that period, the terminological distinction between *categorical syllogisms*, used for Aristotelian syllogisms, and *hypothetical syllogisms*, used not only for those by Theophrastus and Eudemus but also for the Stoic propositional-logical syllogisms, gained a foothold. In the first century BCE, the Peripatetics Ariston of Alexandria and Boethus of Sidon wrote about syllogistic. Ariston is said to have introduced the so-called *subaltern* syllogisms (Barbari, Celaront, Cesaro, Camestrop and Camenop) into Aristotelian syllogistic (Apul.*Int*. 213.5–10), that is, the syllogisms one gains by applying the subalternation rules (that were acknowledged by Aristotle in his *Topics*): From “A holds of every B” infer “A holds of

some B" From "A holds of no B" infer "A does not hold of some B" to the conclusions of the relevant syllogisms. Boethus suggested substantial modifications to Aristotle's theories: He claimed that all categorical syllogisms are complete and that hypothetical syllogistic is prior to categorical (Gal.Inst.Log. 7.2), although we are not told prior in which way. The Stoic Posidonius (c.135–c.51 BCE) defended the possibility of logical or mathematical deduction against the Epicureans and discussed some syllogisms he called *conclusive by the force of an axiom*, which apparently included arguments of the type "As the 1st is to the 2nd, so the 3rd is to the 4th; the ratio of the 1st to the 2nd is double; therefore the ratio of the 3rd to the 4th is double," which was considered conclusive by the force of the axiom "things which are in general of the same ratio, are also of the same particular ratio" (Gal. *Inst. Log*.18.8). At least two Stoics in this period wrote a work on Aristotle's *Categories*. From his writings we know that Cicero was knowledgeable about both Peripatetic and Stoic logic; and Epictetus's discourses prove that he was acquainted with some of the more taxing parts of Chrysippus's logic. In all likelihood there existed at least a few creative logicians in this period, but we do not know who they were and what they created. The next logician of rank, if of lower rank, of whom we have sufficient evidence is Galen (129–199 or 216 CE), whose greater fame was as a physician. He studied logic with both Peripatetic and Stoic teachers and recommended to avail oneself of parts of either doctrine, as long as it could be used for scientific demonstration. He composed commentaries on logical works by Aristotle, Theophrastus, Eudemus, and Chrysippus, as well as treatises on various logical problems and a major work titled *On Demonstration*. All these are lost except for some information in later texts, but his *Introduction to Logic* has come down to us almost in full. In *On Demonstration*, Galen developed, among other things, a theory of compound categorical syllogisms with four terms, which fall into four figures, but we do not know the details. He also introduced the so-called relational syllogisms, examples of which are "A is equal to B, B is equal to C; therefore A is equal to C" and "Dio owns half as much as Theo; Theo owns half as much as Philo. Therefore Dio owns a quarter of what Philo owns." (Gal. *Inst. Log*. 17–18). All relational syllogisms Galen mentions have in common that they are not reducible in either Aristotle's or Stoic syllogistic, but it is difficult to

find further formal characteristics that unite them all. In general, in his*Introduction to Logic*, he merges Aristotelian Syllogistic with a strongly Peripatetic reinterpretation of Stoic propositional logic. The second ancient Introduction to logic that has survived is Apuleius's (second century CE) *De Interpretatione*. This Latin text, too, displays knowledge of Stoic and Peripatetic logic; it contains the first full presentation of the square of opposition, which illustrates the logical relations between categorical sentences by diagram. Alcinous, in his *Handbook of Platonism* 5, is witness to the emergence of a specifically Platonist logic, constructed on the Platonic notions and procedures of division, definition, analysis, and hypothesis, but there is little that would make a logicians heart beat faster. Sometime between the third and sixth century CE, Stoic logic faded into oblivion to be resurrected only in the twentieth century in the wake of the (re)discovery of propositional logic. The surviving, often voluminous, Greek commentaries on Aristotle's logical works by Alexander of Aphrodisias (fl. c.200 CE), Porphyry (234–c.305), Ammonius Hermeiou (fifth century), John Philoponus (c. 500), and Simplicius (sixth century), and the Latin ones by Anicius Manlius Severinus Boethius (c.480–524) have their main importance as sources for lost Peripatetic and Stoic works. Still, two of the commentators deserve special mention: Porphyry, for writing the *Isagoge* or *Introduction* (that is, to Aristotle's *Categories*), in which he discusses the five notions of genus, species, differentia, property, and accident as basic notions one needs to know to understand the *Categories*. For centuries, the *Isagoge* was the first logic text a student would tackle, and Porphyry's five predicables (which differ from Aristotle's four) formed the basis for the medieval doctrine of the *quinque voces*. The second is Boethius. In addition to commentaries, he wrote a number of logical treatises, mostly simple explications of Aristotelian logic, but also two very interesting ones: (1) His *On Topical Differentiae* bears witness of the elaborated system of topical arguments that logicians of later antiquity had developed from Aristotle's *Topics* under the influence of the needs of Roman lawyers. (2) His *On Hypothetical Syllogisms* systematically presents wholly hypothetical and mixed hypothetical syllogisms as they are known from the early Peripatetics; it may be derived from Porphyry. Boethius's insistence that the negation of "If it is A, it is B" is "If it is A, it is not B" suggests a suppositional understanding of the

conditional, a view for which there is also some evidence in Ammonius, but that is not attested for earlier logicians. Historically, Boethius is most important because he translated all of Aristotle's *Organon* into Latin, and thus these texts (except the*Posterior Analytics*) became available to philosophers of the medieval period." (pp. 407-409)

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Sextus Empiricus (160 - 210)

Plotinus (204 - 270)

Diogenes Laertius (3rd century)

Proclus Diadocus (412 - 485)

Digital Quadrivium Project



History of Logic

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Bibliography of Ancient Logic in the Hellenistic Period

Selected bibliography on Hellenistic logic

Studies in English (A - F)

1. Ademollo, Francesco. 2015. "Names, Verbs and Sentences in Ancient Greek Philosophy." In *Linguistic Content: New Essays on the History of Philosophy of Language* , edited by Cameron, Margaret and Stainton, Robert J., 33-54. New York: Oxford University Press.

   "My purpose here is to investigate some ancient conceptions of the composition and structure of sentences, focusing on Plato and Aristotle, with short forays into other authors and ages. I shall concern myself mainly with two mutually connected issues.

   First, both Plato and Aristotle hold that a minimal simple sentence consists of two expressions of different kinds, which they call onoma and rhema; I shall try to make clear the nature and purport of this distinction, which is controversial. Secondly (but partly at the same time), I shall try to trace the emergence and early development, from Plato to the Stoics, of the idea that a simple declarative sentence has a signification of its own over and above the signification of its parts. Most individual details of what I am going to say are, I am afraid, not new; but perhaps the story as a whole deserves to be told. (1) As so often with stories about ancient matters, telling it will require some

detailed discussion and a modicum of philological excavation." (p. 33)

(1) For partly comparable and very valuable surveys, from which I have learnt much, see Nuchelmans (1973: 13-44) and Barnes (1996).

References

Barnes, J. (1996). 'Grammar on Aristotle's Terms', in M. Frede and G. Striker (eds), *Rationality in Greek Thought* . Oxford: Oxford University Press, 175-202; repr. in Barnes (2012: 147-71).

Barnes, J. (2012). *Logical Matters: Essays in Ancient Philosophy II*. Oxford: Oxford University Press.

Nuchelmans, G. (1973). *Theories of the Proposition: Ancient and Medieval Conceptions of the Bearers of Truth and Falsity* . Amsterdam and London: North-Holland.

2. Allen, James. 2007. "Rhetoric and Logic." In *A Companion to Greek Rhetoric* , edited by Worthington, Ian, 350-364. Malden: Blackwell.

   "Logic was the property of the philosophers, and it is to those philosophers who also interested themselves in rhetorical argument that one must turn in order to explore the relations between logic and rhetoric in Greek antiquity. Though it has roots in Plato and Aristotle, the division of philosophy into logic, physics and ethics seems first to have been made explicitly in the second half of the fourth century, after which time it became standard (Sextus Empiricus, *Against the Mathematicians* 7.16). In the Stoic version of the division, which was especially influential, the logical part of philosophy was further divided into rhetoric and dialectic, and some Stoics also made a place for a separate part concerned with definition and another concerned with canons and criteria, i.e., epistemology (Diog. Laert. 7.41). The connecting thread is a common concern with logos, and the variety of items encompassed by the ancient discipline of logic reflects the range of the term logos, which can mean a word, a proposition, a definition, speech, a speech in the sense of an oration, an

argument or the faculty of reason. These were seen to form a unity because speech and thought were regarded as two aspects of logos. Speech is external logos, thought internal logos, according to the Stoics, who are in accord with older views like that of Plato, who defined thought as internal speech (Sextus Empiricus, *Against the Mathematicians* 8.275; Pl. *Sophist* 263e)." (p. 350)

3. Asmus, Conrad, and Restall, Greg. 2012. "A History of C:onsequenc:e Relation." In *Logic: A History of Its Central Concepts* , edited by Gabbay, Dov M., Pelletier, Francis Jeffrey and Woods, John, 11-61. Amsterdam: North-Holland.

   Volume 11 of the *Handbok of te History of Logic* .

   "Consequence is a, if not *the* , core subject matter of logic. Aristotle's study of the syllogism instigated the task of categorising arguments into the logically good and the logically bad; the task remains an essential element of the study of logic. In a logically good argument, the conclusion follows validly from the premises; thus, the study of consequence and the study of validity are the same.

   In what follows, we will engage with a variety of approaches to consequence.

   The following neutral framework will enhance the discussion of this wide range of approaches. Consequences are conclusions of valid arguments. Arguments have two parts: a conclusion and a collection of premises. The conclusion and the premises are all entities of the same sort. We will call the conclusion and premises of an argument the argument's *components* and will refer to anything that can be an argument component as a *proposition* . The class of propositions is defined functionally (they are the entities which play the functional role of argument components); thus, the label should be interpreted as metaphysically neutral. Given the platonistic baggage often associated with the label "proposition", this may seem a strange choice but the label is already used for the argument components of many of the approaches below (discussions of Aristotlean and Medieval logic are two examples). A consequence relation is a relation between collections of

premises and conclusions; a collection of premises is related to a conclusion if and

only if the latter is a consequence of the former."

4. Bailey, D. T. J. 2008. "Excavating Dissoi Logoi 4." *Oxford Studies in Ancient Philosophy* no. 35:249-264.

   "i begin with a necessary apology for the extreme obscurity of the text I shall discuss. The *Dissoi Logoi* , whose fourth chapter is the subject of this paper, is perhaps unique among texts in the history of philosophy for its murkiness. It is an anonymously authored philosophical work appearing to argue, among other things, for the sameness and then the difference of properties such as good and bad, just and unjust, true and false. Almost every aspect of it likely to interest scholars is monstrously undetermined. Thus:

   (1) Its date is unknown. Many suppose it to be a Sophistic moot book or the like from around the late fifth/early fourth century b.C.(1)

   Others take the location of its only manuscripts, always in the works of Sextus Empiricus, to indicate a dating anything up to six hundred years later. One scholar has suggested that it might have been written as late as the medieval end of the Byzantine era.(2)

   (2) Its original dialect is unknown. It is largely composed in Doric, but with numerous Atticisms and dashes of Ionic. (...)

   (3) Partly because of its content, and partly because of (1) and (2), its purpose is unknown. (...)

   Given (1), (2), and (3), it is almost impossible to say anything about the *Dissoi Logoi* that goes beyond mere conjecture. But it would be a pity to let caution silence all contributions to the understanding of this most mysterious text. In what follows, I discuss two issues—the meaning of the word logos3 in 4. 1–5, and the argument of 4. 6—with a view to assessing just how Sophistic this chapter is, and asking what there is about it that might have aroused interest in later Sceptical traditions. I shall

not count the exercise a failure if all I can achieve is to make this text even more intriguing than it has seemed beforehand."

(1) For a detailed discussion of one disagreement, even among those who view the text as belonging to the early Sophistic movement, see T.M. Robinson, *Contrasting Arguments: An Edition of the Dissoi Logoi* (Salem, NH, 1979), 34–41. I rely on this magnificent work of scholarship throughout.

(2) T.M. Conley, 'Dating the So-Called Dissoi Logoi: A Cautionary Note', *Ancient Philosophy* , 5 (1985), 59–65.

5. Baltussen, Han. 1992. "Peripatetic dialectic in the *De sensibus* ." In *Theophrastus: His Psychological, Doxographical and Scientific Writings* , edited by Fortenbaugh, William W. and Gutas, Dimitri, 1-19. New Brunswick (N. J.): Transaction Publishers.

"Once attention is directed towards Theophrastus' argumentation, the choice of Peripatetic dialectic as a normative model (or heuristic device), being a general theory of argumentation, seems obvious. But there are more specific reasons. Since the fundamental study of E. Weil(7) the picture of the function and content of the dialectical method has undergone considerable adjustment. Dialectic was rehabilitated against the dominant role of analytics and freed from sophistic qualifications which were undeservedly attached to it.(8) This caused a new interest in the *Topics,* the treatise in which Aristotle expounded his theory of dialectical reasoning.

Although today no overall agreement exists upon details of interpretation, it is still possible to summarize the main elements of the results so far. I have attempted to incorporate the various results into one description which will enable us to gain a new understanding of the dialectical procedure. I shall first focus on the goal of dialectic, passing on to its more specific function in 'doxographic' contexts. It may seem a small detour at the moment, but I hope it will prove to be a *reculer pour mieux sauter* ." (p. 3, note 9 omitted)

(7) E. Weil, 'La place de la logique dans la pensée aristotélicienne', *RMM* 56 (1951), 283-315 [= 'The Place of

Logic in Aristotle's Thought', repr. in J. Barnes et al. (edd.), *Articles on Aristotle, 1. Science* (London, Duckworth 1975), pp. 88-112]. I shall quote from the English translation. An earlier instance of a study that investigated the role of the search for principles in Aristotle's *Physics* is J.M. LeBlond, *Logique et Méthode chez Aristote,* Paris 1939. But the earliest (and least quoted) instance is H.D.P. Lee, 'Geometrical method and Aristotle's account of first principles', *CIQ* , 29 (1935), 113-24. The most recent contributions on the subject are by T.H. Irwin, *Aristotle's First Principles* (Oxford, Clarendon Press 1988) and A. Beriger, *Die aristotelische Dialektik. Ihre Darstellung in der Topik' und in den 'Sophistischen Widerlegungen und ihre Anwendung in der 'Metaphysik' M 1-3* (Heidelberg / Carl Winter 1989).

(8) As Weil (pp. cit. p. 89) summarized it: "... both [analytics and dialectic] are equally formal, both apply a method that is independent of the content, both use the syllogism as their principal tool".

6. Barnes, Jonathan. 1982. "Medicine, Experience and Logic." In *Science and Speculation: Studies in Hellenistic Theory and Practice* , edited by Barnes, Jonathan, Brunschwig, Jacques, Burnyeat, Myles F. and Schofield, Malcolm, 24-68. Cambridge: Cambridge University Press.

   Reprinted in J. Barnes, *Logical Matters: Essays in Ancient Philosophy II* , New York: Oxford University Press 2012, pp. 538-581.

   "The concept of 'experience' has a long history, going back through Aristotle to the Presocratic philosophers.3 I shall not attempt to write that history, nor to give an account of the precise way or ways in which the concept was understood by the Empirical doctors who took their sobriquet from it. I assume that an experience is a piece of general knowledge ('Pomegranates cure diarrhoea'), based upon a series of particular observations ('Pomegranates were good for Dio when he had diarrhoea'); and I assume, further, that in the eyes of the Empiricists the general knowledge was justified by its observational basis. In effect, then, the Empirical doctors were

committed to the acceptability of certain inductive inferences; and the soritical argument—or the sorites, as it is now customarily called—was used by the Dogmatists to cast doubt upon induction." (p. 540, notes omitted)

(...)

"What is fundamentally at issue here is a question about the nature of logic: is logic in a way prior to science and to experience, is it something which gives shape to experience and which cannot be modified by experience? or is logic rather parasitical upon science, constrained by the observed facts and open to modification in the light of empirical discovery? Those questions still exercise us — quantum physics gave them new life not so long ago. I think that they are at the bottom of the dispute between Galen's two doctors. (p. 578, a note omitted)

7. ———. 1986. "Peripatetic negations." *Oxford Studies in Ancient Philosophy* no. 4:201-214.

   Reprinted in J. Barnes, *Logical Matters: Essays in Ancient Philosophy II* , New York: Oxford University Press 2012, pp. 172-186.

   "Ancient logicians did not question the Aristotelian view that 'for every affirmation there is an opposite negation, and for every negation an opposite affirmation' (*int* 17a32–33); nor did they doubt that 'a single affirmation has a single negation' (17b37): every affirmation, P, has one and only one negation neg:P. Moreover, it was taken to be constitutive of the notion of negation that P and neg:P cannot both be true and cannot both be false. And it was supposed that a negation, neg:P, will normally be constructed from its affirmative twin, P, together with a negative operator.

   Those common notions form the background to a short essay on negation which Alexander of Aphrodisias inserted into his commentary on Aristotle's *Prior Analytics* . Alexander defends an Aristotelian account of negation and argues against a rival account.(3) The rival account is generally supposed to be Stoic or even Chrysippean; and it contains indisputably Stoic elements.

But Alexander does not name his opponents, nor does he offer any information about the history of the dispute." (pp. 172-173, notes omitted)

(3) *in APr* 402.1–405.16.

8. ———. 1990. "Logical Form and Logical Matter." In *Logica, mente e persona. Studi sulla filosofia antica* , edited by Alberti, Antonina, 7-119. Firenze: Olschki.

   Reprinted in J. Barnes, *Logical Matters. Essays in Ancient Philosophy II* , Oxford: Clarendon Press 2012, pp. 43-146.

   "The first theorem of the first Book of Euclid's Elements is this:

   On a given finite straight line, there can be constructed an equilateral triangle." (p. 43)

   (...)

   "At the heart of the proof lies an argument which I shall call the Euclidean Argument. It can be set out as follows:

   (1) Things equal to the same thing are equal to one another.

   (2) CA is equal to AB.

   (3) CB is equal to AB.

   Therefore: (4) CA is equal to CB.

   The argument is utterly clear and utterly simple. It might stand as a paradigm of deductive inference.

   The first premiss of the Euclidean Argument is the first of Euclid's 'common notions'; that is to say, it is one of the axioms of Euclid's geometry.

   If we omit the axiom, we are left with the following argument:

   (1) CA is equal to AB.

   (2) CB is equal to AB.

   Therefore: (3) CA is equal to CB.

   This argument, which I shall call the Truncated Argument, is also utterly simple and utterly clear. It too might be regarded as

a paradigm of deductive inference.

It is plain that both the Euclidean Argument and the Truncated Argument are deductively valid. Their conclusions follow from their premisses.

It is plain, moreover, that the Euclidean Argument is, so to speak, one member of a large family of arguments, each of which is valid." (p. 44, notes omitted)

(...)

"!If the Euclidean Argument and the Truncated Argument are valid, and yet are neither hypothetical nor categorical syllogisms, then it will be tempting to infer that there must be a third kind of syllogism in addition to the two kinds commonly recognized by the ancient logicians.

At least one ancient logician drew exactly that inference. My phrase ‘a third kind of syllogism’ is taken from Galen. In his *Institutio Logica* Galen presents elementary and unoriginal expositions both of categorical and of hypothetical syllogistic; and then he turns to the novelty— to his third kind of syllogism (xvi 1)." (p. 50, notes omitted)

9. ———. 2005. "What is a disjunction?" In *Language and Learning: Philosophy of Language in the Hellenistic Age: Proceedings of the Ninth Symposium Hellenisticum* , edited by Frede, Dorothea and Inwood, Brad, 274-298. Cambridge: Cambridge University Press.

   Reprinted in J. Barnes, *Logical Matters. Essays in Ancient Philosophy II* , Oxford: Clarendon Press 2012, pp. 512-537.

   "Stoic logicians attended to words rather than to things: so claimed Galen, a dozen times or more; and so claimed Alexander of Aphrodisias. Galen and Alexander meant the claim as an accusation and a criticism: it was because they thought not of things, but of words, that the Stoics made fundamental errors in their logic.

   Nineteenth-century historians of logic echoed the ancient claim, and they too thought that Stoic logic was ruined by its passion for words. Twentieth-century historians of logic also

echoed the ancient claim. But for them it was not a criticism. On the contrary, it was a sign that the Stoic logicians were ‘formalists’ — and it is good thing for a logician to be a formalist.

But whether it is bad or good to attend to words rather than to things can scarcely be decided until we know what it means to attend to words rather than to things. In the following pages I shall discuss one or two aspects of the ancient claim and one or two of the texts pertinent to it. The texts concern complex propositions — conditionals, conjunctions, disjunctions. Such items form the foundations of Stoic logic. According to Galen and Alexander, the Stoics made fundamental errors about those fundamental items: they did so because they attended to words rather than to things, because their misdirected gaze encouraged them to misclassify compound propositions." (p. 512)

10. ———. 2007. *Truth, etc.: Six Lectures on Ancient Logic* . Oxford: Clarendon Press.

    Contents: 1 Truth 1; 2 Predicates and Subjects 93; 3 What is a Connector? 168; 4 Forms of Argument 264; 5 The Science of Logic 360; 6 When is a Syllogism not a Syllogism? 448; Onomasticon 529: Index of Passages 533; General Index 543-551.

    "The book is about ancient logic. Antiquity is the antiquity of Greece and Rome—which here starts in the fourth century BC and continues, discontinuously, to the sixth century AD. As for logic, the table of Contents indicates what sort of thing is on or under the carpet.

    Ancient logic lacks sex appeal.

    Most contemporary logicians have little interest in the history—or at least in the ancient history—of their subject. No doubt they suppose that their long-dead colleagues have little or nothing to teach them, and perhaps they prefer the present and the future to the past. If that is so, then it must be confessed that their supposition is quite true: no logician has anything to learn from a study of Aristotle; and the pages of this book make

no contribution to logic or to philosophy. As for preferences, I myself rate the past way above the future. But *de gustibus* .

Most students of the ancient world have little interest in logic. Some indeed despise it, or affect to despise it; and some fear it, or affect to fear it. Such attitudes—which were sometimes assumed in antiquity—are lamentable, and they are vexing. But there is nothing much I or anyone else can do about them.

Nonetheless, on my own pink official form there is written: 'I like my work.' And I hope that a few discerning readers will find parts of the book engaging—and even entertaining." (Preface, pp. VII-VIII)

11. ———. 2007. "Peripatetic Logic: 100 BC - AD 200." In *Greek and Roman Philosophy 100 BC - 200 AD. Vol. II* , edited by Sharples, Robert W. and Sorabji, Richard, 531-546. London: Institute of Classical Studies.

    "Andronicus wrote commentaries; his successors wrote commentaries; the writing of commentaries was the philosophical activity of the imperial epoch. What was once philosophy had become philology. For although commentary is an honest activity and a useful activity, it is not an exciting activity and it is not an innovative activity. Commentators are essentially conservative beings: they are concerned to preserve and transmit the thought of the past, not to discover or invent the thought of the future. Such conservatism is likely to be even more marked in logic than in other areas of philosophy. After all, Aristotle had perfected - had he not? - the art of logic. That being so, we should not expect too much in the way of novelty from Andronicus and his Peripatetic successors." (p. 533)

12. ———. 2012. *Logical Matters* . New York: Oxford University Press.

    Contents: Acknowledgements VII; Preface XI; 1. Galen, Christians, logic 1; 2. Cicero on logic 22; 3. Logical form and logical matter 43; 4. Grammar on Aristotle's terms 147; 5. Peripatetic negations 172; 6. Aristotle's Categories and Aristotle's 'categories' 187; 7. Syllogistic and the classification of predicates 266; 8. Speusippus and Aristotle on homonymy 284;

9. Property in Aristotle's Topics 312; 10. 'Sheep have four legs' 346; 11. The law of contradiction 353; 12. Proofs and the syllogistic figures 364; 13. Aristotle and Stoic logic 382; 14. Theophrastus and Stoic logic 413; 15. Terms and sentences 433; 16. Logic and the dialecticians 479; 17. The Logical Investigations of Chrysippus 485; 18. Πιτανα συνημμένα 499; 19. What is a disjunction? 512; 20. Medicine, experience, and logic 538; 21. Meaning, saying, and thinking 582; 22. Epicurus: meaning and thinking 602; 23. Ammonius and adverbs 621; 24. Priscian and connectors 639; 25. Late Greek syllogistic 659; 26. Boethius and the study of logic 666; 27. Syllogistic in the anon Heiberg 683; Bibliography 729; Index of Passages 751; General Index 775-796.

13. ———. 2014. "Boethus and Finished Syllogisms." In *Strategies of Argument: Essays in Ancient Ethics, Epistemology, and Logic* , edited by Lee, Mi-Kyoung, 175-198. New York: Oxford University Press.

    "According to Aristotle, the four canonical syllogisms of the first figure—Barbara, Celarent, Darii, Ferio—are τέλειοι or finished (*APr* A 26b28–30). The four canonical syllogisms of the second figure, and the six of the third, are all ἀτελεῖς or unfinished (28a4–7, 15–16).(1) And "all the unfinished syllogisms are finished by way of the first figure" (29a30–31).(2)" (p. 175)

    (...)

    "And yet Ammonius took himself to be rehearsing a generally accepted view—a view which had been championed by Boethus, who "proved that all the syllogisms in the second and third figures are finished," and by Porphyry and Iamblichus and Maximus. Themistius defended Aristotle against Maximus, and the disputants asked the emperor Julian to arbitrate.

    Julian decided for Maximus; and Syrianus and Proclus and Hermias later took the same line. What is more, "it appears that Theophrastus, Aristotle's pupil, held the opinion contrary to his on the matter." (See Ammonius, *in APr* 31.11–15.)

It is a striking story.(5) And puzzling, for two reasons. First, it is hard to believe that Theophrastus and Boethus and all those later lights wasted their breath on such a silly business. Secondly, Alexander breathes no word of the “contrary opinion” in his commentary on the *Analytics* —neither does Philoponus, and neither does Boethius. The silence is strange.(6) As for Theophrastus, Porphyry, Iamblichus, Syrianus, Proclus, and

Hermias, no other text supports Ammonius—and in the case of Theophrastus, scholars have doubted his claim. But Ammonius did not invent the story." (p. 177, a note omitted)

(1) As for the non-canonical syllogisms of the first figure (Baralipton, Barbari, and the rest), Aristotle does not expressly say whether they are finished or unfinished; but he was taken, no doubt rightly, to have thought them to be unfinished (see e.g. Alexander, in *APr* 69.26–29; Boethius, *syll cat* 823A).

(2) On the finishing of syllogisms see Striker, “Perfection”; cf. Patzig, *Aristotle’s Theory,* pp.43–87; Barnes, *Truth, etc* ., pp.378–386.

(5) Parts of it are also told in an Aristotelian scholium, 156b43–47, and by David, in *APr* xi 1. According to the Suda, Julian wrote About the three figures (s.v. Ἰουλιανός): his written judgement on the dispute?

(6) Lee, *Syllogistik in der Spätantike* , p.132, suggests, implausibly, that it would have been out of place to discuss the question in a commentary on Aristotle.

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Striker, G. “Perfection and reduction in Aristotle’s *Prior Analytics,* ” in M. Frede and G. Striker (edd), *Rationality in Greek Thought* (Oxford, 1996), pp.203–19

14. Barnes, Jonathan, Bobzien, Susanne, Mignucci, Mario, and Schenkeveld, Dirk. 1999. "Part II. Logic and Language." In *The Cambridge History of Hellenistic Philosophy* , edited by Algra, Keimpe, Barnes, Jonathan, Mansfeld, Jaap and Schofield, Malcolm, 65-225. Cambridge: Cambridge University Press.

    Chapter 4: Introduction (pp. 65-76) by J. Barnes; Chapter 5: Logic: I. The Peripatetics (pp. 77-83) by J. Barnes; II. The 'Megarics' (pp. 83-92) by S. Bobzien, III. The Stoics §§ 1-7 (pp. 92-157) by S. Bobzien; § 8 (pp. 157-176) by M. Mignucci; Chapter 6: Language (pp. 177-225) by D. Schenkeveld, J. Barnes (pp. 193-213).

    "Introduction. 1. A map of logic

    The Stoics were the innovative logicians of the Hellenistic period; and the leading logician of the school was its third scholarch, Chrysippus. Most of this section of the History will therefore describe Stoic ideas and Stoic theories.

    Its hero will be Chrysippus.

    Logic is the study of inference, and hence of the items upon which inference depends – of propositional structure (or 'grammar'), of meaning and reference. That part of their subject which the Hellenistic philosophers called λογικὴ (*logiké*) was a larger discipline;(1) for *logiké* –was the science which studies λὸγος in all its manifestations,(2) and logic is included in *logiké* as a part. Indeed as a part of a part. For the Stoics divided *logiké* into two subparts, rhetoric and dialectic; and logic is a part of dialectic.(3)

    (1) On the parts of philosophy see the *Preface* pp. xiii–xvi; see also Hadot 1979, Ierodiakonou 1993b and Dörrie and Baltes 1996, 205–31.

    (2) See e.g. [Plu.] Plac. 874e. (But note Hülser 1987–8, lxxxii.)

    (3) D.L. vii.41 (*ενιοι*); Sen. Ep. 139.17. Other divisions of λογικὴ are recorded: D.L. vii.41; cf. Hülser 1987–88, lxxix–xc.

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Ierodiakonou, K. (1993b) 'The Stoic division of philosophy', *Phronesis* 38, 57–74

15. Barnouw, Jeffrey. 2002. *Propositional Perception. Phantasia, Predication, and Sign in Plato, Aristotle, and the Stoics* . Lanham: University Press of America.

    Contents: Preface I; Introduction 1; Chapter 1. *Phantasia* , Judgment and Statement in Plato 9; Chapter 2. *Phantasia* in Aristotle 49; Chapter 3. Predication and Sign in Aristotle 97; Chapter 4. *Phantasia* and Sign in Stoic Philosophy 149; Chapter 5. Recalling Sign and Revealing Sign. Part I. Sceptics and Stoics 215 Chapter 5. Recalling Sign and Revealing Sign. Part II. The Debates of the Hellenistic Medical Sects 245; Chapter 6. Predication, Proposition, Sign and Proof in Stoic Logic 275; Appendix 1. Declarative Predication vs. Kahn's Veridical Be 327; Appendix 2. Peirce, the Epicureans and the Stoics 341; Bibliography 369; Indices 279-383.

    "There has been considerable growth in the understanding and estimation of Stoic logic 'in the last thirty years, yet an important dimension of this Stoic achievement has not been grasped. Stoic logic was broadly conceived to include their theories of knowledge and perception, and the theory of perception provides the starting point and foundation of their logic. It is essential to the structure and unity of that logic that the Stoics take perception to be propositional. Starting from a new interpretation of the Stoic conception of *phantasia* as propositional perception, this study offers a view of Stoic logic that brings out the continuity linking perception, predication, inferential signs and proof." (p. 1)

16. Bénatouil, Thomas, and Ierodiakonou, Katerina, eds. 2018. *Dialectic after Plato and Aristotle* . Cambridge: Cambridge

University Press.

Proceedings of the 13th Symposium Hellenisticum.

Contents: List of Contributors VII; Preface IX; List of Abbreviations X; Thomas Bénatouïl: Introduction: Dialectics in Dialogue 1; James Allen: Megara and Dialectic 17; Paolo Crivelli: Dialectic in the Early Peripatos 47; David Sedley: Epicurus on Dialectic 82; Katerina Ierodiakonou: Dialectic as a Subpart of Stoic Philosophy 114; Jean-Baptiste Gourinat: Stoic Dialectic and Its Objects 134; Luca Castagnoli: Dialectic in the Hellenistic Academy 168; Tobias Reinhardt: Pithana and probabilia 218; Sophie Aubert-Baillot: Terminology and Practice of Dialectic in Cicero's Letters 254; Benjamin Morison: The Sceptic's Modes of Argumentation 283; Riccardo Chiaradonna: Galen and Middle Platonists on Dialectic and Knowledge 320; Bibliography 350; Index of Names 371; Index of Passages 376-391.

17. Bobzien, Susanne. 2000. "Wholly Hypothetical Syllogisms." *Phronesis.A Journal for Ancient Philosophy* :87-137.

Abstract: "In antiquity we encounter a distinction of two types of hypothetical syllogisms. One type are the 'mixed hypothetical syllogisms'. The other type is the one to which the present paper is devoted. These arguments went by the name of 'wholly hypothetical syllogisms'. They were thought to make up a self-contained system of valid arguments. Their paradigm case consists of two conditionals as premisses, and a third as conclusion. Their presentation, either schematically or by example, varies in different authors. For instance, we find 'If (it is) A, (it is) B; if (it is) B, (it is) C; therefore, if (it is) A, (it is) C'. The main contentious point about these arguments is what the ancients thought their logical form was. Are A, B, C schematic letters for terms or propositions? Is 'is', where it occurs, predicative, existential, or veridical? That is, should '*A esti* ' be translated as 'it is an A', 'A exists', 'As exist' or 'It is true/the case that A'? If A, B, C are term letters, and 'is' is predicative, are the conditionals quanti ed propositions or do they contain designators? If one cannot answer these questions, one can hardly claim to know what sort of arguments the wholly

hypothetical syllogisms were. In fact, all the above-mentioned possibilities have been taken to describe them correctly. In this paper I argue that it would be mistaken to assume that in antiquity there was one prevalent understanding of the logical form of these arguments even if the ancients thought they were all talking about the same kind of argument. Rather, there was a complex development in their understanding, starting from a term-logical conception and leading to a propositional-logical one. I trace this development from Aristotle to Philoponus and set out the deductive system on which the logic of the wholly hypothetical syllogisms was grounded."

18. ———. 2000. "Why the Order of the Figures of the Hypothetical Syllogisms Was Changed." *Classical Quarterly* no. 50:247-251.

    "In chapter 6 of Alcinous' *Handbook of Platonism* we find a discussion of categorical, hypothetical, and mixed syllogisms. Alcinous distinguishes three figures of the hypothetical syllogism, and illustrates each figure with a syllogism based on an argument from Plato. Here he remarks in passing that most people called the second hypothetical figure the third and that some called the third figure the second.(1) We may assume that those who called the third figure the second and those who called the second the third were the same. In a parallel passage, Alexander of Aphrodisias advocates the same ordering of figures of hypothetical syllogisms as Alcinous, and reports that Theophrastus, in the first book of his *Analytics* , had the second and third figure in reverse order.(2) Combining these passages, we can infer that at the turn of the second century A.D. there existed two different views on the ordering of the figures of the hypothetical syllogisms, of which one goes back to Theophrastus, whereas the other presumably was the result of a later change. This curious fact has so far not received a satisfactory explanation. In the following pages I seek to show what prompted this reversal of the order of figures." (p. 247, notes omitted)

    (1) (...) Alc. *Didasc.* 159.14-15 and 20 (...)

    (1) (...) Alex. *An. Pr.* 328.2-5, (...)

19. ———. 2000. "How to give someone Horns. Paradoxes of Presupposition in Antiquity." *Logical Analysis and History of Philosophy* no. 15:159-184.

    Abstract: "This paper discusses ancient versions of paradoxes today classified as paradoxes of presupposition and how their ancient solutions compare with contemporary ones. Sections 1-4 air ancient evidence for the Fallacy of Complex Question and suggested solutions, introduce the Horn Paradox, consider its authorship and contemporary solutions. Section 5 reconstructs the Stoic solution, suggesting the Stoics produced a Russellian-type solution based on a hidden scope ambiguity of negation.

    The difference to Russell's explanation of defmite descriptions is that in the Horn Paradox the Stoics uncovered a hidden conjunction rather than existential sentence. Sections 6 and 7 investigate hidden ambiguities in "to have" and "to lose" and ambiguities of quantification based on substitution of indefinite plural expressions for indefmite or anaphoric pronouns, and Stoic awareness of these. Section 8 considers metaphorical readings and allusions that add further spice to the paradox."

20. ———. 2002. "The Development of Modus Ponens in Antiquity: From Aristotle to 2nd Century AD." *Phronesis.A Journal for Ancient Philosophy* no. 47:359-394.

    Abstract: "*Aristotelian logic* , as it was taught from late antiquity until the 20th century, commonly included a short presentation of the argument forms *modus (ponendo) ponens* , *modus (tollendo) tollens* , *modus ponendo tollens* , and *modus tollendo ponens* . In late antiquity, arguments of these forms were generally classified as 'hypothetical syllogisms'. However, Aristotle did not discuss such arguments, nor did he call any arguments 'hypothetical syllogisms'. The Stoic indemonstrables resemble the *modus ponens/tollens* arguments. But the Stoics never called them 'hypothetical syllogisms'; nor did they describe them as *ponendo ponens* , etc. The tradition of the four argument forms and the classification of the arguments as hypothetical syllogisms hence need some explaining. In this paper, I offer some explanations by tracing the development of certain elements of Aristotle's logic via the early Peripatetics to

the logic of later antiquity. I consider the questions: How did the four argument forms arise? Why were there four of them? Why were arguments of these forms called 'hypothetical syllogisms'? On what grounds were they considered valid? I argue that such arguments were neither part of Aristotle's dialectic, nor simply the result of an adoption of elements of Stoic logic, but the outcome of a long, gradual development that begins with Aristotle's logic as preserved in his *Topics* and *Prior Analytics* ; and that, as a result, we have a Peripatetic logic of hypothetical inferences which is a far cry both from Stoic logic and from classical propositional logic, but which sports a number of interesting characteristics, some of which bear a cunning resemblance to some 20th century theories."

21. ———. 2002. "Some elements of propositional logic in Ammonius." In *Interpretation und Argument* , edited by Linneeweber-Lammerskitten, Helmut and Mohr, Georg, 103-119. Würzburg: Königshausen & Neumann.

    "In his recent research, Gerhard Seel has demonstrated that Ammonius' semantics of assertoric sentences and propositions deserves far more attention than it has hitherto received.(3) In acknowledging this fact,

    I shall in the present paper attempt to show that Ammonius' theory of compound assertoric sentences and of hypothetical propositions can provide us with some insight into the specifically Peripatetic-Platonist understanding of the .syntax, semantics, and function of molecular propositions in their logic; and in particular that it is mistaken to treat Ammonius where he remarks on issues of 'propositional logic'(4) as nothing but a muddled late witness of Stoic logic. The relevant main text passages are the Preface and Chapter 5 of Ammonius' *De lnterpretatione* commentary *(Int* .), some short, passages from Ammonius' *Prior Analytics* commentary (*APr* .) and the section on hypothetical syllogisms in [Ammonius] *On Aristotle's Prior Analytics* ([Amm.] *APr* .), which very closely follows what we know from Ammonius directly elsewhere.

    Following Aristotle's footsteps, Ammonius builds his logic on a distinction between two ontological levels: the level of things

(πράγματα) and the level of linguistic items. The latter comprises as sub-levels thoughts, the spoken word, and the written word (*Int*. 18.23-19.1). Only (compound) linguistic items are admitted as truth-bearers in a straightforward sense. (5)

Their truth-value depends on their relation to the things that make up the first level. I shall focus in the main on Ammonius' treatment of the spoken word, and its relation to the things. This is the sub-level of linguistic items Ammonius appears to be concerned with most of the time. The spoken word is caused by thought, whereas the written word serves to preserve the memory of the spoken word." (pp. 103-104)

(3) 'Ammonius' Semantics of the Asseri:oric Sentence', in Seel 2000.

(4) I use '.scare quotes' as a reminder thad use the e;xpression 'propositional logic' in a loose sense.

(5) Cf. *Int*. 21.21-4; 22.1-2.

References

Seel, Gerhard (ed.), 2000, *Ammonius and the Sea-battle,* Berlin, New York

22. Bochenski, Joseph. 1951. *Ancient Formal Logic* . Amsterdam: North-Holland.

Contents: I. Prolegomena 1; II. The Forerunners 14; III. Aristotle 19; IV. The Old Peripateticians 72; V. The Stoic-Megaric School 77; VI. The last period 103; Bibliography 110; Index of Greek terms 118; Index of names 121.

"The present book is intended to supply mathematical logicians with a synthetic outline of the main aspects of ancient formal logic which are known in the present state of research. In order to avoid misunderstandings, each of the above terms has to be explained.

The reader is supposed to be a *mathematical* logician, i.e., to know both the symbolisms and the (English) language of contemporary mathematical logic; those who are not

acquainted with it must be warned that several terms used in that language have a particular meaning, different from the meaning attributed to the terms of the same form in other contexts.

The subject of the book is *formal* Logic; by this we understand a science such as was developed by Aristotle in his *Prior Analytics* , i.e., essentially the theory of syllogisms as defined in *An. Pr. A* 1, 24b 18-20. Along with the syllogisms proper, the structure of the sentences and semiotics will be studied; contrariwise, not only all ontological, psychological and epistemological problems, but even methodological topics will be omitted in so far as possible. This is perhaps regrettable; but there are several good books on those subjects while there is *none* on ancient formal logic as a whole - and the limitation of space forced us to omit everything which was not strictly formal.

By ancient formal logic, Greek logic from the beginning of Greek Philosophy until the end of Antiquity is meant. We have, it is true, some Latin textbooks of formal logic - but they all seem based on, or even copied from, Greek sources. It is perhaps worthwhile mentioning that there is also an ancient *Indian* Logic; this lies, however, outside our present scope.

What is offered here is an *outline,* moreover a very fragmentary one. A complete account of ancient formal logic cannot be written at the present date because of the lack of scientific monographs on individual logicians and topics. The initial aim of the author was to limit himself to a reassumption of monographs already published; in the course of the work he was compelled, however, to use some of his own unpublished researches on Aristotle and had the exceptional fortune of reading the manuscript of Dr Benson Mates' book on Stoic logic. He also collected some new data on other topics. In spite of this, considerable parts of ancient logic have hardly been touched upon - e.g. the logic of the Commentators - while others, Aristotle included, have been treated in a way which is far from being complete. On the whole, what the book contains may be considered as a kind of starting point for future

research. Yet, it is hoped that even this will supply logicians with some information difficult to be found elsewhere and give a general idea of what the ancient logic was and how it developed." (pp. 1-2)

23. ———. 1961. *A History of Formal Logic* . Notre Dame: Indiana University Press.

    Translated from the German edition "*Formale Logik* " (1956) by Ivo Thomas; eeprinted New York, Chelsea Publishing Co., 1970.

    "§4. Method and Plan.

    A. Hisotry of Problems, and Documentation

    Conformably to the directions of the series *Orbis Academicus* this work will present a documented history of problems.

    We are not, therefore, presenting a material history of logic dealing with everything that has any historical importance, but a delineation of the history of the problematic together with the complex of essential ideas and methods that are closely connected with it. We only take into account those periods which have made an essential contribution to the problematic, and among logicians those who seem to us to rank as specially good representatives of their period. In this connection some thinkers of outstanding importance, Aristotle above all, Frege too, will receive much fuller treatment than would be permissible in a material history.

    The story will be told with the help of texts, and those originally written in a foreign language have been translated into English.

    This procedure, unusual in a scientific work, is justified by the consideration that only a few readers could understand all the texts if they were adduced in their original language. For even those readers with some competence in Greek are not automatically able to understand with ease a text of formal logic in that tongue. But the specialist logician will easiliy be able to find the original text by reference to the sources.

    The passages quoted will be fairly thoroughly commented where this seems useful, for without some commentary many of

them would not be readily intelligible." (p. 18)

24. Bonevac, Daniel. 2012. "A History of Quantification." In *Logic: A History of Its Central Concepts* , edited by Gabbay, Dov M., Pelletier, Francis Jeffrey and Woods, John, 63-126. Amsterdam: North-Holland.

    Volume 11 of the *Handbok of te History of Logic* .

    "Aristotle (384–322 BC), the founder of the discipline of logic, also founded the study of quantification. Normally, Aristotle begins a topic by reviewing the common opinions, including the opinions of his chief predecessors. In logic, however, he could not adopt the same strategy; before him, he reports, “there was nothing at all” (*Sophistical Refutations* 183b34–36). Aristotle’s theory dominated logical approaches to quantification until the nineteenth century.

    That is not to say that others did not make important contributions. Medieval logicians elaborated Aristotle’s theory, structuring it in the form familiar to us today. They also contemplated a series of problems the theory generated, devising increasingly complex theories of semantic relations to account for them. Textbook treatments of quantification in the seventeenth and nineteenth centuries made important contributions while also advancing some peculiar theories based on medieval contributions." (p. 63)

25. Bonevac, Daniel, and Dever, Josh. 2012. "A History of the Connectives." In *Logic: A History of Its Central Concepts* , edited by Gabbay, Dov M., Pelletier, Francis Jeffrey and Woods, John, 175-233. Amsterdam: North-Holland.

    Volume 11 of the *Handbok of te History of Logic* .

    "Contemporary students of logic tend to think of the logic of the connectives as the most basic area of the subject, which can then be extended with a logic of quantifiers. Historically, however, the logic of the quantifiers, in the form of the Aristotelian theory of the syllogism, came first. Truth conditions for negation, conjunction, and disjunction were well understood in ancient times, though not until Leibniz did anyone appreciate the algebraic features of these connectives.

Approaches to the conditional, meanwhile, depended on drawing an analogy between conditionals and universal affirmative propositions. That remained true throughout the ancient, medieval, and early modern periods, and extended well into the nineteenth century, when Boole constructed an algebraic theory designed to handle sentential and quantificational phenomena in one go. The strength of the analogy, moreover, undercuts a common and otherwise appealing picture of the history of logic, according to which sentential and quantificational threads developed largely independently and, sometimes, in opposition to each other, until Frege wove them together in what we now consider classical logic. Frege did contribute greatly to our understanding of the connectives as well as the quantifiers. But his contribution consists in something other than unifying them into a single theory" (p. 175)

26. Brunschwig, Jacques. 1994. "Remarks on the classification of simple propositions in Hellenistic logics." In *Papers in Hellenistic Philosophy* , 57-71. Cambridge: Cambridge University Press.

    "The first and chief difference among propositions (αξιώματα), the dialecticians say, is that between simple (απλα) and non-simple (οὐχ απλα)' These are the words of Sextus Empiricus (*M* VIII.93) and nobody would challenge the importance of that distinction. The declaration introduces a long passage (93-129) which sets out the subdivisions within this fundamental division. It is a passage which historians of logic tend to use as one of the sources that provide us with information on the Stoic classification of propositions, despite the fact that the Stoics are not specifically named, for it is generally accepted that Sextus does refer to them as 'the dialecticians'. The task that faces us, then, is to compare his text with the classification transmitted to us by Diogenes Laertius (VII. 68-76), who possibly bases his remarks on Diocles of Magnesia, - a classification which, for its part, is explicitly ascribed to Chrysippus and a number of his successors." (p. 57)

    (...)

"What I propose to do is study the formal characteristics of the classification of simple propositions, as it is set out by SE and by DL. My principal questionwill be whether or not this division is a true partition, that is to say whether it is of such a kind that every simple proposition necessarily belongs to one, and only one, of the classes that the division comprises. But in considering that question, I shall also be addressing myself to another: that of the criteria of the simplicity of a proposition. The two questions are clearly linked, insofar as they respectively concern the extension and the comprehension of the concept of propositional simplicity. That is why I think it a good idea to start off by saying a word or two about the division of propositions into sim le and nonsimple, before moving on to the subdivision of simple propositions." (p. 58)

27. Burnyeat, Myles. 2005. "The origins of non-deductive inference." In *Science and Speculation: Studies in Hellenistic Theory and Practice* , edited by Barnes, Jonathan, Brunschwig, Jacques, Burnyeat, Myles and Schofield, Malcolm, 193-238. Cambridge: Cambridge University Press.

    Reprinted in M. Burnyeat, *Explorations in Ancient and Modern philosophy, Volume 1* , Cambridge: Cambridge University Press 2012 pp. 112-151.

    "The notion of sign itself is of course virtually as old as the Greeks' habit of giving grounds or evidence for their assertions.

    The term 'sëmeion may be found in tragedy, in the orators, in the historians, in the medical writers, in the philosophers.

    (...)

    Given this background, we naturally assume, when first Aristotle and then later the Stoics propose an analysis of sign, that it will be a technical analysis of a notion in common use, not the stipulation of a technical concept. We expect no restriction on the range of things that can serve as a sign or evidence of something, for existing usage displays none. It is not even correct to say that a sign is what we would call empirical evidence for something.

Often this is so, but in the Elcatic tradition, when Parmenides' 'signposts' (*sëmata* , fr. 8,2) became Melissus' signs (*sëmeia* , fr. 8,1), they were intended to give demonstrative proof of an inescapable conclusion. Likewise in Sextus Empiricus it is regularly reported that demonstrative proof is one species of sign (*PH* II 96, I22, 131, 134; *M* VIII 140, 180, 278, 289, 299). If so, if 'sign' covers any kind of ground, evidence, or reason for believing something, including demonstrative evidence, we might expect that a rough, general first sketch of the notion as it functions in everyday discourse could take the following simple form: For X to be a sign or evidence of Y requires (i) that X should be evident or manifest to us in some appropriate way, (ii) that it should be evidence of something else in that Y can be inferred from it. The task of the technical analysis would then be to explain the relationship between X and Y which sustains and justifies the inferring of the second from the first.

Let us see how far Aristotle fulfils these expectations." (pp. 193-194)

28. Castagnoli, Luca. 2010. *Ancient Self-Refutation: The Logic and History of the Self-refutation Argument from Democritus to Augustine* . Cambridge: Cambridge University Press.

"I suggest that the various forms of self-contradiction and inconsistency which I have sketchily outlined should be carefully kept distinct from self-refutation, while recognising that the edges between all these notions are not always as sharp as we might desire. Independently of its theoretical merits, I hope that my rough via negativa to self-refutation will serve its contingent purpose of conveying some preliminary idea (and warning) of what the reader should not expect to find in the pages of this book. Standard r*eductio ad impossibile* arguments, which on my account are located in the sphere of self-contradiction, will not be on our menu (although some of my contentions concerning the logic of ancient self-refutation might have consequences for some forms of ancient *reductio* as well). The elenchus (Socratic, Aristotelian or otherwise) will also lie beyond the scope of my analysis, since its gist seems to remain, through all its varieties, intended aims and interpretations, that of unmasking hidden inconsistencies

between sets of beliefs, concessions, theses; for the same reason, Plutarch, with the material sedulously collected in his *De Stoicorum Repugnantiis* (*On the Contradictions of the Stoics*), will not be a hero of our story. The charge of pragmatic inconsistency was a favourite weapon in ancient philosophical controversy: while its history would certainly deserve a comprehensive investigation analogous to the one I am undertaking here for self-refutation, my tentative map of various types of refutation has banned it from the ground covered in this book. Also the notorious Liar Paradox, for reasons to be explained in chapter 1, will make only a cursory appearance on· the stage, to be quickly dismissed." (pp. 7-8, notes omitted)

29. ———. 2018. "Dialectic in the Hellenistic Academy." In *Dialectic after Plato and Aristotle* , edited by Bénatouil, Thomas and Ierodiakonou, Katerina, 168-217. Cambridge: Cambridge University Press.

    "To begin with, what do we mean, exactly, when we say, for example, that X's argument Y in passage Z is dialectical, or that X's defence Y against the charge W as reported in Z was dialectical? Did our source, the author of Z, clearly speak, or conceive, of that argument or defence as 'dialectical'? And is there any sign that X himself thought that, by proposing Y, he was engaging in some form of dialectic? If so, what form precisely?

    This chapter aims to show how a nuanced approach to these questions can provide firmer foundations for the debate concerning the 'dialectical nature' of the philosophy of Arcesilaus and Carneades. I will begin, in section 1, by reconstructing their attitudes towards what they, and their contemporaries, called 'διαλεκτικὴ'. In Section 2, I will examine some key ancient testimonies on their philosophical method and ask whether, and in what sense exactly, it can be characterised, on the basis of those testimonies, as 'dialectical'. In Section 3, I will examine the broad structure of Arcesilaus' and Carneades' 'core argument' for suspension of judgement (section 3.1) and then survey some other more specific types of

Academic arguments (section 3.2), asking in what sense, if any, all these arguments were ‘dialectical’.

Finally, in section 4, I will consider whether any exegetical and logical space is left to interpret the philosophy of Arcesilaus and Carneades as an exercise in ‘pure dialectic’, as proposed by Pierre Couissin in his influential article on ‘The Stoicism of the New Academy’ (Coussin 1929/1983)." (p. 169)

References

Couissin, P. (1983) ‘The Stoicism of the New Academy’, in *The Skeptical Tradition* , ed. M. Burnyeat. Berkeley and Los Angeles: 31-63. First published as Couissin, P. (1929) ‘Le Stoïcisme de la Nouvelle Académie’,

Revue d’histoire de la philosophie 3, 241-276.

30. Castagnoli, Luca, and Fait, Paolo, eds. 2023. *The Cambridge Companion to Ancient Logic* . Cambridge: Cambridge University Press.

Contents: List of Contributors VII; Luca Castagnoli and Paolo Fait: Introduction 1;

I The Development of Logic in Antiquity 19

1 NIcholas Denyer: The Prehistory of Logic 21; 2 Paolo Fait: Aristotle and Theophrastus 37; 3 Karlheinz Hülser: Megarians and Stoics 57; Benjamin Morison: 4 Late Antiquity 82;

II Key Themes 107

5 Walter Cavini: Truth as a Logical Property and the Laws of Being True 109; 6 Michael Ferejohn: Definition 128; 7 Paolo Crivelli: Terms and Propositions 147; 8 Luca Castagnoli and Paolo Fait:: Validity and Syllogism 167; 9 Alexander Bown: Demonstration 199: 10 Mark Malink: Modalities and Modal Logic 216; 11 Luca Castagnoli: Fallacies and Paradoxes 236; 12 Christof Rapp: Logic in Ancient Rhetoric 263; 13 Rviel Netz: Ancient Logic and Ancient Mathematics 283;

III The Legacy of Ancient Logic 299

14 John Marenbon: Ancient Logic in the Middle Ages 301; 15 Mirella Capozzi and Leila Haaparanta: Ancient Logic from the Renaissance to the Birth of Mathematical Logic 319; 16 John Woods: Ancient Logic Today 345;

Bibliography 364; List of Abbreviations 407; Index of Passages 411; General Index 424-432.

"Unlike contemporary logic, which is as well a mathematical discipline, ancient logic was squarely under the purview of philosophy. Not surprisingly, then, as historiographical disciplines developed during the first half of the nineteenth century, ancient logic was studied by general historians of philosophy and was not felt to require some special methodology. This rapidly changed near the end of the century, when the revolution that was radically transforming logic also changed the perception of its past, making a lasting impact on the way the history of the subject would be studied and written ever since. Several leading figures of the logical renaissance cast a curious eye on the history of their subject: Peirce, Couturat, Russell, perhaps even Frege, but the logician who more than anyone else cultivated historical studies, and the one who introduced a new way of reading ancient logical texts, was certainly Jan Lukasiewicz, the Polish logician best known as the father of multi-valued logics (Chapter 15 - Capozzi and Haaparanta). (p. 16)

31. Charles, David, ed. 2010. *Definition in Greek Philosophy* . Oxford: Oxford University Press.

Contents: Notes on Contributors IX; Introduction 1;

Part I. Plato on Definition

1 Lindsay Judson: Carried Away in the *Euthyphro* 31; 2 Vasilis Politis: Explanation and Essence in Plato's *Phaedo* 62; 3 David Charles:The Paradox in the *Meno* and Aristotle's Attempts to Resolve It 115; 4 Lesley Brown: Definition and Division in Plato's *Sophist* 151; 5 Mary Louise Gill: Division and Definition in Plato's *Sophist* and *Statesman* 172;

Part II. Aristotle on Definition

6 Kei Chiba: Aristotle on Essence and Defining-Phrase in his Dialectic 203; 7 Deborah Modrak: Nominal Definition in Aristotle 252; 8 David Charles: Definition and Explanation in the *Posterior Analytics* and *Metaphysics* 286; 9 James G. Lennox: Bios and Explanatory Unity in Aristotle's Biology 329;

Part III. Post-Aristotelian Writers on Definition

10 Paolo Crivelli: The Stoics on Definition 359; 11 Richard Sorabji: The Ancient Commentators on Concept Formation 424; 12 Jane Hood: Galen's Aristotelian Definitions 450; 13 Annamaria Schiaparelli: Essence and Cause in Plotinus' *Ennead* VI. 7 [38] 2: An Outline of Some Problems 467; 14 Gail Fine: Sceptical Enquiry 493;

Index Locorum 527; Index Nominum 546; General Index 552-556.

"Definition was a central topic in Greek philosophy. Socrates' most significant philosophical innovation, in Aristotle's view, was to focus on the search for definitions, raising and attempting to answer his famous 'What is it?' question (*Metaphysics* 1078b22ff.). In many of Plato's dialogues, Socrates asks such questions as 'What is virtue?', 'What is knowledge?', 'What is justice?' and hunts, often unsuccessfully, for an adequate answer. Aristotle, in the *Topics* , *Analytics* , and *Metaphysics* , devoted considerable time and effort to determining what counts as a good definition. Later philosophers pursued these issues further, developing their own accounts of the nature and role of definition. The topic remained, from Socrates onwards, an important concern in Greek philosophy." (p. 1)

32. Corcoran, John. 1972. "Conceptual Structure of Classical Logic." *Philosophy and Phenomenological Research* no. 33:25-47.

"Among other things logic is concerned with the correctness of arguments. An examination of the kinds of things pronounced correct and incorrect in logic reveals two distinct kinds of arguments, each with its own characteristic kind of correctness. Indeed, each kind of correctness is so distinctively related to its

corresponding kind of argument that nonsense generally results from predicating one kind of correctness (and/or incorrectness) of the other kind of argument.

Indeed, it appears that the set of arguments of one sort is the range of applicability of the corresponding kind of correctness. Similarly for the other."

(...)

"One purpose of this paper is to discuss the two kinds of argument(2) so that it will be clear how consideration of the kinds of "correctness" appropriate to each leads to distinct logical problems and to distinct philosophical problems. The problem, in logic, of determining the conditions under which the truth of a set of sentences "guarantees" the truth of another sentence contrasts with the problem of deter- mining "norms of correct reasoning." In philosophy, questions con- cerning the nature of the relationship which obtains between a set of sentences and each of its consequences are to be contrasted with questions concerning the nature of deductive reasoning." (pp. 25-26)

(2) This phrase is not intended to suggest one overarching genus "argument" subsuming two species.

33. ———, ed. 1974. *Ancient Logic and its Modern Interpretations* . Dordrecht: Reidel.

Proceedings of the Buffalo Symposium on Modernist Interpretations of Ancient Logic, 21 and 22 April, 1972.

Contents: John Corcoran: Preface IX; Part One: Ancient semantics; Norman Kretzmann: Aristotle on spoken sound significant by convention 3; Ronald Zirin: Inarticulate noises 23; Newton Garver: Notes for a linguistic reading of the *Categories* 27; Part Two: Modern research in ancient logic; Ian Mueller: Greek mathematics and Greek logic 35; John Mulhern: Modern notations and ancient logic 71; Part Three: Aristotle's logic; John Corcoran: Aristotle's natural deduction system 85; Mary Mulhern: Corcoran on Aristotle's logical theory 133; Part Four: Stoic logic; Josiah Gould: Deduction in Stoic logic 151; John Corcoran: Remarks on Stoic deduction

169; Part Five: Final session of the Symposium; John Corcoran: Future research on ancient theories of communication and reasoning 185; A panel discussion on future research in ancient logical theory 189; Index of names 209-211.

"During the last half century there has been revolutionary progress in logic and in logic-related areas such as linguistics. Historical knowledge of the origins of these subjects has also increased significantly. Thus, it would seem that the problem of determining the extent to which ancient logical and linguistic theories admit of accurate interpretation in modern terms is now ripe for investigation.

The purpose of the symposium was to gather logicians, philosophers, linguists, mathematicians and philologists to present research results bearing on the above problem with emphasis on logic. Presentations and discussions at the symposium focused themselves into five areas : ancient semantics, modern research in ancient logic, Aristotle's logic, Stoic logic, and directions for future research in ancient logic and logic-related areas.

Seven of the papers which appear below were originally presented at the symposium. In every case, discussion at the symposium led to revisions, in some cases to extensive revisions. The editor suggested still further revisions, but in every case the author was the final judge of the work that appears under his name.

In addition to the seven presented papers, there are four other items included here. Two of them are papers which originated in discussions following presentations. Zirin's contribution is based on comments he made following Kretzmann's presentation. My 'Remarks on Stoic Deduction' is based on the discussion which followed Gould's paper. A third item contains remarks that I prepared in advance and read at the opening of the panel discussion which was held at the end of the symposium. The panel discussion was tape-recorded and the transcript proved of sufficient quality to merit inclusion in these proceedings with a minimum of editing." (From the *Preface*)

34. ———. 2006. "Schemata: The Concept of Schema in the History of Logic." *Bulletin of Symbolic Logic* no. 12:219-240.

Abstract: "Schemata have played important roles in logic since Aristotle's *Prior Analytics* . The syllogistic figures and moods can be taken to be argument schemata as can the rules of the Stoic propositional logic. Sentence schemata have been used in axiomatizations of logic only since the landmark 1927 von Neumann paper [31]. Modern philosophers know the role of schemata in explications of the semantic conception of truth through Tarski's 1933 Convention T [42]. Mathematical logicians recognize the role of schemata in first-order number theory where Peano's second-order Induction Axiom is approximated by Herbrand's Induction-Axiom Schema [23]. Similarly, in first-order set theory, Zermelo's second-order Separation Axiom is approximated by Fraenkel's first-order Separation Schema [17]. In some of several closely related senses, a schema is a complex system having multiple components one of which is a *template-text* or *scheme-template* , a syntactic string composed of one or more "blanks" and also possibly significant words and/or symbols. In accordance with a *side condition* the template-text of a schema is used as a "template" to specify a multitude, often infinite, of linguistic expressions such as phrases, sentences, or argument-texts, called *instances* of the schema. The side condition is a second component. The collection of instances may but need not be regarded as a third component. The instances are almost always considered to come from a previously identified language (whether formal or natural), which is often considered to be another component. This article reviews the often-conflicting uses of the expressions 'schema' and 'scheme' in the literature of logic. It discusses the different definitions presupposed by those uses. And it examines the ontological and epistemic presuppositions circumvented or mooted by the use of schemata, as well as the ontological and epistemic presuppositions engendered by their use. In short, this paper is an introduction to the history and philosophy of schemata."

[17] Abraham Fraenkel - *Part I. Historical introduction* - to Paul Bernays - *Axiomatic set theory* (1958) - Reprint Dover

1991 pp. 3-35.

[23] Jacques Herbrand, *Logical Writings* , (W. Goldfarb, Tr. Goldfarb, and van J. Heijenoort, editors), Harvard University Press, Cambridge, MA, 1971.

[31] Johann von Neumann, *Zur Hilbertschen Beweistheorie* , *Mathematische Zeitschrift* , vol. 26 (1927), pp. 1-46.

[42] Adam Tarski, *The concept of truth in the languages of the deductive sciences* , *Prace Towarzystwa Naukowego Warszawskiego, Wydzial III Nauk Matematyczno-Fizycznych* , vol. 34 (1933), reprinted in [50], pp. 13-172; expanded English translation in [48], pp. 152-278.

[48] Adam Tarski, *Logic, Semantics, Metamathematics, papers from 1923 to 1938* , 2nd ed., Hackett, Indianapolis, 1983, edited with introduction and analytic index by J. Corcoran (first edition 1956).

[50] Jan Zygmunt (editor), *Alfred Tarski, Pisma Logiczno-Filozoficzne, 1 Prawda* , Wydawnictwo Naukowe PWN, Warsaw, 1995.

35. Crivelli, Paolo. 2018. "Dialectic in the Early Peripatos." In *Dialectic after Plato and Aristotle* , edited by Bénatouil, Thomas and Ierodiakonou, Katerina, 47-81. Cambridge: Cambridge University Press.

"Before plunging into the examination of the early Peripatetics' views about dialectic, a methodological issue must be addressed. It concerns the noun 'dialectic'. This noun has been and is used differently by different authors, in antiquity as well as in modern times.

(...)

In consideration of these different uses, one wonders precisely what task one is setting up for oneself when one refers to the subject of one's inquiry as 'the early Peripatetics' views about dialectic'.

There are several reasonable answers to this question. According to the one adopted in this chapter, the subject

referred to as ‘the early Peripatetics’ views about dialectic’ is that of the early Peripatetics’ views about the discipline that they themselves called ‘dialectic’. This project, however, also faces a difficulty because there are regrettably few occurrences of the noun ‘dialectic’ or cognate expressions in the fragments of Aristotle’s immediate followers. A plausible solution to this further problem is to assume that the early Peripatetics’ use of ‘dialectic’ is roughly the same as Aristotle’s, namely that they employed ‘dialectic’ to denote an art of arguing on the basis of reputable views, an art codified mainly in the *Topics,* (1) the work to which Aristotle himself refers as ‘the treatise concerning dialectic’.(2) My own use of the noun ‘dialectic’ in this study will be in line with this assumption: I shall use ‘dialectic’ to denote the art of arguing on the basis of reputable views codified mainly in Aristotle’s *Topics* . My aim is to reconstruct and evaluate the early Peripatetics’ views about this discipline.

The available data enable us to reconstruct a substantial amount of the theses concerning dialectic put forward by Theophrastus and a small number of the views of Eudemus and Strato. Accordingly, the first of this chapter’s sections (section 1) will be concerned with Theophrastus, while the second and the third shorter ones (sections 2 and 3) will be dedicated, respectively, to Eudemus and Strato." (pp. 47-48)

(1) Some corroboration of this hypothesis will be offered in the subsections to notes 77 and 79.

(2) *APr* 1.30.46a29-30, cf. *Rhet*. 2.22.1396b26, 24-1401a2.

36. Dumitriu, Anton. 1977. *History of Logic: Volume I* . Tunbridge Wells: Abacus Press.

Revised, updated, and enlarged translation from the Roumanian of the second edition of "*Istoria logicii* ".

Contents: Foreword IX; Historical note on works on the history of logic XIII-XVI;

Part I: Logic in Non-European Cultures

Chapter I. The logical structure of primitive mentality 3; Chapter II. Logic in ancient China 12; Chapter III. Indian logic 39;

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"The potential author of a history of logic should not depend on any preconceived point of view. The formalistic option, for example, requires logic to be treated in a purely symbolic way, as a logical syntax of meaningless signs; obviously the historian who adopts such a view, hoping to achieve an absolute objectivity by eliminating any philosophical hypothesis, will be bound by it.

Such a logic is a logic without any philosophical content, and surely its history will have to adopt the same line. But is it possible to deal with logic without having any philosophical point of view? It is evident that such an intention is not realistic, and even in the formalistic point of view a certain philosophy is understood. Aristotle's statement "he who philosophizes, philosophizes, and he who does not philosophize, philosophizes too, so everybody philosophizes" is very significant.

A history of logic based on such a view would have to leave out of the list of logicians names like Thomas Aquinas, Kant, Hegel, Husserl, and many others. Is it possible to explain the development of logic without commenting on thinkers of great influence, who actually moulded the whole frame of human

thought in their time? Obviously such a point of view is inadmissible.

A history of logic without philosophical references leads to very important consequences, to wide mutations and alterations of the very concept of logic and philosophy. After two and a half millennia, logic is taken from philosophy, and belongs henceforth to another domain, that of mathematics. In this way, logic has escaped from the jurisdiction of philosophy, but philosophy has remained independent of logic. In the past logic was, on the contrary, closely connected to philosophy, whether it was conceived as a part of philosophy, or an introduction to it, or as an organon, or even as the philosophy itself." (*Foreword,* pp. IX-X)

37. Everson, Stephen, ed. 1994. *Language* . Cambridge: Cambridge University Press.

Contents: 1 Introduction 1; 2 V: Plato on understanding language 10; 3 Bernard Williams: Cratylus' theory of names and its refutation 28; David Charles: Aristotle on names and their signification 37; Stephen Everson: Epicurus on mind and language 74; Michael Frede: The Stoic notion of a lekton 109; David K. Glidden,: Parrots, Pyrrhonists and native speakers 129; David Blank: Analogy, anomaly and Apollonius Dyscolus 149; R. J. Hankinson: Usage and abusage: Galen on language 166; Christopher Kirwan: Augustine on the nature of speech 188; Lesley Brown: The verb 'to be' in Greek philosophy: some remarks 212; Bibliography 237; Index of names 264; Index of passages discussed 269; Index of subjects 277-280.

"Ancient philosophers, then, like their modern successors, were concerned to answer various sorts of question in their study of language. At the most basic level, they attempted to provide an analysis of the structure of language - to distinguish between subjects and predicates, nouns and sentences, and so on28 - and to clarify the meaning of individual expres¬ sions. Secondly, they set out to give accounts of how it is that sounds and marks can be meaningful. Thirdly, they dealt with the question of how a speaker can come to understand a language. In answering all of these, the study of language could not be

dissociated from questions to do with the nature of the mind and the world. Even if the ancients did not share the presuppositions of the contemporary analytical philosopher, neither their interests in the explanation of language nor their methods of general philosophical enquiry will prove alien to those brought up to take those presuppositions almost for granted." (*Introduction* , p. 9)

28 David Blank, in ch. 8, describes the relation between philosophy and grammar in the Hellenistic period.

38. Fink, Jakob L., ed. 2012. *The Development of Dialectic from Plato to Aristotle* . Cambridge: Cambridge University Press.

Contents: List of contributors VII; Jakob L. Fink: Introduction 1;

Part I. dialectic as interpersonal activity

1. Luca Castagnoli: Self-refutation and dialectic in Plato and Aristotle 27; 2. Marja Liisa Kakkuri Knuuttila: The role of the respondent in Plato and Aristotle 62; 3. Hallvard Fossheim: Division as a method in Plato 91;

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4. Morten S. Thaning: Dialectic and dialogue in the *Lysis* 115; 5. Holger Thesleff: The *Laches* and 'joint search dialectic' 138; 6. Charles H. Kahn: The philosophical importance of the dialogue form for Plato 158; 7. Jakob L. Fink: How did Aristotle read a Platonic dialogue? 174;

Part III. Dialectical methodology

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"Concerning dialectic, Plato and Aristotle might be thought to stand on each side of a very wide gap. To Plato, dialectic is the best means available to philosophy for reaching truth, whereas Aristotle seems to grant dialectic little more than the function of testing propositions and thus denies a direct access to philosophical insight through dialectic. However, even if this were an adequate description of Platonic and Aristotelian dialectic (and it hardly is), one question would remain: what happened in between, or in other words, how did the concept of dialectic develop from Plato to Aristotle? The present volume aims at giving some answers to this question." (p. 1)

Digital Quadrivium Project



History of Logic

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Bibliography of Ancient Logic in the Hellenistic Period

Selected bibliography on Hellenistic logic

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1. Gabbay, Dov, and Woods, John, eds. 2004. *Greek, Indian and Arabic Logic* . Amsterdam: Elsevier.

   Handbook of the History of Logic : vol. 1.

   Contents: Dov Gabbay and John Woods: Preface VII; List of contributors IX; Julius Moravcsik: Logic Before Aristotle: Development or Birth? 1; John Woods and Andrew Irvine: Aristotle's Early Logic 27; George Boger: Aristotle's Underlying Logic 101; Fred Johnson: Aristotle's Modal Syllogism 247; Jonardon Ganeri: Indian Logic 309; Robert R. O'Toole and Raymond E. Jennings: The Megarians and the Stoics 397; Tony Street: Arabic Logic 523; Charles Burnett: The Translation of Arabic Works on Logic into Latin in the Middle Ages and Renaissance 597; Index 607-628.

   "With the present volume, the *Handbook of the History of Logic* makes its first appearance.

   Members of the research communities in logic, history of logic and philosophy of logic, as well as those in kindred areas such as computer science, artificial intelligence, cognitive psychology, argumentation theory and history of ideas, have long felt the lack of a large and comprehensive history of logic. They have been well-served since the early sixties by William

and Martha Kneale's single volume *The Development of Logic* , published by Oxford University Press. But what such a work cannot hope to do, and does not try to do, is provide the depth and detail, as well as the interpretive coverage, that a multi-volume approach makes possible. This is the driving impetus of the Handbook, currently projected to run to several large volumes, which the publisher will issue when ready, rather than in strict chronological order.

(,,,)

As with the present volume, the *Handbook* 's authors have been chosen for their capacity to write authoritative and very substantial chapters on their assigned topics; and they have been given the freedom to develop their own interpretations of things. In a number of cases, chapters are the equivalents of small monographs, and thus offer researchers and other interested readers advantages that only a multi-volume treatment can sustain." (*Preface,* , p. VII)

2. Graeser, Andreas. 1977. "On Language, Thought, and Reality in Ancient Greek Philosophy." *Dialectica* no. 31:359-388.

   Reprinted in A. Graeser, *Issues in the Philosophy of Language Past and Present: Selected Papers,* Bern: Peter Lang, 1999, pp. 9-41.

   Summary: "The common ground out of which the problem of "Language versus Reality" was to arise in ancient Greek philosophy may be characterized by the fact that words in general were thought of as names and thus considered to get their meaning accordingly.

   However, while Parmenides was actually committing himself to the position that language was altogether meaningless, Heraclitus seems to have believed that name and meaning are unrelated or even opposite to each other. Plato's *Forms* are clearly meant to serve as objects of linguistic meaning and reference. Aristotle retained the fundamentally realist theory of meaning which he inheritated from Plato and thus became liable to the criticism advanced by the Stoics, who insisted that

there is no isomorphic correlation between thought on the one hand and things-that-are on the other."

3. Hadgopoulos, Demetrius J. 1979. "The Principle of the Division into Four Figures in Traditional Logic." *Notre Dame Journal of Formal Logic* no. 20:92-94.

   "The purpose of this note is to show that the traditional account of the division of syllogisms into four figures confuses two different principles which can be used to that purpose, and which give different results. Thus, it is either mistaken or redundant. According to the traditional account of Aristotle's syllogistic, syllogisms are divided into four figures according to the position of the middle term in the premisses." (p. 92)

   (...)

   "But it is not really the position of the middle term that gives us four figures. For the above account makes reference to the major and minor premiss. Since the major premiss, according to the traditional account of the syllogism, is that which contains the major term, and the minor premiss is that which contains the minor term, the principle of the distinction of syllogism into four figures presupposes the distinction between major term and minor term.

   But if we already have this distinction, then it is not true to say that the distinction into four figures is due to the position of the middle term in the premisses, but we must say that the distinction is due to the position of the middle term in the premisses which have already been differentiated into major and minor. But if this (the differentiation) is taken into account, then reference to the position of the middle term is no longer necessary. For we can get four figures by distinguishing between major term and minor term only." (p. 93)

4. Hankinson, Robert James. 2007. " Self-refutation and the "sorites"." In *Maieusis. Essays on Ancient Philosophy in Honour of Myles Burnyeat* , edited by Scott, Dominic, 351-373. New York: Oxford University Press.

   "More than twenty years ago, Myles Burnyeat (1982) published an important article on the sorites;(3) a few years earlier he had

written two ground-breaking pieces on Protagorean self-refutation.(4) So, if nothing else, at least the title of this article is an appropriate one for something written in honour of and out of admiration for my former graduate supervisor.

My aim is relatively modest. I do not seek to discern a generalized ancient 'solution' to the 'paradox',(5) or to offer one in my own voice (although I will make one or two tentative suggestions). My main purpose is to take seriously a passing hint of Cicero's, one which has generally been either ignored or treated simply as a joke,(6) that the sorites may be applied to itself, or to the more general notion of coherent argument, with potentially devastating results. I say 'potentially devastating', since it is unclear whether the threatened disaster must occur, and if it does, which of the opposing sides in the dispute it is potentially disastrous for. As such, the debate as I shall reconstruct it mirrors that between Sceptics and Dogmatists as to the question of whether sceptical arguments against argument are self-refuting, and if so, what the appropriate upshot of that ought to be.(7)" (pp. 351-352)

(3) 'Gods and Heaps'.

(4) 'Protagoras and Self-Refutation in Later Greek Philosophy' (1976a); 'Protagoras and Self-Refutation in Plato' (1976b).

(5) 'Paradox' in scare-quotes since the puzzle does not have the logical form of a true paradox: viz. of a sentence that is true if and only if it is false (rather, it has the form of an apparently sound argument with an apparently false conclusion: of course that's bad enough); 'solution' similarly flagged because I am doubtful whether the puzzle—or puzzles—as such can yield to a single authoritative diagnosis. But these issues are largely irrelevant to the concerns of the present paper.

(6) A partial exception to this general neglect is Myles himself (Burnyeat 1982: 327 n. 33). It was thinking about this footnote (and that of Barnes (1982: 57 n. 60)) that first started me down the road followed by this paper more than twenty years ago.

(7) See Sext. *Pyr* . 2. 185–92; *Math* . 8. 465–80; and see McPherran 1987.

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Barnes, J. (1982), ‘Medicine, Experience and Logic’, in Barnes et al. (1982), 24–68.

Barnes, J. Brunschwig, J., Burnyeat, M. F., and Schofield, M. (1982) (eds.), Science and Speculation: Studies in Hellenistic Theory and Practice. Cambridge.

Burnyeat, M. F. (1976a), Protagoras and Self-Refutation in Later Greek Philosophy’, *Philosophical Review* , 85: 44–69.

(1976b), ‘Protagoras and Self-Refutation in Plato’s Theaetetus’, *Philosophical Review* , 85: 172–95; repr. in Everson (1990), 39–59.

(1982), ‘Gods and Heaps’, in Schofield and Nussbaum (1982), 315–38.

Everson, S. (1990) (ed.), *Epistemology, Companions to Ancient Thought, I*. Cambridge.

McPherran, M. L. (1987), ‘Skeptical Homeopathy and Self-Refutation’, *Phronesis* , 32: 290–328.

5. Henle, Paul. 1949. "On the Fourth Figure of the Syllogism." *Philosophy of Science* no. 16:94-104.

"Perhaps the strangest controversy in the history of logic is that over the fourth figure of the syllogism. There was never any argument as to what syllogisms are valid, but merely as to how they should be arranged. Aristotle had divided syllogisms into figures according to whether the middle term was subject of one premiss and predicate of the other, or predicate of both premisses, or subject of both.(1) Theophrastus and Eudemus subdivided the first figure into those moods in which the middle term was subject of the major premiss (and predicate of the minor) and those moods in which the middle was predicate of the major premiss (and subject of the minor).(2) The latter moods were termed indirect. Galen said they constituted a separate figure;(3) and so the controversy started.

(...)

Galen received a somewhat different technical problem and his division represents the best solution to his problem. In neither case is there any interest in tracing the course of thought. The question as to what forms of reasoning are most natural is, to be sure, a genuine problem, but this is a psychological rather than a logical problem and one which-if I am right-did not concern the founder of logic in working out his theory of the syllogism." (p. 94)

(1) *Anal. Pr* . I, 25b 35, 26b 36, 28a 12.

(2) Prantl. C, *Geschichte der Logik im Abendlande I* , 365. The principal source is Alexander of Aphrodisias *ad. An. pr*. f. 27b, 42b.

(3) Prantl. *Op. Cit* . I, 570-74.

6. Huby, Pamela M. 2004. "Elementary Logic in the Ancient World." *Bulletin of the Institute of Classical Studies* no. 47:119-128.

   Abstract: "In the ancient world most educated people, including medical men and lawyers, studied some elementary logic. The formal study began in Plato's Academy, and can be traced through to Boethius, and so into the Middle Ages. Many works seem to have been

   written to be memorized by students. Evidence comes, among others, from Aristotle, Apuleius, and Galen, and from a variety of anonymous sources, including some papyri. The views of the Peripatetics and the Stoics, originally different, coalesced, and later handbooks

   covered both at an elementary level. The origin of the concept of a syllogistic mood is obscure: it may have existed for some time before appearing first in Apuleius."

7. Hurst, Martha. 1935. "Implication in the Fourth Century B.C." *Mind* no. 44:484-495.

   "Modern analyses of the nature of necessary connection have given rise to more paradoxes than they have solved. A familiarity with the controversy between Diodorus and Philo which took place in the Fourth Century B.C. might perhaps

have made unnecessary the anguish which modern logicians have suffered. (1)

The dispute is mentioned in passing by Cicero (2) and is discussed in two places by Sextus Empiricus (3). The persons concerned in the dispute are named Diodorus and Philo, and are, I think, to be identified as the Megarians, Diodorus Cronus and his pupil Philo." (p. 484)

(1) My attention was first called to this dispute by a notice in C. S. Peirce, *Collected Papers* 3, 441. In being aware of this dispute Peirce is an exception among modern logicians. But he failed to grasp its full significance; so that his knowledge did not save him from the mistakes which they have made.

(2) *Academica Priora* , II, 143.

(3) *Pyrrhoneion Hypotyposeon* II, 110, *Adversus Mathematicos* VIII, 113 ff.

8. Kapp, Ernst. 1942. *Greek Foundations of Traditional Logic* . New York: Columbia University Press.

Contents: Preface V-VIII; I. The origin of logic as a science 5; II. Concepts, terms, definitions, ideas, categories 20; III. Judgments, subject and predicate 43; IV. Syllogisms 60; V. Induction: ancient and modern logic 75; Books cited 89; Index 91-95.

"We are concerned with the origin of the science of logic, and I think we have seen that the contents of the first systematic work on the subject have a claim to be considered first not merely for chronological reasons. Perhaps Aristotle was not so wrong in quoting a Greek saying equivalent to "the first start is the main part," although one may have one's doubts with regard to the amount of gratitude we owe him for this start. In any case the start itself demands a historical explanation, for the existence of such a game of mental gymnastics as we had to accept in order to understand the first textbook of logic, the *Topics* , seems even more puzzling than certain features of the developed Aristotelian logic in the *Analytics* .

There can be no doubt that in Aristotle's school such a mental game was taken rather seriously. Otherwise Aristotle would not have spent so much time and hard work in preparing the *Topics* as the book shows he must have spent and as according to his own testimony he did spend. We feel puzzled and perhaps a little embarrassed, for Aristotle's sake; but the explanation of the phenomenon is not so difficult as it might seem. The only thing needed is to recall a few well-known facts of the history of science and philosophy in Greece." (pp. 16-17)

9. Kneale, William, and Kneale, Martha. 1962. *The Development of Logic* . Oxford: Clarendon Press.

   Reprinted 1975 with corrections.

   "As its name indicates, this book is an account of the growth of logic, rather than an attempt to chronicle all that past scholars, good and bad, have said about the science. For the sake of continuity, and in order to give historical perspective to our story, my wife and I have included some references to work which does not deserve to be remembered for its own sake; and occasionally we have allowed ourselves to indulge an antiquarian curiosity, when we thought that the result might be of some interest to others. But our primary purpose has been to record the first appearances of those ideas which seem to us most important in

   the logic of our own day. Such a programme is based on judgements of value, and we rnlize that our selection of material and still more our comments, especially in the later chapters, may seem eccentric to some readers. In defence of our undertaking we can only say that we have followed the plan which our interests suggested, and that we could not have written in any other way." (*Preface,* , p. V)

10. ———. 1972. "Prosleptic propositions and arguments." In *Islamic Philosophy and the Classical Tradition. Essays Presented by His Friends and Pupils to Richard Walzer on His Seventieth Birthday* , edited by Stern, S.M., Hourani, Albert and Brown, Vivian, 189-207. London: Bruno Cassirer.

"In some ancient writers on logic we find mention of propositions and syllogisms κατὰ πρὸσληφιν. We shall attempt in this paper to determine the nature and logical relations of these propositions and arguments, which we call for brevity prosleptic. It will be convenient first to set out the evidence, which is rather tantalizingly exiguous. The quoted passages are numbered for ease of reference. In probable order of date and authoritythey are as follows."

(...)

"Although these sources are meagre, it is not difficult to discern the main outlines of the doctrine to which they refer. Either Aristotle or his pupil Theophrastus—and probably it was Theophrastus, since he gets the credit in passages 3 and 4 above—invented the description κατὰ πρὸσληφιν for arguments of such forms as “Whatever x-ness may be, if every x thing is α , then every x thing is β ; but every β ; thing is x ; therefore every y thing is B.” The description was intended to draw attention to the fact that these arguments proceed by specification of what was at first left indeterminate.

In modern terminology they are arguments by substitution and detachment, where the variable for which we make substitution is general rather than individual. Since, however, the pattern of each such argument is fully determined by the nature of its leading premiss, this also is called prosleptic by a very natural extension of usage and assigned to the same figure as its argument.

In working out their account of the various figures of prosleptic argument the Peripatetics seem to have been influenced by a misleading analogy with the theory of the categorical syllogism which was the pride of their school. Assuming wrongly that the indeterminate term of the leading premiss (i.e. What we now call the term-variable) was to be compared with the middle term of a categorical syllogism, they assigned to the first figure those prosleptic premisses in which the indeterminate term occurred as predicate of the antecedent clause and subject of the consequent clause (e.g. “Whatever x -ness may be, if every β thing is x , then every x thing is β "), to the second figure those

in which the indeterminate term occurred as predicate of both clauses, and to the third figure those in which it occurred as subject in both clauses. This classification is explained by the anonymous scholiast in quotation 4 above and again by members of the school of Ammonius in passages 6, 7, and 8. Some gratuitous puzzles into which it led them are indicated in passage 7. In the quotation 9 (i) there is to be found a prosleptic proposition which might be assigned on the same principles to a fourth figure in which the indeterminate term occurs as subject of the first clause and predicate of the second. But apparently the Peripatetics recognized no such figure, and on this point at least they were not misled by their analogy between prosleptic arguments and categorical syllogisms. For just as any fourth figure syllogism can be presented as an indirect mood of the first figure, so any fourth figure prosleptic argument can be reduced to the first figure by contraposition. From "Whatever *x* -ness may be, if every *x* thing is *α* , then every *β* thing is *x* ' we can easily derive Whatever *x* -ness may be, if some *β* thing is not *x* , then some *x* thing is not *β* , and *vice versa* . Such transformations involve use of categorical forms other than the universal affirmative in the two clauses of a prosleptic premiss, but it is clear from the various quotations listed above under 9 that this possibility was recognized

by the Peripatetics."

11. Knuuttila, Simo. 2012. "A History of Modalities." In *Logic: A History of Its Central Concepts* , edited by Gabbay, Dov M., Pelletier, Francis Jeffrey and Woods, John, 309-339. Amsterdam: North-Holland.

    Volume 11 of the *Handbok of te History of Logic* .

    "My aim is to shed light on long-lived assumptions in Western modal conceptions as well as some clashes between them. In the first section, I shall deal with those trends in ancient and medieval modal thought which were inclined to codify the meaning of modal notions in frequency terms. The second section concentrates on the emergence of a different paradigm in which the analysis of necessity and possibility is separated from a one world model, and which considerably modified late

medieval modal logic. The third section is about the interplay of these traditionsin the early modern period and their influence up to the nineteenth century." (p. 309)

12. Lloyd, Antony C. 1955. "Neoplatonic Logic and Aristotelian Logic: I." *Phronesis.A Journal for Ancient Philosophy* :58-72.

    "It is well known that *Ennead* VI contains an onslaught by Plotinus on Aristotle's *Categories* , but that his pupil, Porphyry, established both the Categories and Predicables as part of the Neoplatonic and eventually the Scholastic philosophical curriculum. So far as this situation has been studied, it has been for the most part from the standpoint of its extemal history. Philology has traced many of Plotinus's criticisms to the commentaries of the Middle Academy, and many of Porphyry's expressions to Stoic logicians; historical enquiry has found motives in the social position of the Schools for the Neoplatonic acceptance of Aristotle's logic. This valuable work, however, tends at best to ignore the philosophical understanding of both the criticism and the reinstatement of Aristotle, and at worst to give an erroneous account of the place of Neoplatonism in the history of logic. First, the criticism is of intrinsic philosophical interest, because it aims to shew that 'inseparable' universals, and the whole theory of genus and species, are unable to do the task required of them. Secondly, the logic which Porphyry and his successors reinstate resembles that of the Stoics in being stripped of certain metaphysical implications. The reason for this is not corruption of Platonism by the Stoa, but the inevitable effect of wanting Aristotle the elementary logician without Aristotle the metaphysician.

    And the result is that a good deal of credit has gone to the Stoics which was due to the Neoplatonists. Useful as it is, Prantl's work needs rewriting." (p. 58)

13. ———. 1955. "Neoplatonic Logic and Aristotelian Logic: II." *Phronesis.A Journal for Ancient Philosophy* :146-160.

    "Plotinus's criticism of definition by genus and differentia committed him to providing, by means of his new δύναμις-concept, an alternative version of the genus-species relation. In Ennead VI 2, 9 the aporia is raised, How do the five genera of

Being make species? Characteristically he answers it in terms of Nous. (This prevents us from having a direct description of the structure of the Ideas, which are the species of the genera severally, not of the totality of these, which is Nous.) Later he will have to qualify his answer by describing the genus and species as a prior and a posterior Nous and pointing out the dependence of both on a higher hypostasis. This addition is of great importance to Neoplatonic logic, because it includes the notion of a 'giver of form' that splits the generic cause into two, and because (contrary to common belief) it already displays substantially the schematism to be used in the Athenian School. I now proceed to summarise the logic of Enn. VI 2, 20, of which the Greek text, divided into sections, has been printed as an Appendix (infra, p. 160)." (pp. 147-148)

14. Lloyd, Anthony C. 2006. " Definite Propositions and the Concept of Reference." In *Les Stoïciens et leur logique* , edited by Brunschwig, Jacques, 223-234. Paris: Vrin.

"The Stoic position about the reference of tenses and names reflects their metaphysics. For it depends, as I have said, on the interpretation or pre-systematic assumptions of their logic. In this logic, if I am right about its interpretation, every expression which is read as a verb, including the existence sign, but barring of course an initial tense operator if there is one, is in the present tense. But did not grammarians say that the Stoics recognised only two tenses, past and future(27)? Yes, but so far from this being inconsistent with such a logic it is implied by it. Where everything is present, nothing is *present* , as the night in which all cats are grey, Columns C and D are both ways of translating column A. But their interpretation (or pre-systematic assumptions) is their metaphysics; and in Stoics metaphysics neither past nor future are real(28). Tenses belong to a logic, a *lekton* n, which is superimposed on the material reality. One might truthlully combine the grammarian’s with the metaphysician’s view of the logic by saying that the Stoics recognised only two tenses because they reognised only one time." (p. 231)

(27) See *Scholia in Dionys. Thrac. Artem gramm .*, 248-251 Hilgard.

(28) Cp. SVF II, 509,518 ;V. Goldschmidt, *Le système stoïcien et L'idée de temps* , 2e éd., Paris, 1969, § 18, 83-87; A. C. Lloyd, *Proc. Brit. Acad* ., 56,1970, p. 232-240.

15. Longo, Angela. 2009. "The Principle of Contradiction: an Ancient Interpretation (Syrianus, AD Vth cent.) and a Modern Interpretation (J. Lukasiewicz, 1878-1956): a Comparison." In *Syrianus et la métaphysique de l'Antiquité tardive* , edited by Longo, Angela, 383-397. Napoli: Bibliopolis.

"Introduction

In this paper, I will draw a comparison between an ancient and a contemporary interpretation of the Principle of Contradiction, as formulated by Aristotle in his *Metaphysics* . My aim here is not to discuss the Aristotelian text(1), neither is it to criticize Lukasiewicz' interpretation. Rather, it is to do something new, namely, (a) to present Syrianus' interpretation of the Aristotelian Principle of Contradiction, and (b) to compare this original, but usually ignored, interpretation with that of Lukasiewicz. This is worth doing because, while Syrianus speaks of several principles of contradiction in his commentary on Aristotle's *Metaphysics* , the Polish scholar also seems to do the same; at the very least, the latter uses three formulations of such a principle(2)." (p. 383)

(1) I have previously produced a detailed analysis of the very varied way in which both Aristotle, in his *Metaphysics* Γ, and Syrianus, in his commentary on this work, express the Principle of Contradiction (cfr. A.

Longo, *Siriano e i principi delta scienza* . Prefazione di J. Barnes, Napoli 2005, cap. III, pp. 83-140).

(2) It is not always clear whether Lukasiewicz intended to speak of three substantially different Principles of Contradiction, or only of three different formulations of the same principle. Arianna Betti has been so kind as to verify for me that this ambiguity is indeed present in the original Polish. In any case, I will proceed on the minimal assumption that Lukasiewicz worked with three formulations of a single principle, since this,

at any rate is certain, and also because this position is much less exposed to criticism.

16. Lukasiewicz, Jan. 1967. "On the History of the Logic of Propositions." In *Polish Logic 1920-1939* , edited by McCall, Storrs, 66-87. Oxford: Oxford University Press.

    Originally published in Polish as *Z historii logiki zdan* , Przeglad Filozoficzny, 37, 1934; translated by the author in German as: *Zur Geschichte der Aussagenlogik* , Erkenntnis, 5, 1935, pp. 111-131.

    Translated in English in: Storrs McCall (ed.), *Polish Logic 1920-1939,* Oxford: Clarendon Press, 1967 pp. 66-87 and also in: J. Lukasiewicz, *Selected Works,* Ludwik Borowski (ed.), Amsterdam: North-Holland, 1970 pp. 197-217.

    "This fundamental difference between the logic of propositions and the logic of terms was unknown to any of the older historians of logic.

    It explains why there has been, up to the present day, no history of the logic of propositions, and, consequently, no correct picture of the history of formal logic as a whole. Indispensable as Prantl's(3) work is,

    even today, as a collection of sources and material, it has scarcely any value as an historical presentation of logical problems and theories.

    The history of logic must be written anew, and by an historian who has fully mastered mathematical logic. I shall in this short paper touch upon only three main points in the history of propositional logic.

    Firstly I wish to show that the Stoic dialectic, in contrast to the Aristotelian syllogistic, is the ancient form of propositional logic; and, accordingly, that the hitherto wholly misunderstood and wrongly judged accomplishments of the Stoics should be restored their due honour. Secondly I shall try to show, by means of several examples, that the Stoic propositional logic lived on and was further developed in medieval· times, particularly in the theory of "consequence". Thirdly I think it

important to establish something that does not seem to be commonly known even in Germany, namely that the founder of *modern* propositional logic is Gottlob Frege." (Lukasiewicz, *Selected Works,* , p. 198)

(3) 3) K. Prantl, *Geschichte der Logik im Abendlande,* vols. i-iv, Leipzig, 1855-1870; vol. ii, 2nd edition, Leipzig, 1885.

17. ———. 1967. "Philosophical Remarks on Many-Valued Systems of Propositional Logic." In *Polish Logic 1920-1939* , edited by McCall, Storrs, 40-65. Oxford: Oxford University Press.

Originally published in German as: *Philosophische Bemerkungen zu mehrwertighen Systemen des Aussagenkalküls* , Comptes rendus des séances de la Société des Sciences et des Lettres de Varsovie 23, 1930.

Translated in English in: Storrs McCall (ed.), *Polish Logic 1920-1939* - Oxford, Clarendon Press, 1967 pp. 40-65 and also in: J. Lukasiewicz, *Selected Works,* Ludwik Borowski (ed.), Amsterdam: North-Holland, 1970 pp. 153-178.

"1. Modal propositions. -2. Theorems concerning modal propositions. -3. Consequences of the first two theorems concerning modal propositions. -4. Consequences of the third theorem on modal propositions. -5. Incompatibility of the theorems on modal propositions in the two-valued propositional calculus. -6. Modal propositions and the three-valued propositional calculus. -7. Definition of the concept of possibility. -8. Consequences of the definition of the concept of possibility. -9. Philosophical significance of many-valued systems of propositional logic.

Appendix . On -the history of the law of bivalence.

In the communication "Untersuchungen Uber den Aussagenkalkül" (Investigations into the Sentential Calculus) which appeared in this issue under Tarski's and my name, Section 3 is devoted to the "many-valued" systems of propositional logic established by myself. Referring the reader to this communication as far as logical questions are concerned, I here propose to clarify the origin and significance of those

systems from a philosophical point of view." (Lukasiewicz, *Selected Works,* p. 153)

(...)

"I have compiled thus many quotations on purpose, for, although they illuminate one of the most important problems of logic, it nevertheless appears that many of them were either unknown to the historians of logic, or at least not sufficiently appreciated. The reason for this is in my opinion that the history of logic has thus far been treated by philosophers with insufficient training in logic. The older authors cannot be blamed for this, as· a scientific logic has existed only for a few decades. *The history of logic must be written anew* , and by an historian who has a thorough command of modern mathematical logic. Valuable as Prantl's work is as a compilation of sources and materials, from a logical point of view it is practically worthless. To give only one illustration of this, Prantl, as well as all the later authors who have written about the logic of the Stoa, such as Zeller and Brochard, have entirely misunderstood this logic. For anybody familiar with mathematical logic it is self-evident *that the Stoic dialectic is the ancient form of modern propositional logic.*

Propositional logic, which contains only propositional variables, is as distinct from the Aristotelian syllogistic, which operates only with name variables, as arithmetic is from geometry. The Stoic dialectic is not a development or supplementation of Aristotelian logic, but an achievement of equal rank with that of Aristotle. In view of this it seems only fair to demand of an historian of logic that he know something about logic. Nowadays it does· not suffice to be merely a philosopher in order to voice one's opinion on logic." (Lukasiewicz, *Selected Works,* p. 178, a note omitted)

18. Maconi, Henry. 1985. "Late Greek Syllogistic." *Phronesis.A Journal for Ancient Philosophy* no. 30:92-98.

    Critical review of Tae-Soo Lee: *Die griechische Tradition der aristotelischen Syllogistik in der Spatantike* (Hypomnemata 79). Gottingen, Vandenhoeck & Ruprecht, 1984.

The history of logic in late antiquity has not been a favourite subject of scholarly inquiry. The texts are imagined to be long, dull, and repetitive: they are perhaps quarries for information about earlier logicians, but their own content is unoriginal and unexciting. Anyone who holds that view should read Tae-Soo Lee's monograph on *Die griechische Tradition der aristotelischen Syllogistik in der Spdtantike* . Late Greek syllogistic emerges from Lee's study as a subject well worth examination. Admittedly, it is not original in any strong sense. But it does offer numerous clarifications, developments, and modifications in Aristotle's doctrines, many of which are intelligent and some of which are remarkably subtle. Lee takes as his primary texts the three surviving commentaries on the *Prior Analytics* - the commentaries of Alexander, of Ammonius, of Philoponus." (p. 92)

(...)

"In the course of his discussion Lee incidentally sheds light on a number of obscure parts of the Aristotelian tradition. For example, he has an excellent account of the Greek idea of "form" in logic; he gives a lucid explanation of what is involved in the idea that logic is (only) an instrument or tool of philosophy; he is illuminating on the dark topic of ἀντιστροφή. He also has wise words to say about the nature of his own enterprise: "I think that the main task of an historian is not simply to exclaim: "Look here - they already knew such and such" (usually adding: "but somewhat imperfectly and not with complete clarity"). On the contrary, if an ancient author is worth our attention, that is not only because he already knew something which we too now know, but also - and more importantly - because his mode of thinking was different from ours" (p. 22)." (p. 93)

19. Martin, John N. 2004. *Themes in Neoplatonic and Aristotelian Logic: Order, Negation and Abstraction* . Aldershot: Ashgate.

    Contents: Preface VII; Introduction XI; 1. Aristotle's Natural Deduction Reconsidered 1; 2. Ecthesis and Existence in the Syllogistic 19; 3. Existence, Negation, and Abstraction in the Neoplatonic Hierarchy 25; 4. A Tense Logic for Boethius 53; 5.

Proclus on the Logic of the Ineffable 65; 6. Proclus and the Neoplatonic Syllogistic 79; 7. Ammonius on the Canons of Proclus 125; 8. All Brutes are Subhuman: Aristotle and Ockham on Privative Negation 139; 9. Lukasiewicz's Many-valued Logic and Neoplatonic Scalar Modality 167; Bibliography 195; Index of Names 201; Index of Topics 203-204.

"he papers in this collection are presented in the historical order of the philosophers they discuss: Aristotle before Plotinus, Plotinus before Proclus, and so on. But that is not the order in which they were written. “A Tense Logic for Boethius” (Chapter 4) was my initial effort at applying the methods of modern logic and formal semantics to ancient logic. It gave me confidence to pursue Plotinus, the patriarch of the tradition. The result was “Existence, Negation, and Abstraction in the Neoplatonic Hierarchy” (Chapter 3). In this paper I argue that the mysticism in the *Enneads* is accompanied by some logically interesting theory. Plotinus exploits properties of scalar adjectives only recently studied in linguistics, and marshals them in structures of an algebraic character by means of negation operations characteristic of the Neoplatonic tradition. When formulated in this way, the views amount to serious positons in modern logic and the philosophy of language.

My excursion into the “logic” of Plotinus made it clear to me that I needed to work out in a satisfactory way Aristotle’s syllogistic, the theory that lies at the background of all ancient logic and that was bent to new purposes by Neoplatonists.

I found that the standard account of the syllogistic as developed in the 1960s by Smiley and Corcoran could be abstracted to a lattice theoretic semantics and given a more standard Henkin style completeness proof. These results are outlined in “Aristotle’s Natural Deduction Reconsidered” (Chapter 1) and “Ecthesis and Existence in the Syllogistic” (Chapter 2).

I was ready then for attempting to understand Proclus, who is without question the most logically sophisticated of Neoplatonic thinkers.

(...)

His logical ideas are explored in “Proclus on the Logic of the Ineffable” (Chapter 5), an introductory essay, and more fully in “Proclus and the Neoplatonic Syllogistic” (Chapter 6).

(...)

The collection concludes with two studies of Neoplatonic ideas in later logic. In “All Brutes are Subhuman: Aristotle and Ockham on Privative Negation” (Chapter 8) two closely related notions of privative negation are distinguished, one Neoplatonic and one more Aristotelian." (Preface, p. VIII)

20. McCall, Storrs. 1967. "Contrariety." *Notre Dame Journal of Formal Logic* no. 8:121-132.

"This paper is an attempt to make philosophical capital out of an important difference between the Aristotelian logic of terms and the Stoic, or 'modern', logic of propositions. This difference is, that although both logics include and give formal recognition to the relation of contradiction, only the former, and not the latter, takes account of the relation of contrariety.

Here I do not refer to the relation of contrariety as extending between terms (thus for example the terms 'pleasure' and 'pain', 'black' and 'white' denote contraries), but as extending between propositions.

The most common definition of contrariety is as follows: two propositions are contraries if they cannot both be true. For comparison, the definition of contradiction states that two propositions are contradictories if they can neither both be true nor both be false, and that of subcontrariety, that they cannot both be false.

(...)

The fact that there is not seems *prima facie* to be a consequence of Stoic logic's being a logic of unanalysed propositions, while Aristotelian logic is not.

Notwithstanding this seemingly irreconcilable difference between the two logics, there may still be ways of introducing the notion of contrariety into propositional logic. For example we might, analogously with Np, write Rp for the contrary of p.

This device is adopted by L. Goddard(2) in order to give a satisfactory analysis of exclusive disjunction: he points out that what makes disjunctions exclusive is not use of the exclusive 'or', but an internal opposition between the disjuncts which we can express by saying that they are contraries. The aim of this paper will be to investigate the formal properties of the notion of contrariety: that is, to provide means of introducing the operator *R* into the logic of propositions." (pp. 121-122)

(2) 'The Exclusive "Or" ', *Analysis* 1960.

21. ———. 2012. "A History of Connexivity." In *Logic: A History of Its Central Concepts* , edited by Gabbay, Dov M., Pelletier, Francis Jeffrey and Woods, John, 415-449. Amsterdam: North-Holland.

    Volume 11 of the *Handbok of te History of Logic* .

    "Connexive implication is a type of implication first defined in the 4th Century B.C., a time of active debate when it was said that the very crows on the rooftops were croaking about what conditionals were true. In Sextus Empiricus' Outlines of Pyrrhonism, which discusses four varieties of implication, including [1] material (Philonian) and [2] strict (Diodorean) implication, we read:

    "[3] And those who introduce the notion of connection say that a conditional is sound when the contradictory of its consequent is incompatible with its antecedent." [Kneale, 1962, 129]

    It follows from this definition that no conditional of the form "If p then not-p" can be true, since the contradictory of not-p, i.e. p, is never incompatible with p. Accepting this in turn requires that "compatibility" be essentially a relational concept, and that whether or not A is compatible with B cannot be determined by examining A and B separately.

    Thus even "p&~ p" is not incompatible with itself, and "If p&~ p, then not-(p&~ p)" is connexively false." (p. 415)

    References

    W. Kneale and M. Kneale. The Development of Logic, 1962.

22. Mueller, Ian. 1974. "Greek Mathematics and Greek Logic." In *Ancient Logic and Its Modern Interpretations* , edited by Corcoran, John, 35-70. Dordrecht: Reidel.

    "By 'logic' I mean 'the analysis of argument or proof in terms of form'. The two main examples of Greek logic are, then, Aristotle's syllogistic developed in the first twenty-two chapters of the *Prior Analytics* and Stoic propositional logic as reconstructed in the twentieth century. The topic I shall consider in this paper is the relation between Greek logic in this sense and Greek mathematics. I have resolved the topic into two questions: (1) To what extent do the principles of Greek logic derive from the forms of proof characteristic of Greek mathematics? and (2) To what extent do the Greek mathematicians show an awareness of Greek logic?

    Before answering these questions it is necessary to clear up two preliminaries. The first is chronological. The *Prior Analytics* probably predates any surviving Greek mathematical text. There is, therefore, no possibility of checking Aristotle's syllogistic against the actual mathematics which he knew. On the other hand, there is no reason to suppose that the mathematics which he knew differs in any essential way, at least with respect to proof techniques, from the mathematics which has come down to us." (p. 35)

    "The paper which follows has three main sections. In the first I discuss the character of Euclidean reasoning and its relation to Aristotle's syllogistic. In the second I consider the passages in the *Prior Analytics* in which Aristotle refers to mathematics; my purpose here is to determine whether reflection on mathematics influenced his formulation of syllogistic. In both sections my conclusions are mainly negative. Euclid shows no awareness of syllogistic or even of the basic idea of logic, that validity of an argument depends on its form. And Aristotle's references to mathematics seem to be either supportive of general points about deductive reasoning or, when they relate specifically to syllogistic, false because based on syllogistic itself rather than on an independent analysis of mathematical proof.

In the third main section of the paper I consider the influence of mathematics on Stoic logic. As far as Chrysippean propositional logic is concerned, my conclusions are again negative. However, it is clear that at some time logicians, probably Stoic, began to consider mathematical proof on its own terms. Although they never developed what I would call a logic to cover mathematical proof, they at least realized the difference between it and the logical rules formulated in antiquity. Much of the third section is devoted to an attempt to reconstruct in outline the history of logical reflections on mathematics in the last two centuries B.C. In conclusion I recapitulate briefly my conclusions about the relation between Greek mathematics and logic." (p. 37)

23. Mulhern, John. 1974. "Modern notations and ancient logic." In *Ancient Logic and Its Modern Interpretations* , edited by Corcoran, John, 71-82. Dordrecht: Reidel.

    "To what extent does ancient logic admit of accurate interpretation in modern terms? Blanché [3] and Dürr [14] published general surveys of research on ancient logic in the mid-1950's. My aim in the present paper is to identify studies made available during the quarter-century 1945-1970 that illustrate the influence modern notations have had on our understanding of ancient logical texts. Accepting Bochenski's division of ancient logic into four temporally distinct stages, I mention research on the Prearistotelian, Aristotelian, Stoic and Commentatorial logics in Sections 1-4. In Section 5, I offer some generalizations on the utility of modern notations in writing the history of ancient logic." p. 71

    "At the beginning of this paper, I asked to what extent ancient logic admits of accurate interpretation in modern terms. While no final answer to this question will be available until research in the field has gone a good deal further than it has so far, still the progress since 1945 has been remarkable, and it is not too early to consider its causes. In his history of the history of logic, Bochenski wrote as follows:

    The rise of modern history of logic concerning all periods save the mathematical was made possible by the work of historians

of philosophy and philologists in the 19th century. These published for the first time a series of correct texts edited with reference to their context in the history of literature. But the majority of ancient philologists, medievalists and Sanskrit scholars had only slight understanding of and little interest in formal logic. History of logic could not be established on the sole basis of their great and laborious work.

For its appearance we have to thank the fact that formal logic took on a new lease of life and was reborn as mathematical. *Nearly all* the more recent researches in this history were carried out by mathematical logicians or by historians trained in mathematical logic. ([5e], pp. 9-10.)

The trained researchers who have worked on the ancient materials have had to do much more than merely transcribe into modern notations logical treatises originally written in ancient natural languages. Just finding suitable transcriptions has had to wait on considerable analysis of the ancient texts. Transcription into modern notations presupposes some community of understanding and purpose with the ancient logicians, and this community is something that needs to be argued for. In general, a department of ancient logic lends itself to being dealt with in notation if and only if its corresponding department of modern logic lends itself to being dealt with in notation. Logistic systems and their interpretations lend themselves to this to a great extent, theoretical syntax and especially semantics to a much lesser extent. Where a modern notation follows or reproduces or elucidates the logical form of a sentence or inference or schema that interests an ancient logician, then its use is in order. The studies discussed in Sections 1-4 of this paper point to the conclusion that the judicious use of modern notations has been one cause of progress -- over the last two decades and a half -- in our understanding of ancient logic." (pp. 81-82)

[3] Blanché, R., Vues nouvelles sur l'ancienne logique', *Les Etudes Philosophiques* 11, 1956, 183-208

[4] Bochenski, I. M., *Ancient Fomal Logic* , Amsterdam 1951

[5e] Bochesnki, I. M., *A History of Formal Logic* (trans. by I. Thomas), Notre Dame 1961

24. Nuchelmans, Gabriel. 1973. *Theories of Proposition. Ancient and Medieval Conceptions of the Bearers of Truth and Falsity* . Amsterdam: North-Holland.

    Contents: Preface V; 1. Introduction 1; 2. Plato 13; 3. Aristotle 23; 4. The Stoic *lekton* 45; 5. The Stoic *axioma* 75; 6. Later developments in Greek antiquity 89; 7. The transition to the Latin West 105; 8. Boethius and the beginning of the Middle Ages 123; 9. Abelard 139; 10. The doctrine of the *dictum* in the century after Abelard 165; 11. Preliminaries to the fourteenth century debate 177; 12. The *complexum* theory of Ockham and Holkot 195; 13. Some reist opponents of Ockham and Holkot 209; 14. The theory of the *complexe significabile* 227; 15. The oppositions against the theory of the *complexe significabile* 243; 16. The significate of a true *propositio* 273; Selective bibliography 281; Indices 289-309.

    "This book is intended as the first part of a history of those problems and theories in the domain of philosophical semantics which nowadays are commonly referred to as problems and theories about the nature and the status of propositions. [*]

    Although the conceptual apparatus and the terminology by means of which questions concerning propositions were asked and answered have considerably varied from period to period, the main types of disputes and solutions have remained remarkably constant. One of the aims of this study is precisely to trace the vicissitudes of the vocabulary in which this refractory topic was treated in the remote past. As is evident from the Bibliography, many parts of the field have been explored by predecessors. Guided by their results, I have tried to fill in more details and to design a provisional map of the area as a whole." (from the Preface)

    [*] The two other volumes are: *Late-Scholastic and Humanist Theories of the Proposition* (1980) and *Judgment and Proposition. From Descartes to Kant* (1983).

25. Plochmann, George Kimball. 1952. "Professor Henle on the four figures of syllogism." *Philosophy of Science* no. 19:333-341.

    "An able piece on the controversy over the fourth syllogistic figure, written by Paul Henle and published by this journal [*] deserves attention both for its clear argument and for details on which one might take issue. The essay, to renew old acquaintances, consists of two interlocking parts, and a very brief appendix. The two main theses relate, onie to the needlessness of the fourth figure both on Aristotelian grounds and in general, the other to the modal syllogism as being the real center of gravity in the *Prior Analytics*. The appendix pronounces a benediction upon the controversy because the syllogism is 'waning' in its importance for formal logic. Where it seems necessary, I should like to refine -or even correct points Dr. Henle has made." (p. 333)

    [*} Paul Henle, *On the Fourth Figure of the Syllogism* (1949).

26. Prier, Raymond Adolph. 1976. *Archaic Logic: Symbol and Structure in Heraclitus, Parmenides, and Empedocles* The Hague: Mouton.

    "The following study represents an attempt not only to explicate in some small way a mode of thought significantly different from much of our own, but also to suggest a new criterion of judgment for Classical Philology. These two purposes merge into one insofar as both come about from my own sharp disagreement with certain prevailing critical attitudes towards the so-called pre-Socratics. These essentially ungrounded attitudes are characterized, as I see them, by strong relativistic and materialistic premises which, although hidden for the most part, result in awkward misunderstandings of the pre-Platonic corpus in general and an uneven, if not castrating, criticism of specific authors in particular. These modern critical stances did not exist in the pre-Aristotelian Greek world in any predominant form, but Classical Philology in

the later half of the twentieth century maintains otherwise and has, consequently, severely limited itself and very probably its future by adopting a narrow and unnecessarily rigid criterion of judgment that largely misrepresents the literary evidence at hand. Beyond the by no means unanimous acknowledgment that Aristotle revealed little of the real worth of the pre-Socratics, modern Classical Philology has not even suggested the need of a method — let alone the method itself - that might grasp the period between Homer and the Platonic revolution. I offer this study as an attempt to supply this critical tool." (From the *Preface*)

27. Rescher, Nicholas. 1969. "Three Post-Aristotelian Concepts of Syllogistic Logic." In *Essays in Philosophical Analysis* , 61-71. Pittsburgh: University of Pittsburgh Press.

    "The aim of this chapter is to consider—primarily on the historical side— three important post-Aristotelian concepts of traditional syllogistic logic: the notions of the *quality* and *quantity* of categorical propositions and that of the *distribution* of terms therein. The history of all three of these key concepts of the traditional theory of the syllogism is still in significant measure obscure, and the remarks of recent scholars has tended (as will be shown) rather to darken than to clarify matters."

28. Smiley, Timothy. 1973. "What is a syllogism?" *Journal of Philosophical Logic* no. 2:136-154.

    "I shall offer my answer to my question in the shape of a formal system in which I shall put into practice the idea of treating syllogisms as deductions, and which is intended to match as closely as possible Aristotle's

    own axiomatisation of the syllogistic by means of conversion, reductio ad impossibile, and the two universal moods of the first figure. The definition of deducibility will ensure that in counting premisses attention is paid to whether and how often they are used in a deduction. This is in order to satisfy the constraints mentioned in the preceding paragraph, and also to harmonise with Aristotle's own remarks about the numbers of premisses (cf. *An. Pr* . 42b1, *An. Post* . 86b13); though it should

be stressed that the case for treating syllogisms as deductions is independent of the case for this particular treatment of deducibility. The principal result proved is that the system is complete with respect to the valid moods, where these are defined in the spirit of the Aristotelian figures but without his restriction to the special case of two premisses. I shall also show that the system possesses a simple decision procedure. Finally I shall test the system's harmony with Aristotle's ideas by considering it in relation to his well-known discussion of syllogisms with false premisses." (pp. 140-141)

29. Smith, Robin. 1983. "Completeness of an Echtetic Syllogistic." *Notre Dame Journal of Formal Logic* no. 24:224-232.

    Abstract: "In this paper I study a formal model for Aristotelian syllogistic which includes deductive procedures designed to model the "proof by ecthesis" that Aristotle sometimes uses and in which all deductions are direct. The resulting system is shown to be contained within another formal model for the syllogistic known to be both sound and complete, and in addition the system is proved to have a certain limited form of completeness."

30. ———. 2002. "Ancient Philosophical Logic." In *A Companion to Philosophical Logic* , edited by Jacquette, Dale, 11-23. Malden: Blackwell.

    "Ancient Greek logic was inseparable from ancient Greek philosophy. The formal theories developed by major logicians such as Aristotle, Diodorus Cronus, and Chrysippus were in large part influenced by metaphysical and epistemological concerns. In this brief essay, I will try to give some picture of this interrelationship. For reasons of space, I make no attempt to cover, or even to mention, every aspect of ancient Greek logic.

    I have preferred instead to concentrate on illustrating its philosophical aspects." (p. 11)

31. Speranza, J. L., and Horn, Laurence R. 2012. "History of Negation." In *Logic: A History of Its Central Concepts* , edited

by Gabbay, Dov M., Pelletier, Francis Jeffrey and Woods, John, 127-174. Amsterdam: North-Holland.

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"In choosing Grice as a catalyst and foundation stone, we open with a discussion of Formalism (or Modernism). This we present as giving a “System” for the logic of negation – notably with a syntactic and a semantic component. In the second part, we briefly discuss Neo-Traditionalism (or Informalism) which Grice saw as presenting a challenge to Formalism. We propose, with Grice, that most of the observations made by the Informalists pertain to the pragmatic component of the System, and characterise pragmatic rather than logical inference.

We will try to show that our choice of Grice as a catalyst is general enough to provide a basis for the History of Logic and the treatment of one of its central concepts. We center on the ideas of Grice as an example of a logical treatment of negation, but also as a memorial to a specific chapter in logical historiography.

Our focus will be one particular logical feature of negation as it has been conceived in the history of logic as a ‘unary’ truth-functor." (p. 127)

32. Tracy, Kevin. 2006. *The Development of Dialectic from Aristotle to Chrysippus* .

Dissertation presented to the University of Pennsylvania (available on ProQuest).

Abstract: "From Aristotle onward, formal logic was an element of ancient Greek dialectic (*dialektiké*). Aristotle's *Prior Analytics* (4th century BCE) is the earliest evidence of a formal logic in antiquity. The evidence for the formal logic of the Stoic philosopher Chrysippus (3rd century BCE) is fragmentary; nonetheless it makes clear that not more than a century or so after *Prior Analytics* , Chrysippus revolutionized formal logic. The scholarship on Stoic logic has not yet presented the history of dialectic from Aristotle to Chrysippus as an intelligible narrative. Without such a narrative, one cannot explain what, in general, motivated the innovations of Chrysippus, what

made Stoic logic coherent as a unified project, or what relationship that project had to earlier work in logic. This dissertation approaches the problem through the presentation and interpretation of the ancient source material. First it describes the logical doctrines of Aristotle, Theophrastus, and the 'Megarics' in such a way as to make clear what questions these predecessors left for Chrysippus. It then describes how Chrysippus addressed these questions. Finally, it uses the resulting narrative to give a detailed account of Stoic formal logic. The dissertation yields five principal conclusions. First, neither the Peripatetics or the 'Megarics' described logical forms of propositional logic; Chrysippus was the first to do so. Second, the guiding aim of Chrysippus' logic was to avoid adopting a semantic stance in describing logical forms and explaining logical relationships. Third, the Stoics distinguished 'valid' (*hugies*) from 'true' (*aléthes*), so that *sunartésis* is a standard for the validity rather than the truth of the Stoic conditional (*sunhémmenon*). Fourth, the Stoics produced derivations for categorical arguments in their deduction system. Fifth, the Stoic deduction system is roughly analogous to the first-order fragment of Frege's system, except on two points: it most likely was not designed to accommodate the use of polyadic predicates with multiple quantifiers, although the possibility for doing so inheres in its approach to the analysis of propositions, and it uses the 'natural' approach rather than the 'axiomatic' approach of Frege."

33. Waszkiewicz, Jan, and Wojciechowska, Agnieszka. 1990. "On the origin of reductio ad absurdum." In *Logic Counts* , edited by Zarnecka-Bialy, Ewa, 87-96. Dordrecht: Kluwer.

    "Our particular interest is in the origin of reductio ad absurdum method of theorem proving.(1) It is approached from both - the history of mathematics and history of logic side.(2) We proceed by analysing the cultural context of both sciences. Hence, it is necessary to regard some cultural phenomena much older than logic or even mathematics. The considered problem is well established. It has been widely discussed but no definite conclusions have been reached so far. Existing opinions are summed up by A. Szabó.(3)

An explanation of the origin (and priority in use) of reductio ad absurdum is crucial for the interpretation of the early history of the deductive method in mathematics and also of dialectics in philosophy. As A. Szabó stated (reformulating Proclus' opinion), "mathematics was at least in one respect a branch of dialectics'" and it is exactly this respect we are going to investigate." (p. 87)

(1) This is the text of the lecture delivered at the 33rd Conference on the History of Logic, Jagiellonian University, Cracow, October 1987.

(2) Our point of view in these more general problems is presented, e.g., in: A. Wojciechowska, "Geneza matematyki i logiki - przyklad wspòlnych problemòw historii obu nauk" [Genesis of mathematics and logic - an example of parallel problems in history of both sciences], *Ruch Filozoficzny* 1987; J. Waszkiewicz, "The influence of cultural background on the development of mathematics", *Organon* 16-17 (1981), pp. 93-113.;

J. Waszkiewicz, "Korzenie greckiej matematyki. Studium socjokulturowych uwarunkowafl genezy matematyki" [Roots of Greek Geometry. Study of Sociocultural Conditions of the Genesis of Mathematics). Prace Naukowe OBP Poli techniki Wroclawskiej, Wroclaw 1988.

(3) See A. Szabó, "Greek Dialectics and Euclid's Axiomatics", in: I. Lakatos (ed.), *Problems in the Philosophy of Mathematics. Proceedings of the International Colloquium in the Philosophy of Science* , London 1965, vol.I, North Holland, Amsterdam 1967, pp. 1-27 (lecture and discussion).

34. Williamson, Timothy. 1994. "The early history of sorites paradoxes." In *Vagueness* , 8-35. New York: Routledge.

"The sorites puzzles can be traced conjecturally forward from Eubulides in the mid fourth century BCE through a chain of teacher–pupil links. One pupil of Eubulides was Apollonius Cronus; one of his pupils was Diodorus Cronus. David Sedley argues that it was Diodorus who gave Eubulides' puzzles wide

circulation and intellectual status. According to Sedley, Diodorus inherited from Eubulides ‘his sophistical leanings, his

flamboyancy and his love of showmanship’; he could present a puzzle so that it not only caught the imagination but emerged as a serious challenge to philosophical theory.(6) Diodorus taught dialectic, ‘the science of discoursing correctly on arguments in question and answer form’, the standard medium of philosophical argument and that in which the sorites puzzles were formulated." (p. 10)

(6) Sedley 1977: 78.

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Sedley,D.N. 1977. ‘Diodorus Cronus andHellenistic philosophy’, *Proceedings of the Cambridge Philological Society* 23: 74–120.

35. Wolenski, Jan. 1998. "Scepticism and Logic." *Logical Analysis and History of Philosophy* no. 1:187-194.

    Abstract: "This paper offers a logical analysis of Scepticism. It is shown that Dogmatism, Academism and Scepticism as characterized by Sextus Empiricus in *Outlines of Pyrronism* form a variety of views which can be ordered by an interpretation of the classical logical square. In particular, Scepticism appears as a conjunction of the negations of Dogmatism and Academism. The next problem concerns the logic proper for Scepticism. Logic based on a dual of the consequence operation is proposed as satisfying intuitive requirements associated with doubting. Finally, the attitude of the sceptic toward logic is discussed. In particular, it is argued that the principle of isosteny trivializes scepticism if it is applied to logic."

36. Woods, John. 2012. "A History of Fallacies." In *Logic: A History of Its Central Concepts* , edited by Gabbay, Dov M., Pelletier, Francis Jeffrey and Woods, John, 513-609. Amsterdam: North-Holland.

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    "Much of what I shall have to say in the chapter is centred around a concept and a list. The concept is the traditional

concept of fallacy, an idea that has come to us over the centuries from its early definition in antiquity. The list is the traditional list, or what I will for light relief call the “gang of eighteen”. The gang of eighteen is not a mathematically well-defined set. Its number varies somewhat from writer to writer, and some lists will contain items which other lists omit. But the gang of eighteen is a representative sample of the fallacies that we think of today as exemplars of the traditional concept of fallacy. The gang of eighteen is constituted as follows: *ad baculum, ad populum, ad verecundiam, ad hominem, ad ignorantiam, ad misericordiam* , affirming the consequent and denying the antecedent, *begging the question, many questions, hasty generalization, equivocation, biased statistics, gambler’s, post hoc, ergo, propter hoc, composition and division, faulty analogy, and ignoratio elenchi* (of which straw man is a special case).

The earliest predecessor list was Aristotle’s “gang of thirteen” in *On Sophistical Refutations*. It is made up of ambiguity (cf. the modern fallacy of equivocation), amphiboly (cf. equivocation), combination of words (cf. composition), division of words (cf. division), *secundum quid* (cf. hasty generalization), *ignoratio elenchi* (cf. straw man), begging the question (cf. begging the question), many questions (cf. many questions), consequent, non-cause as cause, accident, accent and form of expression. (3)" (p. 514)

(3) Not on Aristotle’s list are *ad hominem* argument, babbling and solecism. I will come back to these below.

37. Youtie, Herbert, Youtie, Louise, and Kneale, William. 1973. "P. Mich. Inv. 2906, a Fragment of Logic." *Zeitschrift für Papyrologie und Epigraphik* no. 10:175-185.

"This papyrus contains a single column from a roll of prose text identified as logic by 0. Neugebauer and H.Cherniss, with the concurrence of W. and M. Kneale, F. Solmsen and W. H. Hay, all I of whom responded generously to an appeal for help in the elucidation of a difficult text. We are especially indebted to Prof. W. Kneale for expanding our diplomatic transcript into a text with appropriate supplements, which in

turn enabled us to improve the transcript in a number of places. His reconstructed text, together with a translation and commentary on the logic of the fragment, follows immediately after our description of Mich. Inv. No. 2906, the diplomatic transcript and palaeographic commentary." (p. 175)

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   "Après avoir rappelé les principales concordances et divergences entre la terminologie logique latine avant et après Boèce, on examine deux choix propres soit à l'auteur du *Peri hermeneias* (PH) transmis sous le nom d'Apulée, soit à la première tradition logique de langue latine: celui de "pars" ("particula") et celui de "formula" ("forma" chez Martianus Capella), choix auquels Boèce substituera "terminus" et "figura", pour rendre le notion de "terme" (*horos* chez Aristote) et celle de "figure (du syllogisme)" (*skhema* chez Aristote). Dans chaque cas, on passe en revue la distribution des emplois dans le PH et chez Martianus, en signalant les attestations antérieures ou postérieures à ces traités. On s'interroge enfin sur les raisons possibles du choix effectué par l'auteur du PH et maintenu ou modifié par Martianus Capella."

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History of Logic

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Peripatetic Logic: Eudemus of Rhodes and Theophrastus of Eresus

Eudemus of Rhodes and Theophrastus of Eresus contributions to logic

This page use the font *Lucida Sans Unicode* for logical symbols.

“Aristotle's successor as director of the Lyceum was Theophrastus, his friend and disciple; Eudemus, another of the Stagirite's important disciples should also be mentioned. Other philosophers belonging to the Peripatetic school were: Aristoxenus, Dikaiarchos, Phanias, Straton, Duris, Chamaeleon, Lycon, Hieronymus, Ariston, Critolaus, Phormio, Sotion, Hermippus, Satyrus and others. Straton even succeeded Theophrastus as director of the Lyceum but his name and those of the other Peripatetics of Aristotle's old school should not be considered in a history of logic as they were mainly concerned with history and the natural sciences.

Theophrastus rejoiced in an enormous prestige at this time and for long afterwards. Diogenes Laertius attributes a tremendous number of works to him. Of them a significant proportion are writings on logic: *Analytica Priora* (3 books); *Analytica Posteriora* (7 books); *Analysis of Syllogisms* (1 book); *Summary of the Analytic*s (1 book); *Polemic on the Theory of Euristic Arguments. On Definition* (1 book); *The First Premises* (18 books); *The Sophisms* (2 books); *On the Solution of Syllogisms* (1 book); *Topics* (2 books); *On Artless Demonstrations* (1 book); *On Negation* (1 book); *On Intellect* (1 book); *Classifications* (2 books); *On Entymeme*s (1 book); *On the Appreciation of Syllogism* (1 book); *On Lies and Truth* (1 book);

Argumentations (2 books); *Theses* (3 books); *On Definitio*n (2 books); *On the Data of Problems* (1 book); *On the Liar* (3 books); *Preface to the Topics* (1 book); *On Arguments prope*r (1 book); *Specifications on The Texts of Syllogisms* (1 book).

Eudemus also wrote some treatises on logic, concerning which some information has come down to us; Ammonius, in his Commentary On Aristotle's Categories attributes to him a writing on The Analytics -- '*Analitika*', and another On Expressions -- *Peri lexeo*s, in which he deals with the grammatical and logical functions of the sentence. The commentator David in Prolegomena to Isagoge by Porphiry also mentions these works. The latter work is also known to us from the commentaries of Galen.

Theophrastus and Eudemus were concerned with the relationship between judgements in the mechanism of the syllogism, rather than the relationship of the concepts they are made of. In other words, as Prantl remarks (*Geschichte der Logik im Abendlande*, I, p. 351), the logical function of the proposition is gradually replaced by the grammatical function.

To Theophrastus we owe the distinction made between significant judgement -- apophansis -- and premise protasis. Aristotle had used the term protasis -- premise -- but by it he had meant apophantic judgement. Theophrastus retained the term apophantic for the true and false judgements; the same judgement becomes a premise if affirmative or negative. Theophrastus' interest turned, therefore, to the grammatical form and construction of the judgement whose function in the syllogism was, in his opinion, more important than the truth or falsity of a judgement.

This and many other examples illustrate that Aristotle's disciples were no longer in quest of truth but of the syllogistic mechanism independent of truth, and therefore independent of ontology.

These were also Eudemus' concerns. He made an interesting contribution to the theory of existential sentences. Aristotle had replaced all the verbs that could occur in judgements by the copula "is" -- *esti* -- or "is not" *ouk esti*. Eudemus studied the existential sentences and demonstrated that the copula 'is" is a real term that can itself have a predicative determination. This conception,

centered mainly, as we see from the examples above, on the structure of the grammatical form of judgements, explains why their logical investigations focused on another aspect of logic in which the expression of thinking was of prime importance." (pp. 207-208)

From: Anton Dumitriu, *History of Logic*, Tunbridge Wells: Abacus Press 1977, Vol. I.

Eudemus of Rhodes (c. 350 BC - 290 BC)

"Eudemus (2nd half of 4th cent. B.C.E.), of Rhodes. A student of Aristotle, often mentioned in conjunction with Theophrastus. In a charm story in Aulus Gellius (13.5), when Aristotle was dying, he chose Theophrastus over Eudemus as his successor in the Lyceum. Eudemus apparently returned to Rhodes on Aristotle's death and founded his own school; Simplicius (*In Phys* . 923.9-15) mentions an exchange of letters between him and Theophrastus on a textual question in Aristotle *Physics*. Simplicius also (924.13) mentions a biography of Eudemus by one Damas, of whom nothing else is known.

There are ascribed to Eudemus in various places (see Wehrli) two books of *Analytics*, a *Categories*, *On Expression* (*Peri Lexeôs*), *On the Angle, Physics*, and histories of geometry, arithmetic, and astronomy. Simplicius refers to Eudemus as "the most genuine of Aristotle's comrades" (*In Phys*. 411.15-16) and says that he "follows Aristotle in all things" (133.22). Though not entirely true, this appears not far off.

In logic, Eudemus and Theophrastus (who are always mentioned together in this connection) made various modifications to Aristotle's s logistic; Alexander, in his commentary on the *Prior Analytics*, cites the following (Alexander is echoed by the other commentators on most of these points): (i) Theophrastus and Eudemus devised a direct proof the convertibility of universal negative propositions (Alexander 31.4-10; contrast Ar. *APri*. 1.2, 25a14-17). (ii) They adopted the *peiorem* rule in modal logic: "that the conclusion is always assimilated to the lesser and weaker of the premises" (Alexander 124.13-14; by contrast Aristotle allowed certain combinations of necessary and assertoric premises to yield necessary conclusions, as in *APri*. 1.9). (iii) They defended the convertibility of

universal negative problematic propositions (Alexander 220.9-16, against Ar. *APri*. 1.17, 36b35-37a31). (iv) They also did extensive work on hypothetical syllogisms (Alexander 389.31-390.3; Philoponus *In APri*. 242.18-19, speaks of "treatises of many lines" on the subject).

Eudemus is said to have claimed in *On Expression* (Alexander *In APri*. 16.15-17, scholium in *APri*. ed. Brandis [in *Aristotelis Opera* 4] 146a24-27) that "is" in "Socrates is" is a predicate term; he may thus have been the first to have contradicted Kant's claim that existence is not a predicate. Alexander's notice of this is phrased in a way that make it appear to contradict Aristotle (at least under Alexander's interpretation of Aristotle: 15.14-22)." (p. 234)

From: *Eudemus of Rhodes* by Russell M. Dancy, in: Donald J. Zeyl (ed.), *Encyclopedia of Classical Philosophy*, London: Fitzroy Dearborn Publishers 1997.

"Those works of Eudemus of which we have any real knowledge fall into two groups: systematic and historical. The second group, containing the histories of arithmetic, geometry, astronomy and perhaps theology, is generally assumed to have been conceived as part of a greater project, initiated by Aristotle himself: a series of surveys covering all the philosophically interesting fields of knowledge, which included Theophrastus' *Physikai Doxai* and Menon's *Iatrika*, as well as those of Eudemus. They will have been compiled during Aristotle's lifetime at Athens, the only place where Eudemus could easily have got hold of the necessary research materials. This raises the question whether, or to what extent, his reading of his sources was affected by Aristotelian preconceptions, a question which has long bedevilled our understanding of Theophrastus' historical works. But it looms less large in connection with the history of mathematics, since in most respects Aristotle's teaching was in accord with the assumptions of mainstream mathematicians, e.g., in accepting the "Euclidean" notion of space, if you will allow the anachronism. The only point on which there was a fundamental disagreement between him and any major group of mathematicians was the existence of indivisible lines, and here Eudemus adopted the Peripatetic position. Thus he agreed with Aristotle in rejecting Antiphon's attempt to square the circle as

contravening a basic principle of geometry, the infinite divisibility of magnitudes.(8) In general, however, these works seem to have contained more straight reporting, and less criticism, than the *Physikai Doxai*. In particular, many of the extant fragments make a point of determining who first discovered a phenomenon or theorem, but then such observations are easier to make and more illuminating in connection with the special sciences than the history of philosophy. When we turn to Eudemus' systematic writings, the situation is more complicated. We have fairly extensive fragments of three: the A*nalytika* (frr. 9-24W), the *Peri lexeos* (frr. 25-9) and the *Physika* (frr. 31-123). Like the corresponding works of Aristotle and Theophrastus, they reflect Eudemus' lectures closely (see in particular fr. 88), even if they were more than lecture notes in the ordinary sense. Yet there are differences between them which are not only due to the differences of their subject-matter. The *Physika*, of which we have by far the fullest reports, was based on a course of lectures covering the same subjects as Aristotle's Physics in the same order (see especially fr. 98), except that it contained nothing corresponding to Book 7 of our version. The extant fragments contain no doctrinal innovations and Eudemus' contribution seems to have been limited to changes of presentation and emphasis (more on this later). Our reports of his *Analytika* are more sporadic, but this work brought some important modifications of Aristotle's doctrine: a new method of proving the convertibility of certain kinds of proposition; the recognition of five kinds of syllogism, which Aristotle treated as variants of other moods, as independent moods of the first figure; the Introduction of the in peiorem rule in modal syllogistic; and some advances in the theory of "hypothetical" syllogisms. If this were all we knew about the work, Eudemus would count as a considerable logician in his own right, but now comes the rub: all of these doctrines are attributed to him and Theophrastus jointly. The only major fragment ascribed to Eudemus alone (fr. 23W) contains a detailed discussion of the meanings of "hypothetical" which might have been useful for elementary students, but makes no advance in logical theory. (9)

The *Peri lexeos* shows rather more independence. Unlike the books with the same title written by Aristotle and Theophrastus (Diogenes Laertius 5.24 = Aristoteles *Rhet*. 3; 5.47), it was not concerned with

the stylistic, but the logical aspects of language. Of the four certain surviving fragments (frr. 25-8),(10) one asks in what circumstances questions count as "propositions" (*protasis*), two show Eudemus differing from Aristotle as to whether the "is," in sentences of the form "A is B," is part of the predicate or only a link between the subject-term and the predicate-term, while the fourth informs us that Eudemus gave an account of the "third man" argument similar in all essentials to the one found in Aristotle's *Peri ideon*.(11) One wonders how this came to be included in a treatise on language; perhaps the theory of Forms was brought into a discussion of meaning. While these fragments do not allow us to reconstruct the *Peri lexeos* even in outline, they are enough to indicate its subject matter. An almost pedantic concern with verbal expression and verbal distinctions can also be observed in some of the fragments of Eudemus' *Physika*, e,g., frr. 61, 83, 92, 94-6, 102.

Finally there is one series of fragments which is entirely different from all the others: half a dozen stories about animal behaviour preserved by Aelian (frr. 127-32)." (pp. 29-31, some notes omitted)

Notes

(8) Fr. 140W. But the sentence near the beginning of the extract printed by Wehrli (1969, 57.271.) which contains a verbal echo of Aristotle (Phys. 185a18), is the work of Simplicius; he only refers to Eudemus later, at 59.11.

(9) The last fragment printed under this head by Wehrli (fr. 24) is also attributed to Eudemus alone, but consists of a historical note about Speusippus' views on definition which may have come from a different work.

(10) 29W, from Galen's *De captionibus in dictione*, refers to a certain source of examples of fallacies; in the older editions, its name is given as (the book of) Eudemus, but the unique MS may read *eudumou* rather than *eudemou* and Ebbesen has printed *Euthudemou* in his edition [*Commentators and commentaries on Aristotle's Sophistici elenchi,*] (1981, 2:18; cf. 1:14-16). He cites Alcinoos *Didasc.* p. 159.39 H in support of his conjecture and further confirmation is offered by Simplicius *In Cat.* 22.11ff. This passage can no longer be safely attributed to Eudemus, and it is now doubtful

whether his *Peri lexeos* included a treatment of fallacies. See Fortenbaugh in this volume.

(11) Alexander of Aphrodisias I*n Metaph*. 83.34ff. = Aristotelis *Fragmenta* pp. 125-6 Ross; 380a36 - 381a32 Gigon. Wehrli (1969) only prints a very short extract as Eudemus fr. 28.

From: Hans B. Gottschalk, "Eudemus and the Peripatos", in: István Bodnár and William W. Fortenbaugh (eds.), *Eudemus of Rhodes*, New Brunswick: Transaction Publishers 2002, pp. 25-37.

Theophrastus of Eresus (371 BC - c. 287 BC)

"Theophrastus continued Aristotle's work on logic, making improvements, but also important modifications. Regarding statements, he distinguished between those that are singular and those that are particular, maintaining that the former are definite and the latter indefinite. Affirmations with a privative predicate he called *ek metatheseô*. In regard to the categorical syllogism, Theophrastus added five moods to the canonical four of the first figure. The five are those of the indirect first figure, which is equivalent to the later fourth figure. They are neither perfect nor undemonstrated and are mentioned by Aristotle only in passing. Theophrastus also held that the first mood of the third figure has two different forms. In the same figure he proposed another order of the moods based on the directness of their proofs. In modal logic, Theophrastus maintained against Aristotle that the universal negative problematic premise (that of one-sided possibility) converts just as do the assertoric universal negative and the necessary. In the case of syllogisms constructed from premises of different modalities, he held that the conclusion in every case follows the weaker premise (*peiorem*-rule), while according to Aristotle it follows the major premise. In connection with the Academic search for *eide*, Theophrastus developed a special logical form, the prosleptic syllogism, which cannot be reduced to a categorical syllogism. One proposition contains potentially a third term, which is made explicit in a second proposition; and the two propositions together yield a conclusion. Theophrastus also did more systematic research in hypothetical syllogistic than Aristotle, and almost certainly

influenced the Stoics. But he remained an Aristotelian, concerning himself mainly with the logic of terms and not that of propositions."

From: William W. Fortenbaugh and Josip Talanga, *Theophrastus*, in: Donald J. Zeyl (ed.), *Encyclopedia of Classical Philosophy*, London: Fitzroy Dearborn Publishers 1997, pp. 552-553.

Theophrastus on quantification

Boethius reports concerning Theophrastus (*floruit* 322-388 BC), student, friend, and first successor to Aristotle as Director of the Lyceum, that "those points which Aristotle expounded in this book on the proposition, he recapitulated lightly, but those items which him teacher failed to publish, he added as a supplement, and executed indeed with a rather sharp type of analysis."(29) And on other and independent grounds there is no doubt that Theophrastus prolonged the lines of Aristotle's own later development and thus stands forth as his most authentic interpreter. It is of crucial importance for the history of traditional logic to disengage the elements of this development from the fragments of Theophrastus. Many significant advances emerge. Of them the following three seem most relevant to our present purposes.

Among the disjointed references to Theophrastus one finds for example the very significant remark that:

On the other hand Theophrastus maintains that there are certain cases of statements in which, if there is no quantitative determination of the predicate also, their respective contradictories will be true. This is the example that he gives: if we say 'Phanias possesses knowledge'; Phanias does not possess knowledge,' it is possible for both statements to be true simultaneously. (30)

For Phanias could indeed be an expert in musical theory, but know nothing, for example, of astronomy. If one is to avoid the possibility of simultaneously valid contradictories that such unresolved ambiguity grounds, then it is necessary to add to the term: 'knowledge,' some quantitative specification. For one does quantify differently, for example, the following statements: (1) All men are mortal, and (2) Some men are married. In such quantification revision of the present case there would result : (1) Phanias possesses

all knowledge, and (2) Phanias does not possess all knowledge. Both of these latter formulations preclude the possibility of simultaneous truth.

The instance of Theophrastus is profoundly interesting. But its true significance is not cleanly and clearly disengaged from his vague but correct feeling for the problem. The focus would have been sharpened by two alterations in its formulation: (1) quantify the subject of the pertinent and illustrative sentences and (2) distinguish and divide the separate elements in the complex predicate: 'possess.' For in the present case 'knowledge' is not really the predicate. The true predicate is 'possesses' and 'knowledge' belongs in one of its two places, as one of its arguments or relata. For 'someone possesses something' comes far closer to the genuine analysis than 'someone is something-that-possesses-something'. Theophrastus is not clear. But his instinct is sound. Like most pioneers in theoretical advances, his grasp on the discovery is clumsy and heavy, even if sure and firm.

And the point is of paramount importance. For the main character of difference between the conventional logic of analysis of propositions and that of modern logic is precisely this: conventional logic arbitrarily restricts its analysis to functions involving a *single* generalization (of '*S'* in the '*S* is *P*' formula), whereas the modern analysis of statements concerns itself with the further analysis of functions involving many coordinate generalizations, wherever possible and wherever logically important or relevant. The conventional expression : 'All a's are b's', is no more nor less than a function constructed on the matrix pattern: 'if anything is an a, then it is a b,' by means of *the single generalization of the subject* to the level of 'anything.' And this level is the actual upper limit and maximum ceiling of conventional analysis. Consider however such a statement as: 'Every man has a father,' which even in its grammatical formulation is doubly generalized ('every' and 'a'). Such a sentence can undergo partial analysis and resolution by conventional procedures. One may let 'a' stand for the class of men, and 'b' represent the class of 'beings-that-have-fathers,' and write accordingly: Everything that is an a, is also a b.' But this technique achieves an analysis of the statement only with regard to its first generalization to the level of 'any man whatever.' If one is to secure an equally valid and necessary analysis of the *doubly* general

statement, there is no alternative but to proceed as follows: 'For every entity x there exists at least some one y or other, such that if x is a man, then y is the father of x' (31) This is in fact that technique of double generalization or quantification which Theophrastus glimpsed, but darkly.

Alexander (32) furthermore informs us that Theophrastus labeled 'propositions *kata prolepson*' statements which were formed by appropriate substitution in the generalized matrix formula: 'to that whatsoever to which B universally belongs, A belongs universally also.' And Alexander proceeds to explain that the label is etymologically derived from the fact that over and beyond the two determinate terms: 'A' and 'B,' one also employs [a third most generalized and indeterminate element, i. e. that object whatsoever it be to which both A and B jointly apply. The sense of the passage is clear and the meaning it suggests may be expressed in the following formulation of a universal affirmative statement: 'no matter what entity one may care to mention, if it is a B, then it is also an A.' Alexander further reports that in the opinion of Theophrastus himself such statements *kata prolepsin* and those which are called categorical and are formed by appropriate substitutions in the generalized schema : 'A is B,' are logically equivalent. It would thus appear that the primitive notions of a quantification theory and of resolution of categorical assertions into formal implications are not altogether foreign to the traditional development of Aristotle's logic." (pp. 19-20)

From: Joseph T. Clark, *Conventional Logic and Modern Logic: A Prelude to Transition*, Woodstock, Maryland: Woodstock College Press, 1952.

Theophrastus and hypothetical syllogisms

Boethius furthermore gives this reply to a persistent inquirer whose logical interests appear to have coincided with our own present ones:

... You frequently ask me about hypothetical syllogisms. Aristotle composed no treatise on them. Theophrastus, however, although gifted with a most versatile competence, only touches on their high points. Eudemus undertakes to impart a broader view of the subject, but goes about the execution of the project in such a way that to all

appearances he reaped no harvest from the germinal ideas that he scattered about. (33)

What then were these high points to which Boethius alludes? Alexander (34) reports for the record a set of rules which seem to pertain to the type of hypothetical syllogisms in question. These are the syllogisms *kata analoghian* also called 'completely hypothetical syllogisms', or again 'triply hypothetical syllogisms'. And we are instructed that Theophrastus reduced these formulae to three figures:

1. If the A proposition [to A], then the B; if the B, then the C; hence if the A, then the C.

2. If the A, then the B; if not the A, then the C; hence if not the B, then the C.

3. If the A, then the C; if the B, then not the C; hence if the A, then not the B.

Theme formulations are of profound logical interest. A1, first blush they may be hastily identified with comparable laws of the modern sentential calculus in which the alphabet symbols represent unanalyzed statements, regarded as unit block wholes. But it is more than likely that Theophrastus construes what ho Imparts in the familiar context of an Aristotelian logic of terms. The paradox is characteristic of pioneers. While laying the groundwork in point of fart for a primitive calculus of statements, Theophrastus apparently interprets his own advances as a prolongation into unexplored areas of the Aristotelian syllogism. But they are without doubt genuine advances."

(29) Migne, *Patrologiae Cursus Completus, Series Latina* 64; Boethius, *De Interpretatione* 12.16: ". . . quae Aristoteles Imo libro de enuntiatione tractavit, leviter ab co transcursa sunt; quae vero magister eius tacuit, ipse subtiliore modo considerationis adiecit." I take it that one does not 'keep silent' on matters of which one is completely ignorant.

(30) Theodorus Waitz, *Aristotelis Organon Graece* (Lipsiae: 1844-1846) I. 40 ad 17b16.

(31) And in symbolic formulation:

(x) (Ey) (Mx ⊃ Fyx).

And on this important point see C. H. Langford in Clarence I. Lewis and C. H. Langford, *Symbolic Logic* (New York: The Century Co., 1932), pp. 286-287." (pp. 22-23)

Notes

(32) Alexandri *in Aristotelis Analyticorum Priorum Librum Primum Commentarium* (ed. M. Wallies, Berolini: 1883) 378. 12-20 ad 49b27

(33) "J. P. Migne, *Patrologiae Cursus Completus*, Series Latina 64; Boethius, *De Syllogismo Hypothetico* 831C: ". . . de hypotheticis syllogismis saepe quaerebas, in quibus ab Aristotele nihil est conscriptum. Theophrastus vero, vir omnis doctrinae capax, rerum tantum summas exsequitur. Eudemus latiorem docendi graditur viam, sed ita, ut veluti quaedam seminaria sparsisse, nullum tamen frugis videatur extulisse proventum."

(34)Alexandri in A*ristotelis Analyticorum Priorum Librum Primum Commentarium* (ed. M. Wallies, Berolini: 1883) 326.8-327.18

From: Joseph T. Clark, *Conventional Logic and Modern Logic. A Prelude to Transition*, Woodstock: Woodstock College Press 1952.

Digital Quadrivium Project



History of Logic

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Selected Bibliography on the Logic of Eudemus of Rhodes and Theophrastus of Eresus

Critical edition of the Fragments of Eudemus of Rhodes

1. Wehrli, Fritz, ed. 1955. *Eudemos von Rhodos*. Basel: B. Schwabe & C.

   The standard collection of Fragments, abbreviated W. in the citations; second edition 1969.

Selected bibliography on Eudemus' logic

1. Alexander, of Aphrodisias. 1999. *On Aristotle Prior Analytics 1.8-13 (with 1.1736b35 - 37a31)*, *Ancient Commentators on Aristotle*. London: Duckworth.

   Translated by Ian Mueller with Josiah Gould.

   On the modal logic of Eudemus of Rhodes see pp. 59ff. with notes on Alexander 124.11 ff.

2. Bodnár, István, and Fortenbaugh, William W., eds. 2002. *Eudemus of Rhodes*. New Brunswick: Transaction Publishers.

   Contents: Preface VII; Contributors IX; 1. Dimitri Gutas: Eudemus in the Arabic tradition 1; 2. Hans B. Gottschalk: Eudemus and the Peripatos 25; 3. Tiziano Dorandi: Qualche aspetto controverso della biografia di Eudemo di Rodi 39; 4. William W. Fortenbaugh: Eudemus' work *On Expression* 59; 5. Pamela M. Huby: Did Aristotle reply to Eudemus and

Theophrastus on some logical Issues? 85; 6. Robert W. Sharples: Eudemus' physics: change, place and time 107; 7. Han Baltussen: Wehrli's edition of Eudemus of Rhodes: the physical fragments from Simplicius' commentary *On Aristotle's Physics* 127; 8. Sylvia Berryman: Continuity and coherence in early Peripatetic texts 157; 9. István Bodnár: Eudemus' Unmoved Movers: fragments 121-123b Wehrli 171; 10.Deborah K. W. Modrak: *Phantasia*, thought and science in Eudemus 191; 11. Stephen A. White: Eudemus the naturalist 207; 12. Jørgen Mejer: Eudemus and the history of science 243; 13: Leonid Zhmud: Eudemus' history of mathematics 263; 14. Alan C. Bowen: Eudemus' history of early Greek astronomy: two hypotheses 307; 15. Dmitri Panchenko: Eudemus fr. 145 Wehrli and the ancient theories of lunar light 323; 16. Gábor Betegh: On Eudemus fr. 150 (Wehrli) 337; Index of ancients sources 359-383.

"This volume of Rutgers University Studies in Classical Humanities, no. XI in the series, is the third devoted to Theophrastus' colleagues, pupils and successors, i.e., those Peripatetic philosophers, whom Fritz Wehrli brought together under the label *die Schule des Aristoteles*. Volume IX focuses on Demetrius of Phalerum, who was Theophrastus' pupil and for ten years the ruler of Athens. Volume X has Dicaearchus of Messana, Theophrastus' fellow-pupil within the Aristotelian Peripatos, as its subject. The present Volume, no. XI, concentrates on Eudemus of Rhodes, who, like Dicaearchus, studied under Aristotle and alongside Theophrastus. This concern with *die Schule des Aristoteles* will continue with the next two volumes: Lyco of Troas and Ieronymus of Rhodes will be the subjects of Volume XII, and Aristo of Ceos will be featured in Volume XIII. All three belong to the post-Theophrastean Peripatos. Like Volumes IX and X, so Volumes XII and XIII will present the ancient sources with translation as well as discussion by various scholars. Volume XI is different in that it is entirely composed of articles which discuss Eudemus from differing points of view." (from the Preface by the Editors)

3. Fortenbaugh, William W. 2002. "Eudemus' work *On Expression*." In *Eudemus of Rhodes*, edited by Bodnár, István

and Fortenbaugh, William W., 59-83. New Brunswick: Transaction Publishers.

"Eudemus of Rhodes wrote a work entitled *On Expression, Peri lexeos*. It was at least two books or rolls long and was the subject of a lost treatise by Galen. Apparently the work was not only substantial but also full of interesting material. It is therefore regrettable that we have only a few fragments from which to judge the content of the work. Five fragments, nos. 25-9, are assigned to the work by Wehrli, but that may be too generous. In what follows, I intend first to consider Wehrli's five fragments and then to ask what we can conclude concerning the content of *On Expression*." (p. 59)

4. Gottschalk, Hans B. 2002. "Eudemus and the Peripatos." In *Eudemus of Rhodes*, edited by Bodnár, István and Fortenbaugh, William W., 25-37. New Brunswick: Transaction Publishers.

5. Gutas, Dimitri. 2002. "Eudemus in the Arabic Tradition." In *Eudemus of Rhodes*, edited by Bodnár, István and Fortenbaugh, William W., 1-23. New Brunswick: Transaction Publishers.

   Reprinted as Chapter VIII in D. Gutas, *Greek Philosophers in the Arabic Tradition,* Aldershot: Ashgate, 2000. see IV. *Logic* pp. 9-11.

   "The information on Eudemus of Rhodes that can be recovered in Arabic sources falls into three categories: there is a full collection of sayings (Section II below and Appendix), some incidental biographical notices that mainly state his relation to Aristotle and Theophrastus (Section III), and a number of references to his views on logic which lie held in common with Theophrastus (Section IV). No work of his is reported to have been translated into Arabic or is known to be extant. Apart from the sayings, therefore, Eudemus has no independent persona or presence in Arabic but rides on the coattails primarily of Theophrastus. This is hardly surprising, given the little information on Eudemus that was available even in Greek at the time of the rise of Islam." p. 1

6. Huby, Pamela M. 2002. "Did Aristotle reply to Eudemus and Theophrastus on some logical issues?" In *Eudemus of Rhodes*, edited by Bodnár, István and Fortenbaugh, William W., 85-106. New Brunswick: Transaction Publishers.
7. Steiger, Kornél. 2000. "Eudemos von Rhodos und der Peripatos." *Acta Antiqua. Academiae Scientiarum Hungaricae* no. 40:449-451.

   "Von Eudemos berichtet die Kommentarliteratur, vor allem im Zusammenhang mit Andronikos, dass er zu den bedeutendsten ἑταῖροι des Aristoteles gehört und wichtige und seiner Zeit weit vorauseilende philosophische Erkenntnisse gewonnen habe. Trotzdem gibt es von ihm keine Vita, Diogenes Laertios, Suda und Cicero kennen ihn nicht. Man darf wohl annehmen, dass der Rhodier Andronikos einen ganz und gar unauffälligen Aristotelesschüler aus Rhodos zum bedeutenden Philosophen hochstilisiert hat, um an eine alte peripatetische Tradition auf der Insel glauben zu machen."

Selected bibliography on Theophrastus' logic

1. Barnes, Jonathan. 1983. "Terms and Sentences: Theophrastus on Hypothetical Syllogisms." *Proceedings of the British Academy* no. 69:279-326.

   "One of the topics which Theophrastus certainly treated was that of ‘wholly hypothetical’ syllogisms. Our main source for that treatment is a long passage in Alexander’s commentary on Aristotle’s *Prior Analytics* in which he draws on the first book of Theophrastus’ Prior Analytics (1). The passage is not a quotation from Theophrastus, nor indeed does it purport simply to document Theophrastus’ views. None the less, we can extract his views from Alexander’s commentary with reasonable confidence." (p. 286)

   (...)

   "A generous, but not wholly implausible, reconstruction of Theophrastus’ account of hypothetical syllogisms would thus ascribe the following discoveries to him. He investigated inferences of the form (H**) (^). He arranged them into three

figures. Within each figure he discussed, systematically, the possible moods, singling out those which were valid. He asserted, if he did not prove, certain metatheorems about hypothetical syllogistic. He showed that the second- and third-figure moods could be derived from the first figure. He produced some derivations within the figures. He may perhaps have said something about compound syllogisms.

Modern logicians will not perhaps regard that achievement as particularly remarkable. Yet in its day it represented a definite extension of logical science beyond anything that is found in Aristotle's Organon.(2) At the same time, it is clear that Theophrastus was relying upon his master's work: Aristotle's treatment of categorical syllogistic gave him a model and a pattern for his own treatment of wholly hypothetical syllogisms." (p. 307)

(1) In *A.Pr*. 325. 31-328. 7: text and translation in the Appendix, below [for another translation see Alexander of Aphrodisias, *On Aristotle Prior Analytics 1.23-31*, London: Duckworth 2006, pp. 116-119]. Most of the passage appears as Theophrastus, F 30 G, frags. 34a and 34b R. See also Philoponus, *in A.Pr*. 302. 6-23, which is, however, a highly condensed and somewhat inaccurate version of Alexander's account.

(2) Wholly hypothetical syllogistic does not comprise the sum of Theophrastus' achievement in non-categorical logic: see Barnes, op. cit. (p. 285 n. 4), for further details (and for a brief argument against the tempting conclusion that Theophrastus the Peripatetic invented Stoic logic).

(^) Let us use 'M' to designate the middle hypothesis, 'E' and 'E*' to designate the extremes. And let 'IF [X, Y]' be ambiguous between 'If X, then Y' and 'If Y, then X'. Then Theophrastus' wholly hypothetical syllogisms are arguments of the specific form:

(H**) IF [±E, ±M]

IF [±E*, ±M]

———————

IF [±E, ±E*] (p. 296)

2. ———. 1985. "Theophrastus and Hypothetical Syllogistic." In *Aristoteles. Werk und Wirkung, Paul Moraux gewidmet, I: Aristoteles und seine Schule*, edited by Wiesner, Jürgen, 557-576. Berlin: de Gruyter.

   Reprinted in: W. W. Fortenbaugh, P.M. Huby, A. A. Long (eds.), *Theophrastus of Eresus. On His Life and Work,* New Brunswick, Transaction Books, 1985, pp. 125-141 and with the title *Theophrastus and Stoic Logic* in: J. Barnes, *Logical Matters: Essays in Ancient Philosophy II*, Oxford: Clarendon Press, 2012. pp. 413-432.

   "In *APr* 1.44 Aristotle considers "arguments on the basis of a hypothesis." He deals first with arguments that are "agreed to by way of a compact," and then with those that "reach their conclusion by way of the impossible." The chapter ends with a promise: "Many other arguments reach their conclusion on the basis of a hypothesis. We should consider them and mark them out clearly. We shall say later what varieties of them there are and in how many ways arguments can rest on a hypothesis" *(APr* 50 a 39-b2).

   Alexander of Aphrodisias *(In APr* 389, 31-390.9) (1) comments on that passage as follows:

   Having talked about arguments on the basis of an agreement and arguments by re*ductio ad impossible,* he says *that* "many others reach their conclusion on the basis of a hypothesis." He postpones discussion of them, as though intending to deal with them more carefully; but no book of his on the subject is in circulation. Theophrastus, however, refers to them in his own *Analytics* -- and so do Eudemus and some others of Aristotle's associates.

   Aristotle presumably has in mind those arguments which proceed by way of a continuous proposition (or a connected proposition, as it is also called) together with the additional assumption, and those which proceed by way of a separative or disjunctive proposition -- and perhaps also those which

proceed by way of a negated conjunction, if they are indeed different from the ones already mentioned. (2)

In addition to those we have mentioned, there will also be arguments on the basis of proportion and those which they call "qualitative" (i.e., arguments from what is more so or less so or equally so) and whatever other varieties of arguments based on a hypothesis (3) there are (they have been discussed elsewhere).

In addition to those we have mentioned, there will also be arguments on the basis of proportion and those which they call "qualitative" (i.e., arguments from what is more so or less so or equally so) and whatever other varieties of arguments basal on a hypothesis' there are (they have been discussed elsewhere).

Those paragraphs are of some importance for the history of logic: the present paper is a commentary on them."

1. The passage is F 29 in A. Graeser, *Die logischen Fragmente des Theophrast* (Berlin / New York 1973), and frag. 33c in L. Repici, *La logica di Teofrasto* (Bologna 1977).

2. Wallies, in the *CIAG* edition, punctuates so as to begin a new sentence with the clause "if they-already mentioned." The result is ungainly and obscure. In my translation I gratefully adopt a suggestion made by David Sedley: his punctuation gives perfect sense and makes better Greek. (It leaves an unpleasant asyndeton. Perhaps we should insert a particle and begin the new sentence at 390.6 with p*ara de tous*.)

3. I excise *protaseon* (390.9): the phrase "propositions based on a hypothesis" is strange, and even if it may be allowed as a variant on "hypothetical proposition," it is out of place; Alexander is enumerating types of hypothetical *arguments,* not types of hypothetical *propositions*.

3. Bobzien, Susanne. 2000. "Wholly hypothetical syllogisms." *Phronesis.A Journal for Ancient Philosophy*:87-137.

"Traces the history in Aristotelian commentators of the type of syllogisms called "wholly hypothetical" -- that is, those consisting in two conditionals as premisses, with a third as the

conclusion -- and sets forth the deductive system on which the logic of this syllogism was grounded. There was no unique prevalent understanding of the logical form of these arguments, but rather a complex development in their understanding, starting from a term-logical conception and leading to a propositional-logical one. The roles of Theophrastus, Alexander of Aphrodisias, and Porphyry (*via* Boethius) in the transmission and transformation of this problematic are investigated."

4. ———. 2000. "Why the order of the figures of the hypothetical syllogisms was changed." *Classical Quarterly* no. 50:247-251.

   "In chapter 6 of Alcinous' Handbook of Platonism we find a discussion of categorical, hypothetical, and mixed syllogisms. Alcinous distinguishes three figures of the hypothetical syllogism, and illustrates each figure with a syllogism based on an argument from Plato. Here he remarks in passing that most people called the second hypothetical figure the third and that some called the third figure the second. We may assume that those who called the third figure the second and those who called the second the third were the same. In a parallel passage, Alexander of Aphrodisias advocates the same ordering of figures of hypothetical syllogisms as Alcinous, and reports that Theophrastus, in the first book of his Analytics, had the second and third figure in reverse order. Combining these passages, we can infer that at the turn of the second century A.D. there existed two different views on the ordering of the figures of the hypothetical syllogisms, of which one goes back to Theophrastus, whereas the other presumably was the result of a later change."

5. ———. 2002. "Pre-Stoics hypothetical syllogistic in Galen's *Institutio logica*." In *The Unknown Galen*, edited by Nutton, Vivian. London: Institute of Classical Studies, University of London.

   ρὸλο"The text of the *Institutio Logica* (IL) or *Introduction to Logic* is not found in Kuhn (*) because its sole surviving manuscript was first published, not long after its discovery, in

1844, and thus too late for inclusion in Kuhn. Moreover, some have thought the work to be spurious.(1)

The reasons given for this assumption were on the whole unconvincing. I take it for granted that the *Institutio Logica* is by Galen.

In this paper I trace the evidence in the *Institutio* for a hypothetical syllogistic which predates Stoic propositional logic. It will emerge that Galen is one of our main witnesses for such a theory. In the *Institutio*, Galen draws from a number of different sources and theories.

There are the so-called ancient philosophers; there is the Stoic Chrysippus, whose logic Galen studied in his youth.(2) There are the 'more recent philosophers', post-Chrysippean Stoics or logicians of other schools who adopted Stoic terminology and theory.(3) There are from the 1st century BC the Stoic Posidonius and the Peripatetic Boethus, both of whom Galen may have counted among the 'more recent philosophers'. Again, in some passages Galen seems to draw from contemporary logical theories of non-Stoic make, presumably of Peripatetic or Platonist origin; and in others he explicitly introduces his own ideas.(4) But apart from Plato, who is generously credited by Galen with the use of the later so-called second hypothetical syllogism, the only promising candidates for pre-Stoic proponents of a hypothetical syllogistic are the above-mentioned 'ancient philosophers'." (p. 57)

(...)

"I now turn to the question who the ancient philosophers were. In the present section, I consider the passages in the *Institutio* and in other Galenic writings. In the *Institutio* the ancients are contrasted in ch. 14 with the Stoics and in ch. 3 with 'the more recent philo

sophers', who use Stoic terminology. We can infer that the ancient philosophers (i) were not Stoics, (ii) were older than those Stoics, (iii) were older than those more recent philosophers.

Furthermore, we have some good reasons for assuming that the ancient philosophers were Peripatetics: first, the terminology they use is Peripatetic: e.g. πρότασις, 'hypothetical premiss', 'hypothetical syllogism';(26) second, the account of the hypothetical premisses in terms of things (πράγματα) is Peripatetic;(27) third, the predicate of holding (ὑπάρχειν) is used not of the truth-bearers (as the Stoics would do), but of those things;(28) fourth, the two things that are related in a hypothetical premiss must differ from each other, whereas for the Stoics they could be the same;(29) fifth, at IL 7.7 the ancient philosophers are said to distinguish three figures of categorical syllogisms, and these syllogisms and their classification are without doubt Peripatetic.

In addition, everything suggests that the ancient philosophers were early Peripatetics, i.e. Aristotle, Theophrastus, Eudemus, and their contemporaries.(30) And in the case of hypothetical syllogistic, since as far as we know Aristotle did not have such a thing,(31) the ancients could only have been Theophrastus and Eudemus and their contemporaries." (p. 64)

(1) E.g. C. Prantl, *Die Geschichte der Logik im Abendlande* vol. I (Leipzig 1855) 591-592.

(2) 2 Cf. Galen, *On my own books*, 43 (Kühn xix).

(3) Cf. L S. Kieffer, *Galen's Institutio Logica* (Baltimore 1964) 130-32; J. Bames, 'Form and Matter', in A. Alberti, ed., *Logica, Mente e Persona* (Florence 1990) 7-119, at 71-23.

(4) E.g. in chapters 16-17 of the *Institutio*.

(26) Cf. Philop. *APr*. 242.24-243.10, and my 'Stoic Hypotheses and Hypothetical Argument', *Phronesis* 1997, 299-312.

The expressions ἀπόφα[ν]σις at IL 3.1, and πρόβλημα, at IL 14.2 also suggest a Peripatetic origin.

(27) Cf. Philop. *APr*. 242.27-8 (= F (Fortenbaugh) 111B), where, after having mentioned Theophrastus and Eudemus in the previous paragraph, Philoponus states that the Peripatetics call the things (πράγματα) things (πράγματα); cf. also [Amm.] *APr* 68.4-5.

(28) Cf. Alex. *APr*. 156.29-157.2 (= F 100B) for the use of ὑπάρχειν by Theophrastus.

(29) See above, pp. 61-62.

(30) Theophrastus and Eudemus wrote books entitled Περι ερμηνέιας. and Αναλυτικά (Philop. *Cat*. 7.20-22), and in particular Theophrastus wrote many more books on logic (*Diog*. *Laert*. 5.42 and 50). Of their contemporaries, we know that Phaenias of Eresus and Strato of Lampsacus wrote on logic. The first seems to have written works entitled Κατηγοριαι, and Αναλυτικά (Philop. *Cat*. 7.20-22, Wehrli frg. 8), the second wrote, among other things, an introduction to the Topics and a treatise Περι του μαλλον και ηττον (*Diog*. *Laert*. 5.59-60).

[* Karl Gottlob Kühn, *Claudii Galeni Opera Omnia*. Leipzig: C. Cnobloch, 1821-1833, 19 volumes, reprinted Hildesheim, Georg Olms,1964-1997].

6. Bochenski, Joseph. 1947. *La logique de Théophraste*. Fribourg en Suisse: Librairie de l'Université.

Table des matières: Préface 5; Abréviations de titres des œuvres les plus fréquemment citées 7; Introduction 9; I. Les sources 15; II. Les œuvres logiques 27; 1. Liste des œuvres logiques 27; 2. « De l'affirmation » 32; 3. « Premiers Analytiques » 35; 4. Topiques 36;

5. Les autres travaux; conclusions 37; III. Les fragments du traité « De l'affirmation » 39; IV. La syllogistique assertorique 54; 1. Conversion des propositions universelles négatives 54; 2. Les nouveaux modes 56; V. La logique de la modalité 67; 1. La logique de la modalité chez Aristote 67; 2. Les notions du nécessaire et du possible 73; 3. La règle du « peiorem » 79; 4. La « conséquence des modales » 87; 5. Reconstruction du système 91; 6. Théophraste et Aristote 95; VI. Les syllogismes hypothétiques 103; 1. Les syllogismes hypothétiques chez Aristote et les Stoïciens 103; 2. Les propositions et les syllogismes hypothétiques en général 107; 3. Les syllogismes « totalement hypothétiques » 111; 4. Les autres catégories des syllogismes hypothétiques 116; VII. Les fragments des autres

écrits 121; VIII. Conclusions 125; Index 132; 1. Index des noms 132; 2. Index des textes 133; 3. Index des termes techniques grecs 136; 4. Index des thèses logiques 137-138.

"Le présent travail fut écrit en 1937 pour les *Collectanea Logica* dirigèes par M. J. Lukasiewicz, professeur à l'univerité de Varsovie." (Préface, p. 5)

"*Appréciation générale*. On voit donc que l'importance historique de la logique théophrastienne est vraiment grande: la préparation du Stoïcisme, la formation de la plupart des thèses « classiques », la découverte de quelques théories « modernes ». Au point de vue systématique, il en va autrement: il semble que les doctrines de Théophraste, viciées par un formalisme mal compris et par plusieurs thèses incompatibles, formaient un ensemble peu cohérent. Il serait naturellement déplacé de vouloir juger sa valeur en le comparant à nos systèmes modernes et il ne faut pas demander aux anciens ce que nous possédons aujourd'hui, grâce à l'effort de tant de siècles. Cependant, même comparé au système d'Aristote, celui de Théophraste reste inférieur. Théophraste n'est pas un logicien de premier ordre, tel que furent Aristote et Chrysippe chez nous, Dinnaga en logique indienne. Mais quand on le compare à la plupart des auteurs qui composèrent des logiques aux temps modernes — du XVIe au XIXe siècle — il semble leur être de beaucoup supérieur. Sans être un des génies de la logique formelle il peut être classé parmi les grands logiciens." (p. 138)

7. Brunschwig, Jacques. 1982. ""Indeterminé" et "Indefini" dans la logique de Théophraste." *Revue Philosophique de la France et de l'Étranger* no. 172:359-370.

8. Clark, Joseph T. 1952. "Theophrastus and Hypothetical Syllogisms." *Philosophical Studies of the American Catholic Philosophical Association* no. 3:22-23.

9. ———. 1952. "Theophrastus on Quantification." *Philosophical Studies of the American Catholic Philosophical Association* no. 3:19-22.

10. Fortenbaugh, William W. 1991. "Theophrastus, fr. 65 Wimmer: Is it important for understanding Peripatetic rhetoric?" *American Journal of Philology* no. 111:152-156.

    Revised reprint in: W. W. Fortenbaugh, *Theophrastean Studies,* Wiesbaden: Franz Steiner, 2003, I Section: Logic: pp. 15-21.

11. ———. 1995. "Theophrastus, no. 84 FHS&G: nothing new here!" In *The Passionate Intellect: Essays on the Transformation of Classical Traditions*, edited by Lewis, Ayres, 161-176. New Brunswick: Transaction Publishers.

    Revised reprint in: W. W. Fortenbaugh, *Theophrastean Studies,* I Section: Logic, pp. 22-34, with the subtitle: *Did Theophrastus oppose Aristotle and accept quantification of the predicate?.*

12. ———. 1995. "Theophrastus of Eresus: Rhetorical Argument and Hypothetical Syllogistic." In *Theophstean Studies*, 22-34. Stuttgart: Franz Steiner Verlag.

    Originally published in Italian as "Teofrasto di Efeso: Argomentazione retorica e sillogistica ipotetica".

13. ———. 1998. "Cicero: *On Invention* 1.51-77: Hypothetical Syllogistic and the Early Peripatetics." *Rhetoric* no. 16:25-46.

    Revised reprint in: W. W. Fortenbaugh, *Theophrastean Studies,* I Section: Logic: 51-67.

14. ———. 2000. "Teofrasto di Ereso: argomentazione retorica e sillogistica ipotetica." *Aevum* no. 74:89-103.

    Versione inglese riveduta in: W. W. Fortenbaugh, *Theophrastean Studies,* I Section: Logic: pp. 35-50 col titolo: *Theophrastus of Eresus: Rhetorical Argument and Hypothetical Syllogistic.*

15. ———. 2005. "Cicero as a reporter of Aristotelian and Theophrastean rhetorical doctrine." *Rhetorica* no. 23:37-64.

16. Gottschalk, Hans B. 1987. "Did Theophrastus write a *Categories*?" *Philologus* no. 131:245-253.

17. ———. 1992. "An Errant Fragment of Theophrastus." *Classical Quarterly* no. 42:529-533.

    "There are a number of fragments attributed to Theophrastus, as well as titles in Diogenes Laertius' catalogue of his writings, of which it is uncertain whether they should be placed among his logical or rhetorical works. In this note I want to give my reasons for excluding one of them from my forthcoming edition of his logical fragments. It is not my intention here to discuss all the questions it raises; I hope to come back to them in a later volume of my commentary."

    [This fragment of Theophrastus is found in two versions:

    1) Ammonius, *De interpr*. 17 a 5, p. 65, 31 Busse = fr. 65 Wimmer

    2) Anon., *De interpr*. p. 94 a 96 sq. Brandis = fr. 64 W.]

18. Huby, Pamela M. 1977. "Apuleius and Theophrastus' fifth "indemonstrable" mood." *Liverpool Classical Monthly* no. 2:147-148.

    An interpretation of Apuleius *Peri hermeneias* chapter 13.

19. ———. 1979. "A neglected fragment of Peripatetic logic." *Liverpool Classical Monthly* no. 4:207-210.

    "Discussion of an account of hypothetical syllogisms appended in an 11th cent. ms. (Laurentianus 72.5) to Aristotle's Posterior Analytics. The account may represent the views of Theophrastus."

20. ———. 1989. "Theophrastus and the Criterion." In *The Criterion of Truth. Essays Written in Honour of George Kerferd, Together with a Text and Translation (with Annotations) of Ptolemy's On the kriterion and hegemonikon*, edited by Huby, Pamela M. and Neal, Gordon, 107-122. Liverpool: Liverpool Univrsity Press.

21. ———. 2002. "Did Aristotle reply to Eudemus and Theophrastus on some logical issues?" In *Eudemus of Rhodes*, edited by Bodnár, István and Fortenbaugh, William W., 85-106. New Brunswick: Transaction Publishers.

22. Kneale, William, and Kneale, Martha. 1972. "Prosleptic Propositions and Arguments." In *Islamic Philosophy and the Classical Tradition. Essays Presented by His Friends and Pupils to Richard Walzer on His Seventieth Birthday*, edited by Stern, S.M., Hourani, Albert and Brown, Vivian, 189-207. London: Bruno Cassirer.

    "In some ancient writers on logic we find mention of propositions and syllogisms κατά πρόσληφιν. We shall attempt in this paper to determine I lie nature and logical relations of these propositions and arguments, which we call for brevity prosleptic." (p. 189)

23. Lejewski, Czeslaw. 1961. "On prosleptic syllogisms." *Notre Dame Journal of Formal Logic* no. 2:158-176.

    "As a rule modern textbooks of traditional logic distinguish only two kinds of syllogism: the categorical syllogism, which has originated with Aristotle, and the hypothetical syllogism, which goes back to the early Peripatetics and to the Stoics. Rarely, if ever, is mention made of the third kind of syllogism namely the *prosleptic* syllogism. Yet, the prosleptic syllogism, for which we seem to be indebted to Theophrastus, appears to have been regarded at least by some logicians in later ages of antiquity as a legitimate part of logical theory.

    Like the expressions 'categorical' and 'hypothetical' the expression 'prosleptic' is a technical term and its full significance can only emerge at a later stage of our enquiry. At this stage suffice it to say that 'prosleptic' is meant to render the Greek expression *kata proslepsin* in its adjectival use.

    Although the prosleptic syllogism has not played as important a role in the development of logic as the other two kinds of syllogism, it deserves our attention particularly for the following two reasons. First, the validity of prosleptic syllogisms is based, as we shall see, on certain logical notions which in modern logic find their expression in the use of the universal quantifier. Secondly, the theory of prosleptic syllogism bears witness to the resourcefulness of Theophrastus as a logician.

In what follows I propose to reconstruct the theory of prosleptic syllogisms to the extent to which the scarcity of textual evidence permits, and to examine it from the point of view of modern logic." (p. 158)

(...)

"Following our anonymous authority we can repeat that prosleptic premisses were called so because each of them contained an indefinite term, or a bound variable as we would say. Once this term has been made definite, i.e., once a constant noun expression has been substituted for the bound variable, the prosleptic premiss becomes an implication, which, granted its antecedent, yields its consequent as the conclusion in a valid inference of the *modus ponens* type.

Inferences which originated from prosleptic premisses in this way were called prosleptic syllogisms." (p. 170)

24. ———. 1976. "On prosleptic premisses." *Notre Dame Journal of Formal Logic* no. 17:1-18.

"Galen claimed that prosleptic premisses, used for the first time by Aristotle and treated systematically by Theophrastus, were equivalent to appropriate categorical premises. This claim can only be sustained with substantial qualifications. The paper carries out a detailed examination of equivalence relationship between the two kinds of premisses within the framework of axiomatized Aristotelian syllogistic, which had to be suitably extended for the purpose by additional assumptions. The results of the enquiry differ from those obtained by William and Martha Kneale in their paper on "Prosleptic propositions and arguments" in "Islamic philosophy and the Classical tradition", edited by S. M. Stern and others, Cassirer 1972."

(...)

"Within the limits of the present paper our analysis of prosleptic premisses with reference to traditional syllogistic must now be concluded. We have found, as the Kneales have done, that prosleptic premisses conveniently fall into four groups. The prosleptic premisses of the first two groups, which are the same as those distinguished by the Kneales, are each

equivalent to a categorical proposition. However, in order to prove this for the prosleptic premisses of the second group we have extended traditional syllogistic by including among its presuppositions the principle of ecthesis.

In this way we have avoided using inadmissible terms. We have had no recourse to inadmissible terms in connection with the analysis of the remaining prosleptic premisses. And this is why our results differ from those arrived at by the Kneales. Traditional syllogistic, which allows for the use of negated terms but does not admit terms that are empty or universal, appears to provide an appropriate framework for investigating the meaning of prosleptic premisses even though that framework has to be extended. This does not mean that it would be wrong to analyse the meaning of prosleptic premisses within the framework of a system whose language favours different restrictions as regards the range of substituends for the variables.

Thus, for instance, one could examine the logical import of prosleptic premisses within the framework of a system whose language allows for the use of universal terms but does not admit empty terms or negated terms.

Alternatively, one could relate one's enquiry to a system which, like that of Lesniewski's, has no inadmissible terms. Whichever strategy is adopted, the need for specifying one's presuppositions cannot be overemphasised." (p. 16)

25. Lorenzen, Paul. 1969. "Theophrastische Modallogik." *Archiv für mathematische Logik und Grundlagenforschung* no. 12:72-75.

26. Malink, Marko. 2012. "Figures of prosleptic syllogisms in *Prior Analytics* 2.7." *Classical Quarterly* no. 62:163-178.

    "In chaps. 2, 5-7 of his *Prior analytics*, Aristotle is concerned with circular proof. He gives an account of circular proofs within the framework of his syllogistic theory and discusses how they come about in the three figures of categorical syllogisms. The results of this discussion are summarized at the end of this section, at *APr*. 59 A 32-41. The summary contains

several statements to the effect that certain circular proofs come about in the third figure. Some of these statements are problematic because the circular proofs in question are actually not in the third figure of categorical syllogisms ; in fact, these proofs are not categorical syllogisms at all, but what Theophrastus called prosleptic syllogisms (Aristotle, *Sch. Σ* 190 A 1-4 Brandis). Hence, the statements are incorrect if they are understood to refer to the third figure of Aristotle's categorical syllogisms. The passage can, however, be shown not to be spurious: the problematic statements in it refer not to the third figure of categorical syllogisms, but to the third figure of prosleptic syllogisms. On this interpretation, the statements can be regarded as genuine. They show that Aristotle was aware of a classification of prosleptic syllogisms into three figures, even though such a classification does not occur elsewhere in his writings. Thus, the passage appears to be the earliest evidence we have of figures of prosleptic syllogisms."

27. Maróth, Miklos. 1979. "Die hypothetischen Syllogismen." *Acta Antiqua Academiae Scientiae Hungaricae* no. 27:407-436.

28. Mignucci, Mario. 1965. "Per una nuova interpretazione della logica modale di Teofrasto." *Vichiana*:227-277.

29. ———. 1998. "Theophrastus' Logic." In *Theophrastus. Reappraising the Sources*, edited by Ophuijsen, Johannes Van and Raalte, Marlein Van, 39-66. New Brunswick: Transaction Publishers.

30. ———. 1999. "La critica di Teofrasto alla logica aristotelica." In *Antiaristotelismo*, edited by Natali, Carlo and Maso, Stefano, 21-39. Amsterdam: Adolf M. Hakkert.

31. Repici, Luciana. 1977. *La logica di Teofrasto. Studio critico e raccolta dei frammenti e delle testimonianze*. Bologna: Il Mulino.

    Indice: Parte prima. Gli studi moderni sulla logica di Teofrasto 9; Parte seconda. Le opere logiche di Teofrasto. I. I problemi della ricostruzione della logica di Teofrasto 33; II. Dell'affermazione e della negazione 45; III. Analitici Priori 81; IV. Analitici Secondi 159; V. Topici 167; Vi. Le altre opere

logiche 179; Parte terza. Testimonianze e frammenti 193; Bibliografia 227; Indici delle fonti 235; Tavola di raffronto dei Frammenti [con l'edizione di Andreas Graeser - *Die logischen Fragmente des Theophrast* - Berlin, 1973] 241-243; Indice dei nomi 245-247.

32. Rose, Lynn. 1968. *Aristotle's Syllogistic*. Springfield: Charles C. Thomas.

    Contents: I. Plato's dialectic and Aristotle's syllogistic 3; II. The varieties of predication 13; III: The three figures 16; IV. The non-use of rules 27; V. Validation by reduction 34; VI. Invalidation by counterexample 37; VII. The syllogistic system 53; VIII. The Fourth Figure and the indirect proof 57; IX. Subalternation 80; X. Premise order 81; Appendix. I. The square of opposition 99; II. The mnemonic lines 102; III: The perfection of Aristotle' First Figure 104; IV. Theophrastus and the indirect moods 109; V. The diagrams of the three figures 133; VI. John Locke's criticisms of Aristotle and the syllogism 137; Bibliography 144; Index 147-149.

    "Traditional "Aristotelian" logic recognizes four figures of the syllogism, including five "indirect" moods of the first figure.

    The usual account of the origin of these is that Aristotle himself developed the first, second, and third figures, that Theophrastus added the indirect moods of the first figure, (2) and that the fourth figure was added later on by someone else, probably Galen. (3)

    I shall attempt to show that the five argument forms added to the first figure by Theophrastus were in fact not the indirect moods of the first figure that became part of the traditional "Aristotelian" logic. They were, rather, argument forms corresponding both to the later indirect first and to the later fourth figure moods, but not recognizing any distinction between the two. From the modern (i.e., traditional) point of view, it is just as accurate, and just as wrong, to say that Theophrastus added the fourth figure as to say that he added the indirect first. In a sense he did both; in a sense he did neither. For in the later logic the indirect first moods are carefully distinguished from the fourth figure moods. But

Aristotle and Theophrastus had no formal basis for distinguishing the indirect first form the fourth. They attached no significance to premise order. (4)" (pp. 109-110)

(2) The main evidence for this is the statement of Alexander, *Alexandri in Aristotelis Analyticorum Priorum Librum I Commentarium*, CAG, edited by Maximilian Wallies. Berlin, 1883, vol. II, part I, pp. 69.26-70.21 and 109.29-110.21. See also *Boetii De Syllogismo categorico libri duo*. In *Patrologiae Cursus Completus*, Series Latina, edited by J.-P. Migne. Paris, Bibliothecae Cleri universae, 1891, vol. LXIV, 814C-816C.

(3) The best known source for this is Averroes. Two recent and full treatments of the history of the fourth figure and of reports about it are in A. I. Sabra: A twelfth-century defence of the fourth figure of the syllogism. *Journal of the Warburg and Courtauld Institutes*. XXVIII: 14-28, 1965, and Nicholas Rescher: *New light from Arabic sources on Galen and the fourth figure of the syllogism*. Journal of the History of Philosophy, III: 27-41, 1965.

(4) For Aristotle on premise order, see Chapter X above. We shall see in this Appendix that there seems to be no reason to suppose that Theophrastus had nay conventions regarding premise order either.

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History of Logic

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Selected Bibliography on the Megarians and the Dialectical School: First Part

Introduction

"MEGARIAN SCHOOL. Euclides founded a "school" in the town of Megara, just across the isthmus from Athens, c. 400 B.C.E. It was apparently short-lived, and its history is somewhat confusing. Diogenes Laertius (2.106) says of Euclides that "those after him were called Megarians, then eristics, and later dialecticians, because of their setting out their arguments in question and answer." But in 2.113 he quotes "Philippus the Megarian" to the effect that Stilpo of Megara "drew away" several of the dialecticians to the school of Megara, and elsewhere reports vari¬ ous attacks on "the dialecticians" (7.163, 10.8, 10.24), and he and other ancient authors use "dialectician" as a label for Diodorus Cronus and for Philo the Dialectician. Thus it looks as if the label "dialecticians" in 2.106 may refer to a separate school or sect. But it does not seem likely that anyone called himself an "eristic"; this label was probably attached to certain of the Megarians because of their argumentative tendencies." (From Donald J. Zeyl, *Encyclopedia of Classicl Philosophy*, New York: Routledge, 2013, p. 328)

"DIALECTICAL SCHOOL. A philosophical tradition closely associated with the "minor *Socratic" Megarian (Megaric) and Eristical traditions and believed by some to have flourished c. 320-250 B.C.E. Diogenes Laertius reports (2.106) that one ’"Euclides of Megara (or of Gela), who was "concerned with ’"Parmenidean matters," originated a tradition whose adherents "were called

Megarians (Megarikoi), then Eristikoi, and later Dialektikoi, Dionysius of Chalcedon having first named them thus because they formulated their arguments by question and answer." Scholarly tradition, then, takes philosophers referred to as "Megarikoi" (e.g., Euclides and Diodorus Cronus' contemporary, "Stilpo of Megara), those referred to as "Eristikoi" (e.g., Euclides' pupil and ""Aristotle's opponent, Eubulides of Miletus, and Alexinus of Elis), and those referred to as "Dialektikoi" (e.g., the supposed founder of the Dialectical tradition, Clinomachus of Thurii, Diodorus Cronus, and Diodorus' pupil Philo) as all belonging to the same tradition or school. With respect to philosophical method or style, most members of this group employed the "dialectical" (dialogue) approach of question-and-answer and attempted to bring philosophical opponents to their conclusions by carefully constructed puzzles and indirect (reductio) argumentation. With respect to philosophical doctrines, many seem to have combined a Socratic interest in moral issues with some form -in some cases much attenuated— of the Eleatic metaphysical doctrine of the unity and changelessness of "what is.""(From Donald J. Zeyl, *Encyclopedia of Classicl Philosophy*, New York: Routledge, 2013, p. 177)

Editions of the Fragments

1. Deycks, Ferdinand. 1827. *De Megaricorum Doctrina eiusque apud Platonem et Aristotelem Vestigiis* . Bonn: E. Weber.
2. Döring, Klaus, ed. 1972. *Die Megariker. Kommentierte Sammlung der Testimonien* . Amsterdam: B. R. Grüner.

   Inhaltsverzeichnis: Vorbemerkungen IX-XII; (T = Testimonien; K = Kommentar).

   I. Euklid und sein Kreis.

   1. Euklid T = 3; K = 73; 2. Diokleides T = 4; K = --; 3. Dionysios aus Chalkedon T = 14; K = 99; 4. Ichthyas T = 15; K = 100; 5. Kleinomachos T = 15; K = 101;

   II. Eubulides und sein Krei

   1. Eubulides T = 16; K = 102; 2. Euphantos von olynth T = 20; K = 114; 3. Memnon (?) T = 21; K = --;4. Alexinos T = 21; K = 115;

III. Diodor und sein Kreis.

1. Apollonios Kronos T = 28; K = --; 2. Diodor T = 28; K = 124; 3. Philon T = 45; K = 138; 4. Panthoides T = 45; K = 139; 5. Die Töchter Diodoros T = 45; K = --;

IV. Stilpon und sein Kreis.

1. Pasikles von Theben T = 46; K = --; 2. Thrasymachos von Korinth T = 46; K = --; 3. Stilpon T = 46; K = 140; 4. Philippos der Megariker T = 61; K = --; 5. Simmias von Syrakus T = 61; K = --; 6. Alkimos, Aristeides, Diphilos, Kleitarch, Metrodor, Myrmex, Paioneios, Phrasidemos, Timagoras T = 61; K = --;

Anhang: Bryson und sein Schüler Polyxenos.

Bryson T = 62; K = 157;

Polyxeons T = 67; K = 166;

Stemma der Lehrer-Schüler-Verhältnisse 171; Verzeichnis der wichtigen Literatur 172; Stellenregister 175-185.

"Döring has assembled the first complete collection of textual fragments concerning the Megarian philosophers of the fourth and third centuries B.C., together with a commentary.

The fragments are divided by the author into four groups, each centered around one of the better-known figures of the school: Euclid, Eubulides, Diodorus Cronus, Stilpo. Evidences concerning lesser-known personalities are included under the figure to whose "circle" they

belonged. A fifth group of texts appears in an Anhang devoted to the sophist Bryson (often mistakenly associated with the Megarians) and his student Polyxenus. Divisions in the commentary parallel those in the text. The author also adds a stemma summarizing his

conclusions about teacher-pupil relationships within the school, and there is a selective bibliography and a *Stellenregister* . An index, which in view of the work's organization would be helpful, is not included. Simply as a collection of texts, this is a major addition to the scholarship in

its field; with the author's commentary, it is the most important work on the Megarians since Kurt von Fritz's *Realencyclopädie* article. Döring presents convincing evidence that some widely disseminated opinions about the school have little or no foundation. Some of his alternative views have important consequences, and not only for the history of the Megarians." (Robin Smith, "Review of *Die Megariker: Kommentierte Sammlung der Testimonien* , by Klaus Döring", *Journal of the History of Philosophy* , 12, October 1974, pp. 521-522)

3. Muller, Robert, ed. 1982. *Les Mégariques. Fragments et témoignages* . Paris: Vrin.

   Traduction et commentaire.

   Table des matières: Introduction 7; Les fragments et témoignages (I. Euclide, II. Eubulide, III. Diodore, IV. Stilpon, V. Appendice: Bryson et son élève Polyxène) 19; Annexe I 75; Annexe II 91; Commentaire 95; Notes 183; Bibliographie 229; Index des sources 237; Index locorum 247-253.

   "Introduction. I. Les textes Mégariques.

   On s'accorde volontiers à reconnaître que les Mégariques sont parmi les plus mal connus des philosophes de l'Antiquité, assurément les plus insaisissables, alors même que les éléments de leur doctrine resurgissent régulièrement dans les travaux des interprètes de Platon et d'Aristote ou dans ceux des historiens de la logique, et après que plusieurs d'entre eux eurent joui auprès des Anciens d'une célébrité égale à celle des plus grands. A cela il y a d'abord une raison simple, la quasi-absence de textes: des originaux il ne subsiste en effet que quelques courts *fragments* difficiles à exploiter, et les *témoignages* des Anciens sont dans l'ensemble peu nombreux, souvent brefs, dispersés, et donc d'un accès malaisé. Cette situation défavorable n'est certes pas réservée aux seuls Mégariques, puisque bon nombre de Présocratiques, les Cyniques ou les Cyrénaïques, pour ne citer qu'eux, ne sont apparemment pas mieux lotis. Pour tous ceux-là, cependant, le lecteur moderne a à sa disposition, parfois depuis longtemps, des recueils regroupant l'essentiel ou la totalité des textes subsistants (1), alors que pour les Mégariques il lui aura fallu

attendre le dernier tiers du XXe siècle: ce n'est qu'en 1972, en effet, qu'est paru le livre de K. Döring qui réunit pour la première fois l'ensemble des fragments et témoignages qui les concernent (2). Les qualités de ce travail, jointes à la commodité que constitue le fait d'avoir enfin regroupés et ordonnés la quasi-totalité des textes intéressant les Mégariques font qu'il est en passe de devenir classique, les historiens de la philosophie et de la logique s'y référant de plus en plus volontiers. On ne pouvait donc mieux faire, quand il s'est agi de proposer au lecteur français la documentation la plus complète et la plus sûre sur la pensée mégarique, que de prendre le livre de Dôring comme base de travail, et de traduire la totalité des fragments et témoignages rassemblés par lui en respectant sa numérotation et la disposition générale de son ouvrage.

Il est bien connu cependant que les difficultés du genre empêchent presque fatalement un recueil de ce type d'être réellement exhaustif et de se suffire à lui-même. Il faut d'abord sélectionner et découper les textes pertinents, ce qui exige qu'on se donne des critères à la fois rigoureux et maniables, mais qui ne seront jamais totalement à l'abri de la contestation. Il faut ensuite tenir compte du fait qu'un extrait isolé de son contexte peut être inintelligible, ou interprété à contresens; de même la juxtaposition de fragments d'auteurs et de siècles différents, parfois très éloignés les uns des autres, peut avoir des conséquences malheureuses.

Il faut reconnaître que sur le premier point le travail de Döring ne suscite que peu de réserves: ayant adopté le principe de ne retenir que les textes où apparaît formellement le nom des Mégariques en général ou de l'un au moins des membres présumés du groupe, l'auteur ne fait donc pas figurer dans son recueil les divers passages où la critique moderne a cru déceler des allusions aux Mégariques. Si cette prudence peut sembler excessive à certains, elle a du moins le mérite de la clarté et de la rigueur en proposant un minimum de textes incontestables: dans la mesure où il est difficile de trancher sur la base de simples critères externes dans les querelles opposant à ce sujet les spécialistes, elle laisse aux interprètes la responsabilité de leurs choix. Tout au plus pourrait-on remarquer que Döring est

infidèle à son principe à une ou deux reprises -- en omettant telle phrase où figure pourtant le nom d'un Mégarique (3), ou en incluant un fragment dans lequel aucun nom n'est cité (4) -- et que parfois le mauvais découpage d'un extrait interdit d'en saisir clairement la signification.

La deuxième difficulté, quant à elle, ne peut guère être tournée qu'en joignant aux fragments et témoignages une introduction ou un commentaire, dont l'objet serait de restituer aussi souvent que nécessaire les divers contextes, et de mettre en lumière la cohérence conceptuelle des principaux éléments de la doctrine, ou, à défaut, de faire apparaître au moins l'unité d'inspiration de l'ensemble. Bien que l'auteur ait complété son travail par un commentaire assez fourni (une centaine de pages), il ne paraît pas que cette reconstruction de la pensée mégarique ait été pour lui un objectif prioritaire: tous ses soins sont allés à la réunion et à l'établissement des textes, les éclaircissements qui les accompagnent étant plutôt de nature historique et philologique.

C'est en tenant compte de ces difficultés et de cet état de fait que nous avons conçu notre propre travail. Les mérites du livre de Döring étant reconnus, on devait seulement chercher à le compléter pour pallier les inconvénients qu'on vient de relever. Pour combler les rares lacunes de sa collection, mais surtout pour éclairer par les sources anciennes elles-mêmes le contenu de quelques fragments elliptiques ou allusifs, un certain nombre de textes complémentaires ont été ajoutés en Annexe (5), ainsi qu'une brève liste des allusions probables ou possibles proposées par divers spécialistes; d'autre part, pour corriger dans la mesure du possible les effets négatifs de l'extrême dispersion de nos sources et de la brièveté de la majorité d'entre elles, on s'est efforcé d'éclairer par un Commentaire la signification littérale et la portée philosophique des divers fragments, la place occupée par ce commentaire se justifiant par la rareté, dans notre langue, des travaux consacrés aux Mégariques: hormis deux ou trois études déjà anciennes (6), on ne dispose en effet à ce jour que de quelques courts chapitres inclus dans les histoires générales do la philosophie et d'articles spécialisés sur telle ou telle question particulière de logique (7),

ce qui est manifestement insuffisant quand on cherche à acquérir une vue cohérente sur la nature exacte et l'étonnant destin de la doctrine mégarique.

Étrange destin, en effet, que celui des philosophes de Mégare. Les caractères particuliers de la documentation, que l'on vient de rappeler (sources indirectes, fragmentaires, longtemps difficiles à consulter), n'expliquent sans doute pas à eux seuls la méconnaissance dont ils sont encore partiellement victimes. Car il faut savoir qu'une certaine ambiguïté a marqué leur réputation dès l'origine: si on leur reconnaissait volontiers des talents hors pair, principalement dans le domaine de la dialectique, si on saluait la personnalité exceptionnelle à tous égards d'un Stilpon, on ne manquait pas de dénoncer d'autre part les dangers que présentait l'usage de ces mêmes talents, ou de souligner la vanité de leurs prétendus tours de force. Pour comprendre ces jugements contrastés -- auxquels font curieusement écho les appréciations contradictoires des historiens de la logique des XIXe et XXe siècles (8) -- et pour éviter les risques de méprise, il est indispensable de donner d'abord, à qui voudrait entreprendre la lecture des textes, une vue plus précise sur la situation historique de l'École de Mégare; on tentera ensuite, pour les mêmes raisons, de restituer quelque chose de l'unité d'une pensée souvent réduite à quelques thèses disparates et paradoxales." (pp. 7-9)

(1) En ce qui concerne les Petits Socratiques, on rappellera pour mémoire les *Antisthenis fragmenta* de Winckelmann (1842), ainsi que les recueils de J. Humble (1931) et de F. Decleva-Caizzi (1965) auxquels a fait suite récemment la traduction française de L. Paquet *(Les Cyniques grecs* , Ottawa, 1975) ; les fragments d'Aristippe et des Cyrénaïques ont été rassemblés en 1956 par G. Giannantoni (avec une traduction italienne) et en 1961 par E. Mannebach.

(2) K. Döring, *Die Megariker, Kommentierte Sammlung der Testimonien* , Amsterdam, B.R. Grüner, 1972.

(3) Voir les fr. 123 et 186. — On notera que, par commodité et pour nous conformer à l'usage, nous utilisons l'abréviation « fr. » pour désigner les textes mégariques bien qu'en toute rigueur

les fragments soient très peu nombreux et qu'il 'agisse en fait surtout de témoignages.

(4) Fr. 95.

(5) Pour éviter de briser la continuité de la numérotation originale, et parce que ces textes ne constituent pas à proprement parler des témoignages supplémentaires, on a préféré les regrouper à part et à la suite de l'ensemble constitué par Döring. Ces ajouts sont signalés après chacun des fragments concernés.

(6) Aux livres de D. Henne (*L'Ecole de Mégàre* , Paris, 1843) et de C. Mallet *Histoire de l'Ecole de Mégare et des Ecoles d'Ëlis et d'Ërétrie* , Paris, 1845), qui accusent leur âge, il faut cependant ajouter les belles analyses de Hegel (*Leçons sur l'histoire de la philosophie,* trad. fr. de P. Garniron, Paris, Vrin, tome 2, 1971, pp. 339-359) et de E. Zeller (*La philosophie des Grecs considérée dans son développement historique* , vol. 3, trad. franç. de M. Belot, Paris 1884 ; nous citons cependant une édition allemande postérieure, voir plus loin), toutes deux contenues dans des ensembles plus vastes et risquant de ce fait de passer inaperçues.

(7) La situation n'est pas très différente dans les autres langues. Une exception toutefois : l'article « Megariker» que K. von Fritz a signé dans la *Realenzyklopadie* de Pauly-Wissowa-Kroll (Suppl., vol. 5, Stuttgart, 1931, col. 707-724), et qui constitue l'étude la plus complète et la plus intéressante sur le sujet.

(8) Cf. par exemple C. Prantl, *Geschichte der Logik im Abendlande* , I, Leipzig, 1855, réimpr. Graz-Austria, 1955, p. 33 («l'Ecole de Mégare... n'a pas non plus et en aucune manière poussé plus loin l'édification d'une logique»), et R. Blanché, *La logique et son histoire* , Paris, A. Colin, 1970, p. 91 (Les Mégariques sont «les vrais fondateurs de la logique dite stoïcienne »).

4. Montoneri, Luciano, ed. 1984. *I Megarici. Studio storico-critico e traduzione delle testimonianze antiche* . Catania: Università di Catania.

Indice generale: Premessa 7; Parte prima I Megarici. Studio storico-critico 13; Introduzione: I discepoli di Socrate e le loro scuole 15; I. Euclide e la sua scuola 39; II. Eubulide e seguaci 93; III. Diodoro Crono e seguaci 123; IV. Stilpone e seguaci 207; Stemma della *diadoche* megarica 226; Parte Seconda: I Megarici. Le testimonianze 227; Indice dei nomi antichi 323; Indice degli autori moderni 329; Indice delle fonti 333-345.

La presente ricerca "vuole essere un primo tentativo unitario e globale di ricostruzione e interpretazione delle fondamentali problematiche speculative dei pensatori megarici, condotto sulla scorta di un'attenta ricognizione critica del lavoro storiografico degli ultimi due secoli." (p. 8)

"Veniamo ora a illustrare la struttura dell'opera, che è bipartita.

Abbiamo articolato la prima parte -- che ha carattere monografico -- in quattro capitoli, dedicati rispettivamente alle grandi figure dei "capiscuola" del Megarismo: Euclide, Eubulide, Diodoro Crono e Stilpone.

La seconda parte comprende invece la traduzione delle testimonianze sui Megarici, ed è anch'essa strutturata in quattro sezioni (I. Euclide e la sua scuola; II. Eubulide e seguaci; III. Diodoro Crono e seguaci; IV. Stilpone e seguaci), corrispondenti ai quattro capitoli della prima parte.

Diversamente da Döring che le raccoglie a parte (cf. *Anhang: Bryson und sein Schüler Polyxenos* , pp. 62-70), noi abbiamo incorporato nella sezione I le testimonianze su Brisone e Polisseno, conformemente al nostro punto di vista espresso nel capitolo I.

In ciascuna sezione abbiamo raggruppato le fonti -- secondo la partizione adottata da Döring -- in: Testimonianze sulla vita (A), sugli scritti e la dottrina (B) e (soltanto per Euclide) sulla scuola (C). Abbiamo inoltre inserito -- quando ci è parso utile a una maggiore perspicuità di lettura -- titoli supplementari (in corsivo), con intento classificatorio e, insieme, chiarificatore del contenuto delle testimonianze.

Per quanto riguarda la traduzione italiana, valgano le seguenti avvertenze:

1. Sono state tradotte tutte le testimonianze comprese nella raccolta di Döring, a eccezione di alcune poche (precisamente quelle corrispondenti ai frr. 21, 22, 23, 58, 69, 72, 200, 201), che sono state omesse o perché prive di senso compiuto (frr. 21, 22, 23), o perché non interpretabili, trattandosi di testi papiracei assai lacunosi dai quali si ricavano non più che nomi e termini isolati. In ogni caso, Si tratta -- a nostro avviso -- di testimonianze praticamente irrilevanti dal punto di vista del loro contenuto storico-filosofico.

Viceversa, abbiamo ritenuto utile inserire la traduzione di alcune testimonianze non comprese nella raccolta di Döring, e che sono quelle contrassegnate dai nn. 44, 48, 166, 174 del nostro ordinamento.

2. Nella traduzione abbiamo di norma seguito il testo critico riprodotto da Döring, esplicitamente dichiarando i pochi casi nei quali abbiamo preferito una diversa lezione.

Nella traduzione abbiamo disposto le testimonianze secondo un ordine di lettura che ci è parso coerente con le caratteristiche e le conclusioni della trattazione monografica. Per facilitare i riscontri col testo greco, abbiamo fatto seguire, al nostro numero d'ordine della testimonianza, quello corrispondente nella numerazione Döring, riportato in parentesi.

Al fine di renderne più perspicuo al lettore il senso complessivo, abbiamo tradotto alcune testimonianze in una citazione più ampia rispetto a quella riportata da Döring. Esse sono state contrassegnate da un asterisco (*) posto accanto al nostro numero d'ordine della testimonianza." (pp. 10-11)

5. Giannantoni, Gabriele, ed. 1990. *Socratis et Socraticorum Reliquiae* . Napoli: Bibliopolis.

Collegit, disposuit, apparatibus notisque instruxit Gabriele Giannantoni, (4 voll.).

Vol. I. 2. *Euclidis et Megaricorum philosophorum reliquiae* : Euclides Megareus, Eubulides Milesius, Alexinus Eleus,

Euphantus Olvnthius, Apollonius Cronus, Diodorus Cronus, Philon Megaricus, Ichthyas Megaricus, Clinomachus Thurius, Pasicles Thebanus, Thrasymachus Corinthius, I)ioclides Megareus. Stilpon Megareus, Dionysius Chalcedonius, Panthoides Megaricus, Philippus Megaricus, Bryson.

"Scopo della presente raccolta è quello di fornire, per la prima volta, l'intero corpus delle fonti antiche su Socrate e il movimento socratico.

Accanto perciò a una riedizione delle *Socraticorum reliquiae* , il lettore troverà qui la prima raccolta delle fonti antiche su Socrate, la raccolta aggiornata di quelle su Eschine e r indicazione di quelle su gli altri uditori e seguaci di Socrate."

"Le fonti relative a Euclide e alla scuola megarica sono state tradotte in italiano da L. Montoneri, *I Megarici* (1984) e in francese da R. Muller, *Les Mégariques* (1985). Entrambe queste traduzioni sono basate sulla raccolta di Döring: Montoneri (che dà alle fonti una diversa disposizione e una diversa numerazione), vi aggiunge solo il n. 44 (cfr. p. 246), che è un testo di al-Mubassir (« Zenone [di Elea] fu l'autore della dottrina che si chiama Megarica), Muller, invece, dopo aver notato qualche lieve incongruenza nella raccolta di Döring (omissione di due testi che pure citano il nome di un Megarico [cf Sext. Emp. a*dv. math* . X102 = F 13 e Plutarch. *de stoic. repugn* . 10 p. 1036 C- = F 18] e l'inclusione di un testo nel quale nessun Megarico è citato [cfr. Cicer. *de nat. deor* . 9,22-23 =Il C 4 aggiunge poi (pp. 75-93) una serie di testi, che pur non essendo testimonianze in senso stretto, aiutano tuttavia a comprendere determinate dottrìne attribuite ai Megarici: la maggior parte di questi testi (dr. pp. 65-86, ma a questi si possono congiungere anche i passi dal *De fato* ciceroniano tradotti a p. 88 circa il problema dei futuri contingenti) riguardano i cosiddetti « argomenti megarici » (il «mentitore» il «velato», il «sorite», ecc.); i rimanenti sono quelli già citati e passi di Seneca da me già inclusi (cfr. Il o 33 e II o 15) più l'indicazione di una serie di passi platonici e aristotelici, nei quali la critica moderna ha visto allusioni ai Megarici (cfr. *SR* 1

pp. 358-73 e la successiva nota 8)." (Dalla Nota 1. *Sui criteri della presente raccolta*)

"In 1983 Gabriele Giannantoni produced his *Socraticorum Reliquiae* [SR], in four handsome volumes produced by the firm of Bibliopolis in Naples. The new edition of the writings of and testimonia for the Socratics is again handsomely produced by Bibliopolis, in four bound volumes with a photograph of Socrates adorning the box that contains them."

(...)

Volume I of *SR* took us as far as Aristippus' pupil, Theodorus of Cyrene (IV H), in 315 pages; volume I of SSR takes us only to the school of Elis (II), in 521 pages. Volume II of SR took us to the last of the "Socratics" - the late descendant of Socrates in the line of Antisthenes (VA) and Diogenes of Sinope (VB), the Cynic Menedemus (VN), making a total of 778 pages; volume II of SSR takes us back to the first generation of the Socratics and Socrates' companions and associates who, for the most part, were Socratic only in their behavior and dress-Chaerephon, Apollodorus, and Aristodemus, in 778 pages, which brings the new collection of testimonia to a total of 1,173 pages.

Volume III of SSR contains a Bibliography of 85 pages and indices of sources and names. Volume IV contains a series of 56 essays modestly entitled "Note," which present economical and carefully considered accounts of some of the major Socratics, the last of these being Aeschines of Sphettos (who was excluded from SR). The most relevant of these notes is the first which sets out the criteria for inclusion in this collection." (Diskin Clay, "Review of *Socratis et Socraticorum Reliquiae* by Gabriele Giannantoni", *The Classical Journal* , 88, 1993, pp. 296-299)

Studies in English A - F

1. Allen, James. 2001. *Inference from Signs. Ancient Debates About the Nature of Evidence*. New York: Oxford University Press.

Study III: *The Stoics on Sign-Inference and Demonstration* pp. 147-193, Appendix: *The Evidence for a Dialectical Origin of the Stoic Theory of Signs* (pp. 188-193).

"The existence of a Dialectical school distinct from the Megarian school is controversial. The case in favour is made by D. Sedley,(33) doubts have been raised by K. Döring.(34) I am not concerned here with this wider controversy, but only with T. Ebert's contention that the Stoic theory of the sign had its origin in the Dialectical school.

The principal piece of evidence for this thesis is a passage in chapter 9 of the pseudo-Galenic *Historia philosopha*, where, as we have already had occasion to observe, a definition of the sign essentially the same as that in Sextus is preserved, but commemorative and indicative signs are represented as species of the genus sign determined by this definition." (pp. 188-189)

(...)

"But the burden of my argument in this study is that the distinction and the definition do not form a unity and that, if we must look for the origin of the distinction outside the Stoa, the most likely place is not the Dialectical school but in medicine. If this is right, it is possible to agree with Ebert that the distinction between commemorative and indicative signs is not Stoic without agreeing that it must be Dialectical or that its source and that of the definition of the sign must be sought in the same place." (p. 193)

2. ———. 2019. "Megara and Dialectic." In *Dialectic after Plato and Aristotle*, edited by Bénatouil, Thomas and Ierodiakonou, Katerina, 17-46. Cambridge: Cambridge University Press

"I spoke of the philosophers traditionally regarded as members of a Megaric school. In a 1977 article on Diodorus Cronus, David Sedley argued (among other things) that, instead of the single Megaric school of

tradition, there were at least two distinct schools, the Megaric and the Dialectical (and possibly a third, the Eristical).(10) After setting out this view, I shall rehearse some objections to it

and eventually sketch a position that can, I think, be viewed as one of tentative and qualified agreement.

This is the occasion for another caution, however. Suppose that a certain amount of cold water is thrown on the idea of a distinct Dialectical school.

It would be a mistake, I maintain, to think that that there ought to be a presumption in favour of the traditional one-school view. Questions about whether and in what way there was such a thing as a Megaric school can and have also been raised.(11) Doubts about the existence of a distinct Dialectical school should not necessarily be seen as confirming the traditional conception of a unitary Megaric school. In an effort to avoid prejudging the issue, I shall refer to a 'dialectical group'." (p. 21)

(10) Sedley 1977, summary and comments in Giannantoni 1990 *SSR* 4.46-8 (possibly anticipated by Schmid, whose view I know only from the summary in Giannantoni 4.43).

(11) Cambiano 1977; Giannantoni 1990 *SSR* 4.45-6. Cautions about the use of the term 'school': Döring 1972, 1989; Muller 1985: 9-10 (Muller 1988 is,, however, more sympathetic to the idea of a Megaric school).

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_____ (1988) *Introduction à la pensée des Mégariques*. Paris and Brussels.

Sedley, D. (1977) 'Diodorus Cronus and Hellenistic philosophy' *PCPS* 23: 74-120.

3. Bailey, Dominic T. J. 2012. "Megaric Metaphysics." *Ancient Philosophy* no. 32:303-321.

"I examine two startling claims attributed to some philosophers associated with Megara on the Isthmus of Corinth, namely:

M1 . Something possesses a capacity at t if and only if it is exercising that capacity at t.

M2. One can speak of a thing only by using its own proper λὸγος.[*]

In what follows , I will call the conjunction of M1 and M2 'Megaricism'(1) The literature on ancient philosophy contains several valuable discussions of M1 and M2 taken individually. (2) But there is no discussion of them together, much less of their logical relations. I intend to remedy that lack, and to show why it is a lack worth remedying."

(1) I adopt the convention of using 'Megarian' for a citizen of Megara, 'Megaric ' for a follower ofthe philosophical trend. But in speaking of 'Megaricism' or 'the Megarics' , I do not intend to imply that there was anything coming from Megara so robustly unified or interconnected as to deserve the name of 'school' . I do not deny it either. See , most recently , Muller 1988. One of our main sources for M2 is a report from Aristotle' s *Metaphysics*, in which the position is attributed to the philosopher Antisthenes. Antisthenes was not from Megara (he was an Athenian contemporary of Plato). But some of his recorded claims are close enough to those attributed to bom and bred Megarians such as Euclides and Stilpo for me reasonably to include him, for my purposes, under the Megaric banner.

For arguments intimately connecting Antisthenes ' general views on language with those of actual Megarians, see Denyer 1991 , 27ff.

(2) For M1 see Makin 1996; Makin 2006, 60- 81; Beere 2009, 91-117. For M2 see Denyer 1991.

[*] Text for M1: Aristotle, *Metaphysics*, IX, 3.1046b29-33, 1047a4-7; Text for M2: Aristotle, *Metaphysics*, V, v 29.1024b29-34.

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4. Barnes, Jonathan. 1993. "A big, big D?" *The Classical Review* no. 63:304-306.

   Reprinted with the title: *Logic and the dialecticians* as Chapter 16 of J. Barnes, *Logical Matters: Essays in Ancient Philosophy II*, edited by Maddalerna Bonelli, Oxford: Clarendon Press 2012, pp. 479-484.

   " 'As Aristotle invented predicate logic, so Chrysippus invented propositional Iogic. Unlike Aristotle, Chrysippus had precursors; but his debt to them was slight — and in any event we know little or nothing about them.(1)

   Thus, in caricature, an orthodoxy. Theo Ebert has urged heresy: Chrysippus, he suggests, owed a very great deal to his precursors — and we can itemize at least some parts of the debt. For substantial parts of Chrysippean logic were based, directly or indirectly, on the work of the Dialecticians (Diodorus Cronus, Philo, and their associates), and it is the Dialecticians whom we should honour as the inventors of propositional logic.

(1) In doing so we shall not merely pay just tribute to the eminent dead: we shall come to a better understanding of the course and career of logic itself.

Ebert's thesis is sustained by meticulous analyses of familiar texts, most of them in Sextus; and a thorough consideration of it would occupy a volume here — ολίγα από πολλών — I voice two general doubts and sketch two particular disagreements." (p. 479 of the reprint)

(...)

"In sum, Ebert has not yet converted me to his heresy.** Nonetheless, I give his book four hearty cheers. It is a rattling good read; it is lucid and open and honest; it essays sharp and subtle interpretations of texts which other scholar have merely blustered through; and in the course of discussing the theories of signs and of proof, the classification of types of proposition, the analyse of fallacies and sophisms, it often throws new and brilliant light on a portfolio of documents which are central to our understanding of Hellenistic logic." (p. 484 of the reprint)

(1) Ebert denies any share of honour to Theophrastus and the Peripatetics: pp. 15-19, 73 n. 8.

* Λ review of T. Ebert, *Dialektiker und friihe Stoiker bei Sextus Empiricus: Untersuchungen zur Entstehung der Aussagenlogik*, Hypomnemata 95 (Gottingen, 1991) originally published in *CR* 43,1993, 304-306, under the title 'A big, big D?'. (Some readers of which forgot that the answer to the question, is: 'Well, hardly ever'.)

** He has replied to the chief parts of this review on pp. 283-293 of his 'Defence'. [T. Ebert, *In Defence of the Dialectical School*, in: Francesca Alesse (ed.), *Anthropine Sophia. Studi di filologia e storiografia filosofica in memoria di Gabriele Giannantoni*, Napoli: Bibliopolis 2008, pp. 275-293.]

5. Bobzien, Susanne. 1993. "Chrysippus' Modal Logic and its Relation to Philo and Diodorus." In *Dialektiker und Stoiker. Zur Logik der Stoa und ihrer Vorläufer*, edited by Döring, Klaus and Ebert, Theodor, 63-84. Stuttgart: Franz Steiner.

On Philo the Dialectician: "Philo's modal definitions are the least well reported and their exact meaning cannot be reconstructed with certainty. Only Boethius gives all four Philonian modal definitions (*in Int*. 234.10-22). The other three sources, all Aristotle commentators as well (Alex. Aphr. *in APr*. 183f; Phlp. *in APr*. 169; Simp. *in Cat*. 195f), confine themselves to Philo's notion of possibility, contrasting it with others; and it is not always clear what is part of the definition and what is part of the contrast. I will rely primarily on Boethius. According to his report, a proposition is Philonian possible, iff it is capable of truth according to the proposition's own nature or as far as the proposition itself is concerned; otherwise it is impossible. Thus, it seems, what is required for Philonian possibility is some sort of intrinsic consistency of the proposition. The propositions '(this) piece of wood bums' (Simp. *in Cat*. 196.1), 'Diodes is alive', 'it is night' would all be consistent in this sense.

The evidence is too sparse and heterogeneous to allow one to give a clear account of the type of consistency Philo had in mind. As it is also not essential for what follows, I leave the concept of consistency uninterpreted.

Consistency seems to be a common and reasonable criterion for possibility; still, due to the temporalized concept of truth, it works a little differently for Hellenistic propositions than for atemporal propositions." (p. 67, notes omitted)

On Diodorus Cronus: "As in the case of Philo, for Diodorus the full set of modal definitions is only reported by Boethius (*in Int*. 234.22-6). Yet, the definition of possibility is confirmed in some other sources (Alex. Aphr. *in APr*. 183f.; Phlp. *in APr*. 169; Simp, *in Cat*. 195; Boeth. *in Int*. 412), and we have further valuable information about Diodorus' modal theory in Epictetus, Cicero, and Plutarch (Epict. *Diss*. 2.19.1-5; Cic. *De fato* 12, 13, 17 and *Fam*. 9.4; Plu. *De Stoic,.rep*. 1055E-F).

For Diodorus, a proposition is possible iff it either is true or will be true."(p. 69, note omitted)

6. ———. 1998. *Determinism and Freedom in Stoic Philosophy*. Oxford: Clarendon Press.

Chapter 3.1.2 *Diodorus and necessitarianism*, pp. 102-108.

"We can hence conclude—fully in accord with the surviving passages —that Diodorus' modal notions were not criticized for leading to universal necessitarianism, i.e. to the theory that 'everything is necessary'—for that it is day, for instance, is not Diodorean necessary. Rather what was found unacceptable was that whatever in fact never happens is impossible (or alternatively that all false propositions about what happens in the future are impossible). This was the only straightforward way, within Hellenistic logic, to express the thought that Diodorus' modalities preclude counterfactual possibilities. But this is surely enough to worry not only a libertarian but also a 'soft determinist' such as Chrysippus. So Chrysippus, since he wanted to retain 'counterfactual possibilities', had to reject Diodorus' modal concepts. And he did this, as is well known, by attempting to refute the Master Argument, i.e. the argument with which Diodorus established his notion of possibility as the (only) right one.(26) Still, the question remains: what concept of possibility should Chrysippus adopt instead? One choice he had was Philo's." (p. 108)

(26) For Chrysippus' refutation of this argument see e.g. Bobzien 1986 [*Die stoische Modallogik* (Würzburg)], 105-13.

7. ———. 1999. "Logic. II. The 'Megarics'." In *The Cambridge History of Hellenistic Philosophy*, edited by Algra, Kempe, Barnes, Jonathan, Mansfeld, Jaap and Schofield, Malcolm, 83-91. Cambridge: Cambridge University Press.

"Apart from the various logical puzzles and sophisms, there are only two topics on which we can be sure of a positive contribution to logic(25) by the ‘Megarics’.(26) These are the positions of Diodorus Cronus and of Philo on the theory of conditionals and on modal logic. Why the discussion of these topics came down to us, we can only divine. Certainly both involve notorious difficulties. Again, they were topics which were extensively and intensely discussed in Hellenistic logic; so much so that the disputes became part of the general knowledge of the intelligentsia of the time (e.g. Sextus Empiricus *M* [*Adversus mathematicos*] 1.309–10). In addition,

the theory of modalities was believed to have far-reaching results for other areas of philosophy." (p. 83)

(25) Logic in the narrow sense, i.e. not including contributions to the study of ambiguity.

(26) On the extent to which it is legitimate to speak of a 'Megaric' (or Dialectical), 'school', see above, p. 47 n. 105.

P. 47, note 105: On the existence and name of this school, cf. Cambiano 1977 and Sedley 1977. Against this, see Döring 1989. Like Giannantoni 1990, iv 41–50, I am inclined to accept Sedley's hypothesis

regarding the 'Dialectical' school. For the chronology of these philosophers I follow Sedley 1977, 107 n. 23. Cf. also the useful chronological table ibid. 82.

References

Cambiano, G. (1977) 'Il problema dell' esistenza di una scuola Megarica', in *Scuole socratiche minori e filosofia ellenistica*, ed. G. Giannantoni. Bologna: 1977.

Döring, K. (ed.) (1989) 'Gab es eine Dialektische Schule?', *Phronesis* 34: 293-310.

Giannantoni, G. (ed.) (1983–1990) *Socratis et socraticorum reliquiae*. 4 vols. Naples.

Sedley, D. (1977) 'Diodorus Cronus and Hellenistic philosophy' *PCPS* 23: 74-120.

8. Bochenski, Joseph. 1951. *Ancient Formal Logic*. Amsterdam: North-Holland.

Chapter V. *The Stoic-Megaric School,* pp. 77-102.

"The development of formal logic in Antiquity reached its peak in the works of the thinkers belonging to the Megaric and Stoic Schools. Unfortunately, none of those works are preserved and our information concerning them supplied by later sources is desperately scarce. It is sufficient, however, to show that among both Megaricians and Stoics there were very great logicians and that the general level of the formal rigour obtained by those

schools was remarkable - indeed, superior in some respects to that of our own today. Among the discoveries which may safely be attributed to them, are the following: invention and statement in form of an axiomatic system (which seems to have been both consistent and complete) of a logic of propositions; invention of truth-tables and thorough discussions of the meaning of implication;

subtle semiotical doctrines, including a sharp distinction between the logical laws and the metalogical rules of inference, and a clear distinction between intension and extension.

We shall expound here, after a historical survey (13), their logic in four chapters, dealing respectively with semiotics (14), the theory of propositional functors (15) the rules of inference or syllogisms (16) and the paradoxes, including the famous Liar (17)." (p. 77)

9. ———. 1961. *A History of Formal Logic*. Notre Dame: Indiana University Press.

   Translated from the German edition "*Formale Logik*" (1956) by Ivo Thomas.

   Reprinted New York, Chelsea Publishing Co., 1970.

   Chapter III. *The Megarian-Stoic School*, pp. 105-133.

   "In reading the Megarian-Stoic fragments one's first impression is that here is something different from Aristotelian logic: terminology, laws, the very range of problems, all are different. In addition we are confronted with a new technique of logic. The most striking differences are that the Megarian-Stoic logic is firstly not a logic of terms but of propositions, and secondly that it consists exclusively of rules, not of laws - as does the *Prior Analytics*. The question at once arises, what was the origin of this logic.

   The answer is complex. First of all one cannot doubt that the Megarians and Stoics, who as we have seen (cf. 18.03) found an only too frequent delight in refutation, had a tendency to do everything differently from Aristotle. Thus for example they

introduce quite new expressions even where Aristotle has developed an excellent terminology.

Yet it should not be said that their logical thought could have developed uninfluenced by Aristotle. On the contrary, they appear to have developed just those ideas which are last to appear in the *Organon*. We. find, for instance, a more exact formulation of the rules which Aristotle used in axiomatizing the syllogistic, and himself partially formulated. Nor can it be denied that they developed his theory of 'syllogisms from hypotheses', chiefly on the basis of the preparatory work of Theophrastus. And generally speaking they everywhere show traces of the same spirit as Aristotle's, only in a much sharper form, that spirit being the spirit of formalized logic." (p. 108)

10. Brancacci, Aldo. 2005. "The Double Daimon in Euclides the Socratic." *Apeiron* no. 38:143-154.

"According to Diogenes Laertius, Euclides of Megara wrote six dialogues: *Lamprias, Aeschines, Phoenix, Criton, Alcibiades, and Erotikos*.(1) That they were Socratic dialogues as can clearly be seen from the titles,(2) is confirmed by Panaetius, in a passage worth quoting at the outset: 'Panaetius thinks that of all the Socratic dialogues, those by Plato, Xenophon, Antisthenes and Aeschines, are genuine (*aletheis*); he is in doubt about those ascribed to Phaedo and Euclides; but he rejects the others one and all'.(3)

(...)

"Taking into account the existence of this dialogue [*Erotikos*] by Euclides, and the terms in which the association between the daimones Sleep and Death is developed, the conclusion of the *Apology of Socrates* can be better understood as can the way in which Plato constructed it. I am referring to the well-known section dealing with Socrates' two hypotheses on death. The first — which I believe is very close to the historical Socrates — is based on the assumption that dying 'is like being nothing anymore' (*Ap* 40c5-6), while the second — where Plato lets his own point of view creep in, which was to be further developed in the *Phaedo* — starts out from the assumption of Orphic-Pythagorean origin that dying is, 'as people say, a kind of

change and migration of the soul from this place down here to another place' (*Ap* 40c7-9).

1 Cf. DL II 108 (= SSR II A 10). The ancient sources concerning Euclides and the Socratics are quoted in this paper from the edition SSR by Giannantoni 1990.

2 Cf. Hirzel 1895, I 110 n3.

3 DL II64 (= Panaetius fr 126 van Straaten)

References

DL = Diogenes Laertius

Hirzel 1895 = *Der Dialog*. *Ein literarhistorischer Versuch*, Leipzig: S. Hirzel

van Straaten =*Panetius, sa vie, ses écrits et sa doctrine. Avec une edition des fragments*. Amsterdam: Paris, 1946

11. ———. 2017. "Socratism and Eleaticism in Euclides of Megara." In *Socrates and the Socratic Dialogue*, edited by Stavru, Alexandru and Christopher, Moore, 161-178. Leiden: Brill.

"Foreword. The sources for Euclides of Megara are scarce, and it is extremely difficult, if not impossible, to reconstruct his philosophy fully. The aim of this paper is to reassess the main evidence about Euclides and answer a pair of questions.

These are indeed the two fundamental questions posed by his thought: the nature of Euclides' Socratism, and the problem of his adherence to Eleaticism.

Although these issues are largely independent, they are still to some extent linked. In fact, a survey of the sources related to the Socratism of Euclides is not of secondary importance for considering whether he was somehow also connected to the Eleatic tradition.

The difficulty of this survey is related to the imbalance between the complexity of these issues and the scarcity of the extant documentary framework.

In this chapter I will first determine the most reliable data emerging from the ancient texts and then reconstruct the

overall character of Euclides' thought. I will relate these data to a broader theoretical and historical-philosophical context.

I will thereby refrain from giving drastic or prejudicial answers to either question, in contrast to what has occasionally been done before. Although I will neither cite nor discuss in detail the wide bibliography on Euclides and the Megarian school, I will deal with the contributions that have most influenced the study of those two issues." (p. 161)

12. Byrd, Michael. 1978. "Megarian Necessity in Forward-Branching, Backward-Linear Time." *Noûs* no. 12:463-469.

"Studies by Mates [4], Hintikka [3], Prior [5], and Rescher [7] have drawn attention to the importance of temporally defined modalities in the writings of Aristotle, Aquinas, and other ancient and medieval philosophers. The most widely known concepts of this sort are the Diodorean and the Megarian-Aristotelian treatments of necessity. According to the former, a statement is necessary now just in case it is true now and will be true at all future times. According to the latter, a statement is necessary now in case it is true now and at all earlier and later times.

A major concern of the initiators of tense logic was the question of what modal structure these two conceptions of necessity possessed. Arthur Prior's interest centered on the Diodorean view." (p. 463)

(...)

"Investigation of Megarian necessity has been much less thorough; this is surprising in view of its centrality in the works of figures like Aristotle and Aquinas. Now, it is clear that if time is conceived as linear, then Megarian necessity is the system S5. However, it is not at all evident what the correct logic is if time is treated as branching toward the future but linear toward the past. To my knowledge, no serious attempt has yet been made to solve this problem.(1) Moreover, this failure is serious: important proponents of Megarian necessity-Aristotle, for instance-can be plausibly represented as having held the view that time is forward-branching and backward-linear."

(1) Michael Byrd, "On the Addition of Weakened L-Reduction Axioms to the Brouwer System," forthcoming [*Mathematical Logic Quarterly* 24 (25-30): pp. 405-408 (1978)].

References

[3] Jaakko Hintikka, "Aristotle and the 'Master Argument' of Diodorus," *American Philosophical Quarterly* 1(1964): 101-14.

[4] Benson Mates, *Stoic Logic* (Berkeley: University of California Press, 1953).

[5] Arthur Prior, "Diodorean Modalities," *The Philosophical Quarterly* 5 (1955): 202-13.

[7] Nicholas Rescher, *Temporal Modalities in Arabic Logic* (Dordrecht/Boston: Reidel, 1966).

13. Calvert, Brian. 1976. "Aristotle and the Megarians on the Potentiality-Actuality Distinction." *Apeiron* no. 10:34-41.

"In the third chapter of *Metaphysics* IX, Aristotle considers an objection to his distinction between actuality and potentiality."

(...)

"In what follows, I shall attempt to show that, while Aristotle is quite right to indicate the consequences which follow from the Megarian position, his response is inadequate as a refutation of that position, because it consists in little more than an affirmation of the reality of such processes as movement and becoming. As I shall seek to make clear, the Megarian position contends that these processes are logically impossible; and so it is no answer to it merely to affirm the realities which it denies, any more than it would be an adequate answer to Zeno merely to assert the reality of motion. In short, Aristotle's case fails because he does not try to uncover the logic of the Megarian argument, nor does he consider the possibility that the Megarians, like him, were perfectly aware of the absurdities, on a common sense level, that stemmed from their argument. .If their argument is to be countered, it has to be done so on a level different from that on which Aristotle operates.

In the remainder of this paper, what I shall do is to offer a reconstruction of the argument, and to suggest where its error lies. The reconstruction will certainly, in parts, be rather speculative—this mainly being due to the paucity of direct evidence. Nonetheless, my claim would be that even where my account does become speculative, it is not inconsistent with what evidence we do have, and, at the very least, it offers a new way of looking at the dispute." (p. 34)

14. Ciuni, Roberto. 2009. "The Search for the Diodorean Frame." *Humana Mente* no. 3:47-65.

    Abstract: "*Diodorean modalities* are logical notions that specify, in a precise way, how sentences may be true with respect to time: a sentence is diodoreanly necessary at a given instant iff it is true since that instant on.

    Arthur Prior has treated them as sentential operators and built up a logic for such modalities (DIOD) conjecturing that the frame for such a logic (the "diodorean frame") was the frame for S4. The Conjecture was soon proved false, through a number of counterexamples that played a role in the research on modal logics between S4 and S5. The present paper aims at showing that (i) the search for the diodorean frame benefited from such a research, and that (ii) there has been a mutual interaction between the search of the diodorean frame and some characterisation results. The paper is divided into five parts. In section 1, I will introduce diodorean modalities, while in Section 2 I will be focusing on Prior's reconstruction of the Master Argument and his characterisation of DIOD. In section 3, I present a conjecture Prior advanced about the characterisation of DIOD and some counterexamples to it. The notions of "frame" and "frame for" will be also introduced. In section 4 I summarise the connections between the search of the diodorean frame and some researches in modal logic. Section 5 presents a short conclusion."

    References

    Prior Arthur N. (1955), *Diodoran Modalities*, The Philosophical Quarterly, 32/8: 226-230.

Prior Arthur N. (1958), *Diodorus and Modal Logic: a Correction*, The Philosophical Quarterly, 20/5: 205-213.

15. Crivelli, Paolo. 1994. "The Stoic Analysis of Tense and of Plural Propositions in Sextus Empiricus, *Adversus Mathematicos* X 99." *Classical Quarterly* no. 44:490-499.

    "Adversus Mathematicos (*M*.) x is the second book dedicated by Sextus to the discussion of the physical doctrines put forward by dogmatic philosophers. An extensive section (*M*. X 85-120) deals with Diodorus Cronus' arguments concerning movement.

    M. X 99 occurs within the report of a debate on motion and time between Diodorus and some unnamed opponents. The passage is probably corrupt (as was already noticed by Heintz) and contains some observations on plural propositions and tense which have not yet been satisfactorily explained. In this paper I argue that Diodorus' critics are Stoics, propose a new emendation of the text, and attempt a plausible

    account of the remarks on plural propositions and tense. Thereby some light is shed on a hitherto unexplored region of Stoic logic." (p. 490)

    References

    W. Heintz, *Studien zu Sexius Empiricus* (Halle, 1932; Schriften der Konigsberger Gelehrten Gesellschaft - Sonderreihe, 2).

16. Decleva-Caizzi, Fernanda. 2006. "Minor Socratics." In *A Companion to Ancient Philosophy*, edited by Gill, Mary Louise and Pellegrin, Pierre, 119-135. London: Blackwell.

    Euclides, pp. 132-134.

    "The so-called Megarian school was never a genuine institution nor did it consist in a unified philosophical position. Alongside the label “Megarians,” we find also “Dialecticians” and “Eristics.” It is difficult to say whether these terms are used to characterize distinct groups. Besides Euclides’ and Stilpo’s common origin from Megara, the aim of tracing the tradition of Pyrrhonist Skepticism back to Socrates probably also

played a determining role in the Hellenistic construction of the Megarian succession and “school” (cf. D.L. 9.61). In light of these data and of what we know of the orientations of Hellenistic historiography, the evaluation of possibly Eleatic themes ought to follow investigation of Euclides’ primary cultural relationship with Socrates, not be a point of departure for the reconstruction of Euclides’ philosophy in its entirety." (p. 132-133)

(...)

"Regarding his thought, the principal testimony is in Diogenes Laertius (2.106 = SSR II A 30 = 24 Döring): “He held the good to be one (*hen to agathon*), called by many names: sometimes wisdom, sometimes god, sometimes intelligence, and so on. All that is contradictory to the good he used to reject, maintaining that it has no existence.” To this we may add D.L. 2.161 (SSR II A 32 = 25 Döring), from which we learn that, for

the Megarians, virtue is one thing, called by many names. Cicero (*Acad*. II. [Lucullus] 42.129, cited above) writes that the Megarians said “the sole good is that which is always one and alike and the same. These authors also took much from Plato” (trans. Rackham)." (pp. 133-134)

17. Denyer, Nicholas. 1981. "The atomism of Diodorus Cronus." *Prudentia* no. 13:33-45.

18. ———. 1998. "Philoponus, Diodorus, and Possibility." *Classical Quartelry* no. 48:327.

    Abstract: "The definition here ascribed to Philo [*] is entirely in line with what we know of Philo from else where: Alexander Aphrodisensis, *in Analityca Priora* 184.6–10; Simplicius, *in Categorias* 195.33–196.5; Boethius, *in de Interpretatione* 234.10–15. The same is not true of the definition here ascribed to Diodorus. For Diodorus, we are told elsewhere, defined the possible as that which either is or will be so: Cicero, *de Fato* 13, 17; Plutarch, *De Stoicorum repugnantiis* 1055d-e; Alexander Aphrodisensis, *in Analityca Priora* 183.42–184.5; Boethius, *in de Interpretatione* 234.22–4,412.16–7. Something has therefore got garbled."

[*] Phlp. in *APr*. 169.17-21. This is fr. 136 in the collection of K. Doring, *Die Megariker*

(Amsterdam, 1972); and part of ft. II F 27 in the collection of G. Giannantoni, *Socratis et*

Socraticorum Reliquiae (Naples, 1990). Both Doring, pp. 39-43, and Giannantoni, i.429-33,

reprint all the other passages here cited.

19. ———. 2002. "Neglected Evidence for Diodorus Cronus." *Classical Quarterly*:597-600.

"There are two standard compilations of the evidence relating to Diodorus Cronus and the Megaric school of philosophers.(1) Neither contains Eustathius, *Ad Hom. Od.* 28.46–29.2, part of his note on *Odyssey* 1.107." (p. 597)

(...)

"The second thing we learn about Diodorus Cronus from this neglected passage is that as early as c. A.D. 100 someone—Suetonius—actually called him a Megaric. This is without parallel in our other sources. When other sources apply to Diodorus what might be a label for his school, they uniformly call him διαλεκτικός, and the διαλεκτικοί (perhaps it should be printed with a capital delta) were rivals from whom Megarics are reported to have recruited pupils (D.L. 2.113). It has been proposed in consequence that we should abandon the recent practice of describing Diodorus as a Megaric, and call him a Dialectician instead(2) The proposal can still be adopted, even though we now have direct evidence of someone in antiquity calling Diodorus a Megaric. For supporters of the proposal can maintain that Suetonius too fell victim to the same confusion that has led more recent scholars to describe Diodorus as a Megaric rather than as the Dialectician that in fact he was. Nevertheless, in the light of the neglected passage of Eustathius, the proposal is perhaps less attractive than it originally looked." (p. 598)

(2) D. Sedley, 'Diodorus Cronus and Hellenistic philosophy', *PCPS* 203 (n.s. 23) (1977), 74–120, at 74–7. Sedley's proposal

was rejected by Giannantoni, who placed Diodorus testimonia in his section on Megarics. It was treated with some disdain by K. Döring, ‘Gab es eine Dialektische Schule?’, *Phronesis* 34 (1989) 293–310, and taken up enthusiastically by Theodor Ebert, *Dialektiker und frühe Stoiker bei Sextus Empiricus: Untersuchungen zur Entstehung der Aussagenlogik* (Göttingen, 1991) = Hypomnemata 95, and N. Denyer, ‘Diodorus Cronus’, in E. J. Craig (ed.), *The Routledge Encyclopedia of Philosophy* (London, 1998), 2.83–6. The most recent discussion is F. De Mattia, ‘*Diodoro Crono: testimonianze antiche ed esegesi moderna*’, unpublished dissertation (Bologna, 2000), 15–39.

20. Dorandi, Tiziano. 1999. "Chronology." In *The Cambridge History of Hellenistic Philosophy*, edited by Algra, Kempe, Barnes, Jonathan, Mansfeld, Jaap and Schofield, Malcolm, 31-54. Cambridge: Cambridge University Press.

    "The Dialectical (or ‘Megaric’) school(105) was given its name by Dionysius of Chalcedon, whose *floruit* can be placed at 320; he was more or less the contemporary of Euphantus, born before 348. More important are Diodorus Cronus, active in Athens and Alexandria between 315 and c. 284 (106) (his contemporary was Aristides the Dialectician), and Stilpo, who lived c. 360–280. Alexinus (c. 339–265), a younger figure, is well known for a debate on rhetorical questions with the Epicurean Hermarchus, dated – with certainty – to 267/6, and for his attacks on Zeno of Citium.

    Philo the Dialectician was a student of Diodorus Cronus between 310 and 300, and a contemporary of Zeno of Citium. Between 280 and 275 Panthoides, whose lectures were attended by the Peripatetic Lycon, was active; while the floruit of Aristotle and Artemidorus is put at around 250.

    The first is known for having contributed to the overthrow of the rule of Abantidas of Sicyon, the second for attacking the Stoic Chrysippus." (p. 47)

    (105) On the existence and name of this school, cf. Cambiano 1977 and Sedley 1977. Against this, see Döring 1989. Like Giannantoni 1990, iv 41–50, I am inclined to accept Sedley’s

hypothesis regarding the 'Dialectical' school. For the chronology of these philosophers I follow Sedley 1977, 107 n. 23. Cf. also the useful chronological table ibid. 82.

(106) This chronology is reconstructed in Sedley 1977, 78–80 and 107–9.

References

Cambiano, G. (1977) 'Il problema dell'esistenza di una scuola Megarica', in Giannantoni, G., ed., *Scuole socratiche minori e filosofia ellenistica* (Bologna) 25–53

Döring, K. (1989) 'Gab es eine Dialektische Schule ?', *Phronesis* 34, 293–310

Giannantoni, G., ed. (1990) *Socratis et Socraticorum reliquiae,* 4 vols., *Elenchos* 18 (Naples)

Sedley, D. N. (1977) 'Diodorus Cronus and Hellenistic philosophy', *PCPhS* [*Proceedings of the Cambridge Philological Society*] 23, 74–120

21. Drozdek, Adam. 2005. "Euclides of Megara: God = Phronesis = The Good." *Acta Antiqua* no. 45:27-34.

Summary: "The paper investigates reasons for which Euclides of Megara equates God, *phronesis*, and the good. The reasons include the importance of ethics in Socratic philosophy, the role of *phronesis* in Platonism, and absolutism of the Eleatic school."

"Euclides explicitly mentions God by making God one of the names of the good, of being. But what else, theologically, can that mean than pantheism? There is nothing beyond being and that being is called God, which is a pantheistic solution, pure and simple.(24) With his mention of God, Euclides' system becomes a theological commentary on the Parmenidean ontology. Parmenides never calls his being God although

attributes of that being are divine (eternity, perfection) and thus being is God.(25) Euclides just makes this theological aspect explicit. Mentioning God after *phronesis* as a possible name for the good may also mean that Euclides did not follow

Socrates in giving high – the highest – status to theology.(26) Theology seems to have been for him of secondary importance, turning ethics to ontology and intelligence – *phronesis* – of the resulting being was his primary concern. Theology fits rather well in that image, but, in a way, it is a happy accident that being can also be called God.(27) This signifies the devaluation of theological and religious issues by the Megarians, which is carried to the extreme by Cyrenaics and Cynics. Only Antisthenes and particularly Plato continue among the Socratics to give theology the prominent position in their works." (p. 34)

(24) Henne says in a roundabout fashion very much the same by stating that Euclides is a father of realism (Henne: *École de Mégare*. Paris 1843, 225) and that realism originates in timid pantheism which is transformed into

declared pantheism (p. 238).

(25) Drozfek, A.: Parmenides' theology. *Eranos* 99 (2001) 12–14.

(26) By itself, the order: phronesis – God – mind does not have to mean that phronesis is most important, God less important, mind even less. Cf. Paul's statement, "there remain these three: faith, hope and love, but the greatest of these is love" (*1 Cor*. 13.13) although love is listed at the end.

(27) It is thus justified to say that for the Megarians, God is a secondary form, just a name of a unity, as phrased by Henne: *op. cit*. 223.

22. Ebert, Theodor. 1987. "The Origin of the Stoic Theory of Signs in Sextus Empiricus." *Oxford Studies in Ancient Philosophy* no. 5:83-126.

"In his critical discussion of the dogmatic philosophers Sextus Empiricus expounds a Stoic doctrine which has conveniently been labelled 'the theory of signs'. This chapter of Stoic philosophy offers a blend of logic and epistemology, a mixture bound to attract the interest of present-day 'ancient philosophers'. Hence, with the growing discussion focusing on the philosophy of the Hellenistic period, this part of Stoicism

was to get a fair share of attention. Controversy has been flourishing over the merits and weaknesses of this theory; it has been compared with tenets about the topic of signs held by earlier and later philosophers, yet in these discussions it has almost universally been taken for granted that there is a single theory of signs and that it can be attributed unqualifiedly to the Stoics. (2)

Part of what I want to do in this paper is to challenge this assumption. I shall argue that the material relating to the theory of signs which is preserved in Sextus does not reflect Chrysippan teaching, but goes back to Stoics antedating Chrysippus. To have a convenient term, I shall refer to the pre-Chrysippan Stoics as 'early Stoics'. I shall further argue that the theory of signs of the early Stoics was a harvest not grown in the fields of Stoic philosophy, but that it originated from the 'Dialecticians', a group of philosophers confused for a long time with the Megarians and rediscovered as a group in its own right by David Sedley.(4) I shall further try to point out some modifications which this theory underwent as it was integrated into the epistemology of the early Stoics. I shall not discuss the doctrine of signs advocated by the opponents of the Epicureans in Philodemus' *de Signis* - almost certainly Stoic philosophers - a doctrine which has been ably discussed by David Sedley in a recent paper.(5)" (pp. 83-84, two notes omitted)

(2) The only exception known to me is D. Sedley who wants to 'put into abeyance the widespread belief that Stoic doctrine is under discussion by Sextus Empiricus throughout *M* VIII. 141-298 and *PH* II. 97-133 (Sedley, 'On Signs', in *Science and Speculation: Studies in Hellenistic Theory and Practice*, ed. Barnes et al. (Cambridge/Paris, 1982), 239-72.

(4) Cf. D. Sedley, 'Diodorus Cronus and Hellenistic Philosophy', *Proceedings of the Cambridge Philological Society*, CCIII, NS 23 (1977), 74-120.

(5) Cf. D. Sedley, 'On Signs', cit.

23. ———. 1993. "Dialecticians and Stoics on the classification of propositions." In *Dialektiker und Stoiker. Zur Logik der Stoa*

und ihrer Vorläufer, edited by Döring, Klaus and Ebert, Theodor, 111-127. Stuttgart: Franz Steiner.

"In his discussion and refutation of the logical theories of dogmatist philosophers in *Adversus Mathematicos* (M.) 8, Sextus Empiricus treats us, among other things, to an account of a classification of propositions (*M*. 8.93-129). The doctrine reported on here is usually taken to form part of Stoic logic.(1) Together with its apparent counterpart in Diogenes Laertius (D.L.) 7.68-76, this Sextian report is used to reconstruct a theory supposedly held by Stoic philosophers. In what follows I shall try to refute this view and I shall argue that Sextus' report encapsulates a doctrine worked out not by the Stoic, but by the Dialectical school whose most prominent members seem to have been Diodorus Cronus and Philo.(2)

First I shall try to show that the two reports by Sextus and by Diogenes resp. are quite different indeed as to their systematic content and that, therefore, both reports must be drawn from different sources. In a second step it is then argued that Sextus' account is based on Dialectical material. Finally, I shall compare the Dialectical classification to be found in Sextus to the Stoic one in Diogenes with an eye to exploring these two divisions as different phases within the development of propositional logic." (p. 111)

(1) Cp. Mates (1953) 30f., 54, Kneale (1962) 146, 148f., Mignucci (1965) 131, Egli (1967) 37f., Mueller (1969) 185, Frede (1974a) 49-62 passim, Brunschwig (1984) 9ff.; already v. Arnim put this text, omitting some parts, among the logical fragments of Chrysippus: SVF fr. 205, 211, 216.

(2) Cp. D. Sedley (1977).

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H. v. Arnim, *Stoicorum Veterum Fragmenta*. 3 Bde. Leipzig 1903-1905; Bd. 4: Indices v. M. Adler. Leipzig 1924

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24. ———. 2008. "In Defence of the Dialectical School." In *Anthropine Sophia. Studi di Filologia e Storiografia Filosofica in Memoria di Gabriele Giannantoni*, edited by Alesse, Francesca, Aronadio, Francesco, Dalfino, Maria Cristina, Simeoni, Luca and Spinelli, Emidio, 275-293. Napoli: Bibliopolis.

"In 1977, David Sedley published a paper in which, among other things, he argued that the Dialectical and the Megarian school were not, as had hitherto been assumed, two names for the same sect, although at different periods, but that both were distinct groups of Hellenistic philosophers.(1) The received opinion, attacked by Sedley, based its claim on a passage in Diogenes Laertius (Diog. Laert.) concerning the disciples of Euclides of Megara, one of the minor Socratics:

His followers were called Megarians after him, then Eristics, and at a later date Dialecticians, that name having first been given to them by Dionysius of Chalcedon ... (Diog. Laert. II 106 = Giannantoni, SSR II A 22)(2)

The source of this text is probably Alexander Polyhistor, whose *Successions of Philosophers* is mentioned in the sentence preceding the one just quoted. Alexander lived around 100 B.C. Against this passage Sedley draws attention to a different piece

of evidence in Diog. Laert., namely a *verbatim* quotation from Philippus the Megarian, who gives a list of people whom Stilpo won over to his own school, i.e. the Megarians; after having mentioned two persons whom Stilpo had made to secede from Theophrastus and two more who came from Aristotle the Cyrenaic philosopher, Philippus continues:

From the Dialecticians he won over as devoted disciples Paeonius from Aristides, moreover Diphilus of Bosphorus, the former follower of Euphantes as well as Myrmex the son (or "follower") of Exaenetus, both of whom had come to refute him (Diog. Laert. II 113 = SSR II O 3).

Sedley concluded from this text that Megarians and Dialecticians could hardly be the same sect; the competition presupposed in this quotation from a contemporary of Stilpo clearly shows, thus Sedley, that Megarians and Dialecticians were seen as distinct schools by their contemporaries. As to the passage in Diog. Laert. II 106, this is, as Sedley argues, probably a doxographical construction of a διαδοχή, a succession of philosophers; it is not the description of a school, or αϊρεσις (4)." (pp. 275-276, note 3 omitted)

(...)

"The claim made by Sedley distinguishing the Dialecticians from the Megarians and the one made by me attributing source material in Sext. Emp. which had been used for the Stoics to the Dialectical school, in general met with a friendly reception(6). Yet neither claim has gone undisputed. Klaus Döring, to whom we owe our first comprehensive collection of the material relating to the Megarians(7), launched an attack on Sedley's contention(8); Döring sees no need to think of the Dialecticians as a separate school, distinct from the Megarians.(9) Even before Döring's 1989 paper, Robert Muller did not accept Sedley's separation of the Dialecticians from the Megarians (9). The attribution of the material in Sext. Emp. to the Dialecticians, for which I had argued, was flatly denied by Jonathan Barnes (10). Hence, it may be worthwhile to look at the available evidence again in order to see whether Sedley's

and my original contentions can survive the criticisms of Döring and Barnes." (p. 277)

(1) D. Sedley, *Diodorus Cronus and Hellenistic Philosophy*, "Proceedings of the Cambridge Philological Society", 203, N.S. 23 (1977) pp. 74-120.

(2) I quote from the second edition of Gabriele Giannantoni's monumental collection: *Socratis et Socraticorum reliquiae*, Napoli 1990, abbreviated as *SSR*.

(4) D. Sedley, *Diodorus Cronus,* cit., p. 75

(6) Thus, Giannantoni states that Sedley's conclusions "sono meritevoli della massima considerazione" [are deserving of the utmost consideration] (SSR IV p. 48). As to my monograph, cf. the reviews by A. Graeser, "Zeitschrift f. philos. Forschung", 46 (1992) pp. 443-447; K. Hulser, "Phronesis", 38 (1993) pp. 337-344; and in particular R. Chiaradonna, "Elenchos", 16 (1995) pp. 387-400.

(7) K. Döring, *Die Megariker, Kommentierte Sammlung der Testimonien*, Amsterdam 1972.

(8) K. Döring, *Gab es eine Dialektische Schule?*, "Phronesis", 34 (1989) pp. 293-310.

(9) R. Muller, *Introduction à la pensée des Megariques,* Paris 1988, p. 44 n. 24.

(10) J. Barnes, in his review of Th. Ebert, Dialektiker, cit., "Classical Review", 43 (1993) pp. 304-306 (quoted as Barnes).

25. Fine, Kit. 2011. "Aristotle's Megarian Manœuvres." *Mind* no. 120:993-1034.

"Towards the end of *Theta*, 4 of the *Metaphysics* (1047b14-b30), Aristotle attempts to establish two modal principles. The passage (with my paragraphing and square bracketing) goes as follows:

[Principle 1] At the same time it is clear that if, when A is B must be, then, when A is possible B also must be possible.

[Argument for Principle 1] For if B need not be possible, there is nothing to prevent its not being possible. Now let A be supposed possible. Then, when A is possible, nothing impossible would follow if A were supposed to be; and then B must of course be. But we supposed B to be impossible. Let it be impossible, then. If, then, B is impossible, A also must be. But A was supposed possible; therefore B is also possible. If then A is possible, B also will be possible, if they were so related that if A is B must be. If, then, A and B being thus related, B is not possible on this condition, A and B will not be related as supposed.

[Principle 2] And if when A is possible B must be possible, then if A is B must also be.

[Argument for Principle 2] For to say that B must be possible if A is possible means that if A is both at the same time when and in the way in which it was supposed capable of being, B also must then and in that way be.

This passage raises severe exegetical problems. One of these problems is that the second principle seems obviously to be incorrect; and so it is not clear why Aristotle would have wanted to endorse it. For suppose that a fair coin is tossed and turns up heads. It is then plausible to maintain that when it is possible that the coin is fair and turns up heads it must be possible that it turn up tails and hence not turn up heads. By the principle it follows that when the coin is fair and turns up heads then it must not turn up heads; and from it follows that it is not true that it is both fair and turns up heads, contrary to our original supposition. (1)" (pp. 993-994)

(1) As a referee pointed out, the premiss of this inference already appears to be in conflict with Aristotle's denial that not-A can necessarily follow from A (*Prior Analytics* 57b13–14) and so the supposition that a fair coin is tossed and turns up heads is not even required. Let me also note that we can give a highly abstract counter-example to the principle, based simply on the assumption that there is a description of how things are (theorem 5 of the appendix)

26. Furley, David J. 1967. *Two Studies in the Greek Atomists*. Princeton: Princeton University Press.

    Study I: Indivisible Magnitudes; Study II: Aristotle and Epicurus on Voluntary Action.

    Study I, Chapter 9: *Epicurus and Diodorus Cronus,* pp. 131-135.

    "Some sort of theory of indivisibles was advanced by the Megarian philosopher Diodorus Cronus."

    (...)

    "Diodorus held a theory of" minimum, partless bodies." According to Dionysius of Alexandria (quoted by Eusebius *Praeparatio Evangelica* 14.23) it was a common opinion that Diodorus was responsible for substituting the name "partless bodies" for "atoms."

    Whether or not there is any truth in the implication that Diodorus was a conscious innovator in this matter, it seems to be agreed among the doxographers that the use of the term "partless bodies" distinguished Diodorus from Democritus and Epicurus. The same is said by Sextus Empiricus (*Against the Mathematicians* 9.363 and *Outlines of Pyrrhonism* 3.32) and by Stobaeus (*Eclogae* 1 p. 128.10); "partless bodies" are attributed to Diodorus, without any explicit contrast with the Atomists, by Alexander (*De Sensu* 122.23 and 172.29) and Simplicius (*Physics* 926.20).

    The most interesting point about Diodorus is that he apparently held a theory of motion remarkably like the Epicurean theory. It is reported at length by Sextus Empiricus (*Against the Mathematicians* 10.37-154). Sextus distinguishes three views which may be held about motion: that it exists, that it does not exist, and that "it exists no more than it does not exist." Those who hold the second view he says, are Parmenides and Melissus - and Diodorus Cronus, "unless it ought to be said that according to him a thing has moved though nothing is moving." (pp. 131-132)

Digital Quadrivium Project



History of Logic

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Selected Bibliography on the Megarians and the Dialectical School: Second Part

Studies in English G- Z

1. Gillespie, Charles Melville. 1911. "On the Megarians." *Archiv für Geschichte der Philosophie* no. 24:218-241.

   "The object of this paper is to investigate the view entertained by Zeller(1) with the support of many other critics and historians, that the Megarians held a theory of εἴδη closely resembling that of Plato. The evidence for this view is entirely indirect. Nowhere in the ancient authorities is such a doctrine attributed to them by name.

   Stilpo is said to have attacked the εἰδη of the Academy (Diog. Laert. ii. 119); even though he seems to have incorporated much of the Cynic doctrine in his teaching, so great a change from the supposed earlier attitude of the school is difficult to believe; the suggestion of Zeller(2) that our authority interprets as an argument against the Ideas one that was intended to support them only weakens his case. In fact, Zeller has no evidence at all except the passage in the *Sophist* which gives an account of the εἴδων φιλοι (246B ff.), whom Zeller identifies with the Megarians. The "friends of the Ideas" must stand for some contemporary school or allied schools; in many details their doctrines agree with what is elsewhere known of Megarian theory; the complete opposition between unchangeable noetic reality and the changing corporeal world, treated as an illusion; the Eleatic doctrine of the complete mutual exclusion of Being

and Not-being; the denial of δνναμις — all these points, as Zeller urges with force, bear out what is known from other sources of the Megarian doctrines. In one point, however, the theory of the εἴδων φιλοι seems to disagree with Megarianism as otherwise known; it apparently allows a plurality of reals, whereas we have some authority for the fact that the Megarians taught the absolute unity of ultimate Being. (Aristocles ap. Euseb. *Pr. Ev.* XIV. 17, p. 756; DL II. 106). Zeller meets this difficulty by the hypothesis that in the *Sophist* we have an earlier form of the Megarian doctrine, in which a partial plurality of reals was recognised. He supposes that the Megarians were led to posit the reality of "intelligible species" by considerations similar to those which influenced Plato, but that afterwards Eleatic influence made them deny reality to all but the supreme εἰδος. As Apelt points out (*Beiträge zur Gesch. der Gr. Phil.* 96), this implies a view as to the relations between the Socratic

and the Eleatic elements in Megarianism which requires examination.

(...)

The points which require investigation are easily stated. We must first of all examine the internal evidence of the passage in the *Sophist*. We must then inquire whether the metaphysic and logic of the Megarians, as known to us from independent sources, are so closely akin to the Platonic as demanded by Zeller' s theory.

We shall find their spirit, their aims, their presuppositions so opposed to the Platonic in fundamental respects, that we cannot seriously entertain the view that Megarianism and Platonism travelled on the same road for a time, and subsequently diverged in opposite directions." (pp. 218-219)

2. Goldblatt, Robert. 1980. "Diodorean Modality in Minkowski Spacetime." *Studia Logica* no. 39:219-236.

   Abstract: "The Diodorean interpretation of modality reads the operator □ as “it is now and always will be the case that”. In this paper time is modelled by the four-dimensional Minkowskian

geometry that forms the basis of Einstein's special theory of relativity, with “event” y coming after event x just in case a signal can be sent from x to y at a speed at most that of the speed of light (so that y is in the causal future of x).

It is shown that the modal sentences valid in this structure are precisely the theorems of the well-known logic S4.2, and that this system axiomatises the logics of two and three dimensional spacetimes as well.

Requiring signals to travel slower than light makes no difference to what is valid under the Diodorean interpretation. However if the “is now” part is deleted, so that the temporal ordering becomes irreflexive, then there are sentences that distinguish two and three dimensions, and sentences that can be falsified by approaching the future at the speed of light, but not otherwise."

3. Gomperz, Theodor. 1905. *Greek Thinkers. A History of Ancient Philosophy. Vol. II*. London: John Murray.

   Chapter VIII. *The Megarians and kindred Movements*, pp. 170-208.

   "The founder of the Megarian school was Euclides.

   He appears to have belonged to the older generation of the pupils of Socrates. But it was not by Socrates alone that he was influenced. Among the scanty records of his teaching we find no statement more full of significance than the one which ascribes to him a blending of Socratic doctrine with Eleatic. Socrates had taught the unity of virtue, and its absolute identity with Good. The Eleatics had asserted the unity of Being. In the mind of Euclides the two doctrines were fused together. He held that the unity of Being was identical with the Good. According to trustworthy accounts, he " designated the One Good by many names, sometimes speaking of it as Wisdom, sometimes as Deity." And the Good con3tituted for him the whole of Being; to its opposite, the Not-Good, he denied all existence. These curt notices require some explanation, and supply abundant food for reflexion. First of all, we have here the earliest instance of a tendency which left its impress on several successive periods of

philosophy - the tendency to retain the teaching of Socrates, but not to rest satisfied with it. Socratism was haunted by a sense of its own incompleteness. Socrates himself had brushed aside the physical and metaphysical speculations of his predecessors.

But his disciples, both of the first and of the second generation, resumed the discarded studies, and endeavoured to combine them with their master's ethical teaching." (pp. 173-174)

4. Grote, George. 1885. *Plato and the Other Companions of Sokrates*. London: John Murray.

   Vol. 1, Chapter III. *Other companions of Sokrates*: *Diodorus Kronus*, pp. 140-146.

   From the pains which Aristotle takes (in the "treatise 'De Interpretatione' and elsewhere) to explain and vindicate his own doctrine about the Potential and the Actual, we may see that it was a theme much debated among the dialecticians of the day. And we read of another Megaric, Diodorus Kronus, perhaps contemporary (yet probably a little later than Aristotle), as advancing a position substantially the same as that of Eubulides. That alone is possible (Diodorus affirmed) which either is happening now, or will happen at some future time. As in speaking about facts of an unrecorded past, we know well that a given fact either occurred or did not occur, yet without knowing which of the two is true - and therefore we affirm only that the fact may have occurred: so also about the future, either the assertion that a given fact will at some time occur, is positively true, or the assertion that it will never occur, is positively true: the assertion that it may or may not occur some time or other, represents only our ignorance, which of the two is true. That which will never at any time occur, is impossible." (pp. 140-141)

   (...)

   "In what manner Diodorus stated and defended his opinion upon this point, we have no information. We know conclusion only that he placed affirmations respecting the future on the same footing as affirmations respecting the past: maintaining that our potential affirmation - *May or May not be* - respecting

some future event, meant no more than it means respecting some past event, viz.: no inherent indeterminateness in the future sequence, but our ignorance of the determining conditions, and our inability to calculate their combined working." (pp. 143-144)

5. Guthrie, W. K. C. 1971. *A History of Greek Philoshy, Vol. 2: Socrates*. Cambridge: Cambridge University Press.

   Chapter III. *Philosophical significance*, § 12: The immediate followers of Socrates: (Aristippus and Euclides); *Euclides*, pp. 179-187.

   "Only one positive doctrine can be safely credited to Euclides, namely the unity of the good. The testimonies are:

   (i) Cicero, *Ac. pr*. 2.42. 129. Cicero begins somewhat oddly by saying that, 'as I have read', the *princeps* of the Megaricorum *nobilis discip!ina* was Xenophanes, followed by Parmenides and Zeno. 'Then',

   he continues, 'came Euclides, a disciple of Socrates from Megara, after whom they were called Megarians. He said that that alone was good which was one, all alike, and always the same.'

   (ii) D.L. 2. 106: 'He declared that the good was one, though called by many names, sometimes wisdom, sometimes God, and again mind (*nous*) and so on. Things opposed to the good he rejected, saying that

   they did not exist.'

   (iii) With these one may compare a passage from the history of philosophy of Aristocles quoted by Eusebius (*P.E*. 14. 17), which speaks only of the Megarians without mentioning Euclides by name.

   He ranks them with those who condemned the senses and claimed that only reason was to be trusted. ' So said, in earlier times, Xenophanes, Parmenides, Zeno and Melissus, and later the followers of Stilpo and

the Megarians. For this reason the last-named said that what is is one and anything else does not exist,3 and that nothing comes into being or is destroyed or undergoes any movement whatever'." (p. 180, a note omitted)

6. Haake, Matthias. 2018. "Megara and 'the Megarians': a City and its Philosophical School." In *Megarian Moments. The Local World of an Ancient Greek City-State*, edited by Beck, Hans and Smith, Philip J., 237-256. Montreal: McGill University.

   Teiresias Supplements Online, Vol. 1.

   "..., this contribution elaborates on the idea that a philosophical school existed in Megara that was identified through association with its place – a school of thinkers who took their name from the city and thus were known as Megarians.(6) It is also not my intention to outline a history of the Megarian school. Rather, I seek to locate it in the local (discourse) environment of the city; to ask for interactions between the city of Megara, its citizens and inhabitants respectively, and the school and its members;(8) and, as far as possible, to embed the Megarian school in the Megarian localscape.(9) To achieve this goal, I will examine the presence of Megarian philosophers in Megara as well as their visibility, and engagement, in the local cosmos of the city. The first step, however, will be to address some general problems in respect to the Megarian school that make things even more difficult than the outlined approach would suggest. In the concluding observations, a remarkable piece of evidence, dating to the second century CE, will be introduced in order to demonstrate that, at a time when the Megarian school was long gone, its founder continued to be remembered as an icon of local pride." (pp. 238-239, anote omitted)

   (6) In a largely unnoticed passage of the prologue to his *Lives and Opinions of Eminent Philosophers*, Diogenes Laertius mentions the various possibilities to name a philosophical school, among them the designation ἀπο` πόλεων (1.17). Even if it is, in general, possible to explain the origins of a name of a philosophical school, it is an unsolved question as to how and

by whom philosophical schools were named and for which reason(s) a specific name was chosen. The remarks by Gigon (1960: 60) on Diog. Laert. 1.17 are anything but exhaustive; cf. also Cambiano 1977: 27-35.

(8) It is worth noting that, in order to avoid misconceptions, in Ancient Greek the ethnicity of the inhabitants of Megara is Μεγαρεύς, pl. Μεγαρεῖς (Legon 2004: 463), whereas the name of the members of the school is Μεγαρικός, pl. Μεγαρικοί, a term rarely attest ed; see Döring 1989: 296. In English the form "Megarician(s)" is uncommon (a rare exception is Bocheński 1951: 77-102); both the inhabitants of the city and the members of the school are therefore mostly called Megarians.

(9) The term '-scape' is in part borrowed from the title of a workshop organized by Anja Slawisch and Michael Loy in Cambridge, March 22-23, 2018: *Shedding Light on the Matter: Ideascapes and Material Worlds in the Land of Thales*.

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7. Hartmann, Nicolai. 2017. "The Megarian and the Aristotelian Concept of Possibility: A Contribution to the History of the Ontological Problem of Modality." *Axiomathes*.

Translated by Frédéric Tremblay and Keith Peterson.

Abstract: "This is a translation of Nicolai Hartmann's article "Der Megarische und der Aristotelische Möglichkeitsbegriff: ein

Beitrag zur Geschichte des ontologischen Modalitätsproblems," first published in 1937. In this article, Hartmann defends an interpretation of the Megarian conception of possibility, which found its clearest form in Diodorus Cronus' expression of it and according to which "only what is actual is possible" or "something is possible only if it is actual." Hartmann defends this interpretation against the then dominant Aristotelian conception of possibility, based on the opposition between *dynamis* and *energeia*, and according to which there is always an open multiplicity of simultaneous "possibilities," the outcome of which remains undetermined. Since, according to Hartmann, reality suffers no indetermination, the Megarian conception of possibility is an account of *real possibility,* whereas the Aristotelian one is merely an account of *epistemic possibility* (Frédéric Tremblay)."

8. Hurst, Martha. 1935. "Implication in the Fourth Century." *Mind* no. 44:484-495.

   "Modern analyses of the nature of necessary connection have given rise to more paradoxes than they have solved. A familiarity with the controversy between Diodorus and Philo which took place in the Fourth Century B.C. might perhaps have made unnecessary the anguish which modern logicians have suffered." (p. 484)

   (...)

   "The problem with which Diodorus and Philo were concerned was the definition of the " if . . . then " relation, or the discovery, as Sextus puts it, of the " criterion of following " (τής ακολουθίας εκτίθενται κριτήρια).(1) Philo's(2) definition is this: "there is a case of true fastening together when we have not a true antecedent and a false consequent ".(3) This corresponds to the symbolic form - (p. - q), and is equivalent to the definition of material implication.(4) The definition of Diodorus is: "that is a case of true fastening together which did not and does not admit the possibility of the antecedent being true and the consequent false ".(6) This is practically equivalent to Lewis's definition of strict implication.(6)

   (1) *Adv. Math.*, VIII, 113.

(2) Sextus gives Philo's views first and this is the natural order of exposition, as Diodorus succeeded in refuting Philo, while, as far as we know, Philo did not refute Diodorus. It may also be the chronological order of development, in spite of what was said above as to the relation of the two men; for Diodorus may have made his views explicit only in answer to the criticisms of his pupil.

(3) Sextus, Adv. Math., VIII, 113: οϊον 6 μεν Φίλων ελεγεν αληθές γίνεσθαι τό συνημμένου όταν μη αρχηται άπ' αληθούς καί λήγη επί ψεύδος [Thus Philo declared that " the hypothetical is true whenever it does not begin with what is true and end with what is false" (tr. Bury, vol. II, p. 297)]

(4) Peirce, *Collected Paper*s, 3, 374; Russell, *Principles of Mathematics,* 16, p. 14; Russell, *Introduction to Mathematical Philosophy*, p. 147, *Principia Mathematica*, I, p. 94.

(5) Sextus, Adversus Mathematicos, VIII, 115: Διόδωρος δε αληθές είναι φησι συνημμένον όπερ μήτε ένεδέχετο μήτε ενδέχεται άρχόμενον άπ αληθούς λήγειν επί φεΰδος. [But Diodorus asserts that " the hypothetical proposition is true which neither admitted nor admits of beginning with truth and ending in falsehood." (tr. Bury, vol. II, p. 299]

(6) Lewis, Survey of Symbolic Logic, p. 239: impossible that p is true and q false.

References

R. G. Bury, *Sextus Empiricus in four volumes*, Cambridge, Harvard University Press, 1933.

9. Johnston, Rebekah. 2008. "The Existence of Power." *Apeiron* no. 41:171-191.

"Introduction

Aristotle relies on and uses the concept of 'δύναμις', which I will translate throughout this paper as 'power', in a wide variety of philosophical discussions. In *Metaphysics* IX 1-5, Aristotle provides a detailed account of powers.

(...)

In addition to explaining what powers are and delineating the different sorts of powers, Aristotle argues in *Metaphysics* IX 3 for the existence of powers. Here, through a series of four arguments against the

Megarics, Aristotle establishes that inactive powers must exist. " (p. 171)

10. Kneale, William, and Kneale, Martha. 1962. *The Development of Logic*. Oxford: Clarendon Press.

    Reprinted 1975 with corrections.

    Chapter III: *The Megarians and the Stoics*, pp. 113-176.

    "Thoughout later antiquity two great schools of logic were distinguished, the Peripatetic which was derived from Aristotle, and the Stoic which was developed by Chrysippus from the teaching of the Megarians. It is tantalizing that tradition has preserved so little of the work of these latter philosophers; for what remains suggests that they were highly intelligent and deserving of better treatment than they have received from

    historians." (p. 113)

    (...)

    "The Megarians made three important contributions to the development of logic, the invention of a number of interesting paradoxes, the re-examination of the modal notions, and the initiation of an important debate on the riature of conditional statements." (p. 114)

    (...)

    "The most original theory is that of Diodorus Cronus. The only authority who gives us a complete account of it is Boethius, but what he says agrees with earlier incomplete accounts, in particular that of Cicero, and we may regard him as trustworthy. He tells us:

    'Diodorus defines the possible as that which either is or will be (*quod aut ert aut erit*), the impossible as that which, being false, will not be true (*quod cumfalsum sit, non erit verum*), the necessary as that which, being

true, will not be false (*quod cum verum sit, non erit falsum*), and the nonnecessary as that which either is already or will be false (*aut jam est aut erit falsum*).'(2)" (p. 117)

(2) *Commentarii in Librum Aristotelis Περι ̀ Ἑρμηνείας* Secunda Editio, ed. Meiser, p. 234-

11. Kurzovà, Helena. 2009. "What worried the crows in Callimachus' epigram." *Studia minora Facultatis Philosophicae Universitatis Brunensis. Series archaeologica et classica* no. 14:125-129.

Abstract: WThis paper deals with the Callimachus' epigram devoted to Diodorus Cronus and attesting his great popularity as dialectician. New interpretation of the second croak of crows is proposed, according

to which the crows worry about their future: "what will be with us further?". Thus both croaks of the crows are connected with the most important part of Diodorus' teaching, i. e. his theory of modality expressed in the so called "Master Argument"."

"The following fragment of Callimachus′ epigram Fr. 393 Pfeiffer relates to Diodorus Cronus, the prominent representative of the Megarian School, whose main centre of interest was dialectics, the discipline corresponding to the contemporary logic and philosophy of language. The epigram was probably written during Diodorus᾽ stay in Alexandria, which is supposed to have occurred during the 80s of the 3rd century B.C.:

αὐτο ̀ς ὁ Μῶμος

ἔγραφεν ἐν τοίχοις 'ὁ Κρόνος ἐστι ̀ σοφός'. [Blame (*Momus*) himself wrote on the walls "Cronus is wise]

ἠνίδε κοἰ κόρακες τεγέων ἔπι "κοῖα συνῆπται"

κρώζουσιν και ̀ "κῶς αὖθι γενησόμεθα'. [And here the crows are, squawking from the rooftops "what conclusions follow?" or "how will we become again?]

Surely, the epigram is one of the testimonies of Diodorus' popularity. The fragment 393 consists in fact of two fragments, which were connected together by Bentley. The first two lines are quoted by Diog. Laert. II, 10, 7. The sense and interpretation of this part is quite obvious. "Momus himself used to write on the walls 'Cronus is wise.'" *Kronos* is the nickname of Diodoros, inherited probably from his teacher Apollonius Cronus." (p. 125, English translation added)

(...)

"The third and fourth lines come from Sextus Empiricus' book for Grammarians (*Adversus Mathematicos* I, 309–312)." (p. 126)

(...)

"Sextus admits that even the grammarians are able to understand the first part of what the crows are croaking on the rooftops: 'κοῖα συνῆπται;' "what follows from what?" This is an allusion to the ability of the great dialectician to judge the validity of implication." (p. 126)

(...)

"I argue that the second croak of the worrying crows, like the first one, relates to the most prominent activity of Diodorus in dialectics. It is his view on the possible and the necessary which is in play here and which was formulated in his "Master Argument"." (p. 127)

References

Rudolfus Pfeiffer (ed.), *Callimachus. Volumen I. Fragmenta*, Oxford: Clarendon Press 1949.

12. Leith, David. 2014. "Causing doubts: Diodorus Cronus and Herophilus of Chalcedon on causality." *The Classical Quarterly* no. 64:592-608.

"My aim in this paper is to move this discussion on by filling out some of the historical and philosophical background to Herophilus' doubts about the existence of causes, and to re-

evaluate the significance of these doubts in the context of his scientific project.

I shall try to show that the arguments which Galen records in connection with Herophilus' doubts were in fact propounded by the philosopher Diodorus Cronus, and that Herophilus must have encountered them through personal contact with Diodorus in Alexandria before the latter's death c. 284 B.C. Hence Herophilus' sceptical views on the existence of causes are very much tied to these particular arguments and to

the personality of Diodorus. This allows us to reassess Herophilus' attitude to causes to an extent, and I shall offer some observations on the nature of his reaction, maintaining that it need not be indicative of a more wide-ranging sceptical attitude. It is hoped that this analysis will help first to locate Herophilus' medicine more firmly within the context of early Alexandrian intellectual currents, and secondly to expand our knowledge of Diodorus' dialectical challenges and their influence in particular upon contemporary science." (p. 593)

13. López-Astorga, Miguel. 2015. "Diodorus Cronus and Philo of Megara: Two Accounts of the Conditional." *Rupkatha. Journal On Interdisciplinary Studies in Humanities* no. 7:9-16.

Abstract: "Diodorus Cronus and Philo of Megara presented criteria for identifying true conditionals. Diodorus' criterion has been said to be a version of that of Philo requiring that the conditional is always true.

However, in this paper, based on the mental models theory and its analysis of possibilities, I try to show that those two interpretations are very different and that they do not refer to the same combinations of

possibilities. In my view, Philo's account can be linked to the material interpretation of the conditional.

Nevertheless, Diodorus' explanation can be related to that very interpretation and, in addition, to three different combinations of possibilities, none of them being that corresponding to the material interpretation."

14. ———. 2019. "The semantic method of extension and intension and the four criteria of the conditional described by Sextus Empiricus." *Revista de Filosofía* no. 44:253-261.

Abstract: "In this paper an analysis is conducted of the debate about the most suitable way to understand the conditional, which took place in the 4th century B.C. This is done using the extension and intension

method provided by Rudolf Carnap to study the meaning of expressions. The results seem to show that, according to Sextus Empiricus, although the debate was about four different criteria to understand the

conditional, three of those criteria actually appear to be the same and have a very clear common logical form under Carnap's framework."

15. Makin, Stephen. 1996. "Megarian Possibilities." *Philosophical Studies* no. 83:253-276.

"There are some - such as the Megarians - who say that something is only capable when it is acting, and whenever it is not acting it is not capable; for example, someone not building is not capable of building, but someone who is building is, when he is building; it is the same too in other cases." Aristotle, *Metaphysics* 9.3, 1046b29-32

"The Megarian position which Aristotle describes has had a bad press.

Aristotle himself says that it is not difficult to see the absurdities to which it gives rise. He does not, however spend any time considering why someone might have adopted such an apparently absurd view.

The same brisk treatment is found in a contemporary discussion, in which Elizabeth Prior disposes of Megarianism (or radical actualism) in two pages, as a preliminary to an analysis of dispositions.(1) Specialists

in ancient thought typically spend more time on exegesis of the Megarian view, but the tendency is for the Megarian account to

come out as either true but trivial, or false but ludicrous.(2) My intention is

to rehabilitate the Megarians. The claim Aristotle reports is indeed false. But there is underlying it a striking and extremely plausible basic intuition about capacities (and, by extension, possibilities more

generally). Much that is of substance remains even when the Megarians' error in arguing from that intuition is excised. In particular there is a valid argument from that intuition to a remarkable thesis about

capacities, on the basis of which a novel and revisionary account of capacities could be constructed - although full development of that account would raise questions which are beyond the range of this

paper." (p. 253)

16. Marko, Vladimir. 1995. "Callimachus' puzzle about Diodorus." *Organon F* no. 2:342-367.

    Abstract: "The author tends to emphasize that there are almost the three reasons to analyse Callimachus' epigram about Diodorus (Pfeiffer fr.393, 14): *First of all, the date of this epigram* shows us that it represents the earliest information about Diodorus doctrine. *Second*, another support of its authenticity could be found in fact that this epigram *expressing part of the atmosphere* following, and also remaining after, discussing the Diodorian topics. *Third*, its *philosophical relevance*, usually minimised in classical literature, could be found in those facts that it could show the way out in many today dilemmas about his philosophical

    claims and support some of our contemporary assumptions about its logical conception, as well as that of space, time, and meaning of statements. The author defends a position that it is necessary to develop *well-grounded* and *methodologically relevant base* covering the historical reconstruction and the interpretation of ancient logical theories."

"In fact, this is not a story about M.A. [Master Argument] Possibly, just partly. We would like to introduce one Callimachus' epigram that could have a reference to Diodorus' logical and temporal conception, and to form its adequate interpretation. It follows:(3)

(Even) Momos (himself) used to write on the walls: "Cronos is wise."

Look, even the ravens on the rooftops are craving: "What follows (from what)?"

and "How shall we come to be hereafter?" (p. 344)

(3) Dôring [(1972): *Die Megariker Kommentierte Sammlung der Testimonien. Amsterdam*], frs. 96, 128; D.L., ii 111; S.E. *M* i 309, p. 672 Bekk.; Pfeiffer [(1949): Callimachus. Oxford]: fr. 393, 1-4, Epigrammatum fragmenta, i.

17. Marko, Vladimír. 2011. "Looking for the Lazy Argument Candidates (1)." *Organon F* no. 18:363-383.

Abstract: "The Lazy Argument, as it is preserved in historical testimonies, is not logically conclusive. In this form, it appears to have been proposed in favor of part-time fatalism (including past time fatalism). The

argument assumes that free will assumption is unacceptable from the standpoint of the logical fatalists but plausible for some of the nonuniversal or part-time fatalists. There are indications that the layout of

argument is not genuine, but taken over from a Megarian source and later transformed. The genuine form of the argument seems to be given in different form and far closer to logical fatalism and whose purpose

is not to defend laziness. If the historical argument has to lead to the logically satisfactory solution, some additional assumptions and its additional tuning are needed."

[The oldest form of the Lazy Argument]: "These and others like them are the absurdities that follow if it is necessary for every affirmation and negation (either about universals spoken of

universally or about particulars) that one of the opposites be true and the other false, and that nothing of what happens is as chance has it, but everything is and happens of necessity. So there would be no need to deliberate or to take trouble, thinking that if we do this, this will happen, but if we do not, it will not." (Aristotle, *de interpretatione* 18b26-33)"

[See also Cicero, De fato, XII, 28-29]

18. Máralém, Claudia. 2011. "Megaric Philosophy Between Socrates' Influence and Parmenides' Ghost." In *Parmenides, Venerable and Awesome (Plato, Theaetetus 183e). Proceedings of the international symposium (Buenos Aires, October 29-November 2, 2007)*, edited by Cordero, Nestor-Luis. Las Vegas: Parmenides Publications.

    Summary: "The theoretical origins of Megaric philosophy have been discussed at length. The ancient sources refer to the influence of Socratism and Eleatism on Euclid, but some more recent studies deny that his last current of thought had any importance in the formation of the Megaric theses.

    This article studies the disadvantages of this proposal and sets out to show that it is necessary to consider the Eleatic influence. In order to support this point, it examines some aspects of Euclid's position and their connections with Parmenidean philosophy. Then, three doctrines of later authors associated with the Megaric line (Eubulides, Diodorus Cronus, and Stilpo) are examined in order to show the presence of Eleatic approaches and its persistence and relevance for the theoretical identity of the group."

19. Mates, Benson. 1949. "Diodorean Implication." *The Philosophical Review* no. 58:234-242.

    "Diodorus Cronus a Megarian logician greatly renowned in antiquity, is known to students of the history of logic chiefly for his part in the ancient controversy over the truth-conditions for hypothetical propositions." (p. 234)

    (...)

"The present paper(5) attempts to give as clear and correct an account as possible of Diodorean implication(6) and of its relation to the other types of implication which were advocated by the several participants

in the ancient controversy. Perhaps this account will not be uninteresting to students of modern logic, for Diodorus managed to define a plausible sense of "implication" that is stronger than Material implication and weaker than Strict implication-a feat requiring no little skill."

(5) This paper is based on a portion of the author's doctoral dissertation, *The Logic of the Old Stoa* (1948, typescript, University of California Library). [published as *Stoic Logic*, Berkeley: University of California Press, 1953 (second revised edition 1961).]

(6) The term "Diodoran" was coined by C. S. Peirce; I prefer "Diodorean."

20. ———. 1961. *Stoic Logic*. Berkeley: University of California Press.

Second revised edition; first edition 1953.

"In this section we shall investigate what remains of the ancient treatment of the problem just mentioned [*the problem of implication*]. We know that the controversy was begun by Diodorus and Philo in the Megarian school and was taken up and enlarged by the Stoics. Most of the latter seem to have adopted the position of Philo,(4) although at least three other views were represented.

In modem times, C. S. Peirce was the first competent logician to comment on the ancient dispute.(5) He was struck by the fact that Philo's notion of implication was exactly the same as the modem so-called "material implication," which also has provoked much debate. Other authors have mentioned this same point of similarity,(6) and today it is probably the best-known fact about Stoic logic." (p. 43)

(4) H*yp*. *Pyrrh*. 11,104; *Adv*. *Math*. VIII, 245.

(5) *Collected Papers*, vol. 2, p. 199; vol. 3, pp. 279-280.

(6) See, for example, the articles by Hurst, Chisholm, Lukasiewicz ("*Zur Geschichte der Aus sagenlogik*"), Bochenski (*De Consequentiis,* p. 3), and Reymond. See also De Lacy, *Philodemus: On Methods of Inference*, p. 159, note 8; Stock, *Stoicism*, pp. 22-23;

A. Tarski, *Introduction to Logic* (New York, Oxford, 1941), p. 27, note 3; W. V. Quine, *Mathematical Logic* (New York, Norton, 1940), p. 18.

References

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Lukasiewicz, Jan. "Zur Geschichte der Aussagenlogik," *Erkenntnis*, vol. 5 (1935), pp. 111-131.

Peirce, C. S. *Collected Papers*, Cambridge, Harvard University Press, 1931-1934. 4 vls.

Reymond [-Virieux] , Antoinette. *La Logique et l'épistémologie des Stoiciens*. Chambéry, Editions "Lire," n.d. [1949]

---. "Points de contact entre Is. logique stoicienne et 1a logique russellienne," *International Congressfor the Unity of Science*. Paris, 1936.

Stock, St. George. *Stoicism*. London, Constable, 1908.

21. Moline, Jon. 1969. "Aristotle, Eubulides and the Sorites." *Mind* no. 78:393-407.

"In this paper I should like to inquire about the probable historical origin, target and solution to perhaps the most perplexing of the ancient paradoxes, the Sorites.(1) The

evidence which remains on these points is neither copious nor quite conclusive, but it does support reasonably compelling hypotheses which serve to illuminate further our picture of the period. And such hypotheses should be formulated, for, as W. and M. Kneale noted, it is incredible that the ancient paradoxes were produced in the entirely pointless way the tradition appears to suggest.(2)"

(1) 'That this argument is still perplexing is indicated by Max Black's article, " Reasoning With Loose Concepts ", *Dialogue*, II (1963), no. 1, pp. 1-12. An additional indication of the perplexity it generates is provided

by Evert Beth, who saw the argument as leading to paradoxical results in set theory. *Foundations of Mathematics* (Amsterdam, 1959), p. 22.

(2) W. and M. Kneale, *The Development of Logic* (Oxford, 1962), p. 114.

This point has also been recognized by Beth (see n. 1). The traditional view is found in Kurt von Fritz's article, " Megariker ", in Pauly-Wissowa's Realencyclopaedia der Classischen Altertumswissenschaft (Stuttgart, 1931), Supplement V, p. 710. It also appears in E. Zeller's *Outlines of the History of Greek Philosophy,* 13th edition, transl. by L. R. Palmer (London, 1931), p. 107. Zeller viewed Eubulides' paradoxes as " clever but worthless fallacies ". This view dates back at least to Cicero, who considered the Sorites to be a " very vicious and captious style of arguing ", and the other Megarian paradoxes to be " far-fetched and pointed sophisms ". *Academic Questions,* transl. by C. D. Yonge (London, 1853), pp. 46, 58.

22. O'Toole, Robert R., and Jennings, Raymond E. 2004. "The Megarians and the Stoics." In *Handbook of the History of Logic, Vol. 1: Greek, Indian and Arabic Logic*, edited by Gabbay, Dov and Woods, John, 397-522. Amsterdam: Elsevier.

"The Megarian School was founded by Euclides, a pupil of Socrates (DL 2.47) and a native of Megara on the Isthmus (DL 2.106). He was succeeded as head of the school first by Ichthyas and later by Stilpo, also a native of Megara in Greece (DL

2.113). Evidently, since Diodorus can trace his philosophical lineage back to Euclides through Apollonius Cronus and Eubulides (DL 2.110-11), it has been generally thought that he also was a member of the Megarian school; hence, the Megarian connection with respect to the source of Zeno's logical doctrines would seem assured. Sedley, however, has presented what seems to us a convincing argument to the effect that Diodorus belonged rather to a rival school which was called the Dialectical School (Sedley, [1977, pp. 74-75]; cf. Sandbach, [1985, p. 18]).

At 2.106 Diogenes reports that the followers of Euclides were called Megarians after his birthplace. Later they were called Eristics, and later still, Dialecticians.

Sedley argues for the possibility that these remarks should not be interpreted, as they usually are, to mean that this was one and the same school known at different times by different names, but rather that these names designated splinter groups whose *raisons d'être* were different enough from that of the Megarian School to warrant viewing them as distinct schools [Sedley, 1977, p. 75]. According to Sedley, several sources inform us that the Dialecticians recognised Clinomachus of Thurii, a pupil of Euclides, as the founder of their school [Sedley, 1977, p. 76].

However, since the name 'Dialectician' was first coined for the school by Dionysius of Chalcedon (DL 2.106), an "approximate" contemporary of Diodorus (Sedley [1977, p. 76]), it seems more likely not that Clinomachus actually founded the school, but rather that he was recognised by its members as the source of the ideas foremost in their teachings [Sedley, 1977, p. 76]." (p. 406)

References

DL = Diogenes Laërtius, *Lives of Eminent Philosophers*

[Sandbach, 1985] F.H. Sandbach. *Aristotle and the stoics*. In Supplementary volume 10 of The Cambridge Philological Society. Cambridge UP, 1985.

[Sedley, 1977] David Sedley. *Diodorus Cronus and hellenistic philosophy*. In Proceedings of the Cambridge Philological Society, volume 23, pages 74-120, 1977.

23. Opsomer, Jan. 2013. "The lives and opinions of Socrates and Stilpo as defended by Plutarch against the insidious yet ignorant attacks of Colotes." *Aitia*:1-23.

Abstract: "In chapters 17 to 23 of the *Adversus Colotem* Plutarch defends Socrates and Stilpo against Colotes' criticism. I examine the embedding of this section in the larger context of the work, the links between the sections on Socrates and Stilpo, Colotes' criticisms and Plutarch's counter-arguments and polemical strategies. In doing so, I attempt to disentangle the different layers of this complex text. Socrates is portrayed as an imposter and a sceptic by Colotes.

Plutarch argues that Socrates' philosophy indeed implies a radical distrust of the senses, but that this does not make it impossible for him and his followers to live their daily lives. Socratic philosophy is much to be preferred to Epicureanism. Stilpo, a Megarian, also belongs to the Socratic tradition. Plutarch upholds the high moral reputation of this sharp-witted philosopher against the abuse that he had to suffer from Colotes. The latter also attacked Stilpo's rejection of all predication except identity predication. Plutarch claims that Stilpo's argument is a mere dialectical exercise and poses no threat to our daily lives. Plutarch moreover engages in a counter-attack on the Epicurean philosophy of language, more particularly their abolishment of the intermediate level – that of meanings. As Plutarch presents Stilpo's famous argument,

it amounts to a denial of the ontological relation to which ordinary predication corresponds.

Plutarch's conclusion – that Stilpo merely urges us to abandon the use of the verb "to be" as a copula – does not fit the argument as it is presented by him. This mismatch is best explained by the hypothesis that Plutarch copied the argument quite faithfully without analysing it in detail. That would also explain the fact that the argument makes no use of Plato's account of predication in the *Sophist*."

24. Prior, Arthur Norman. 1955. "Diodoran Modalities." *The Philosophical Quarterly* no. 5:205-213.

    "The Megaric logician Diodorus defined the possible as that which either is or at some time will be true, the impossible as that which neither is nor ever will be true, and the necessary as that which both is and always will be true. These definitions assume-as ancient and medieval logic generally assumes-that the same proposition may be true at one time and false at another; Dr. Benson Mates has accordingly remarked, in his recent study of Stoic logic, that Diodoran 'propositions' are not 'propositions' in the modern sense, but something more like propositional functions, and he represents them as such in his symbolic treatment of the Diodoran definitions of the modal operators.(1)

    I propose here to do something a little different, namely to employ the ordinary propositional variables 'p ', 'q', 'r ', etc., for 'propositions' in the Diodoran sense, and to use certain operators which take such propositions as arguments, and which form functions taking such propositions as values." (p. 205)

    (1) B. Mates, *Stoic Logic,* University of California Press, 1953, pp. 36-37. It has been pointed out to me by Mr. W. W. Sawyer that the Diodoran view that whatever is possible either is or will be true is very like the ergodic hypothesis in the kinetic theory of gases.

25. ———. 1958. "Diodorus and Modal Logic: A Correction." *The Philosophical Quarterly* no. 8:226-230.

    "In the course of a sketch, published in the *Philosophical Quarterly* for July 1955, of a modal system based on the Diodorean definition of the possible as 'what is or will be true ', I showed that this system contains

    all the laws of the Lewis system S4. Whether it contains further modal theses beside those of S4, I went on to say in the same paper, " is a question which remains to be investigated "; it being clear, nevertheless, that the Diodorean system " does not contain the characteristic theses of the main modal system

known to be stronger than S4, namely S5 ". In my *Time and Modality* this question is again referred to, but unhappily with less caution. The Diodorean definition being translated into a 'matrix ', I state on p. 23 that this matrix is ' characteristic ' for S4, i.e. verifies all those and only those formulae which are theorems of S4. And this is a mistake. I should like, therefore, to set out such facts as are now clear to me about the actual relation of the Diodorean modal system, which I shall call D, to S4." (p. 226)

26. ———. 1967. *Past, Present, and Future*. Oxford: Clarendon Press.

    Chapter II: *The search for the Diodorean modal system*, pp. 20-31.

27. Rankin, H. D. 1983. *Sophists, Socratics and Cynics*. Totowa (NJ): Barnes & Noble Books.

    Chapter 11: *The Socratics*; on the Megarics pp. 191-198.

    "Euclides and other ‘Megarian’ pupils of Socrates (and some other non-Megarian Socratics) were influenced by the view that being is one, which originally comes from Parmenides of Elea. A consequence of this

    view is that it becomes impossible to apply predicates to being apart from ‘it is’. You can hardly even say of it that it is one for in doing so you are saying that it is something other than itself, and are denying

    its pure unity even at the very moment of asserting that unity!

    Euclides seems to have taken this ‘oneness’ and applied it to the ‘good’. Like Socrates, he was as much, if not more, interested in questions of goodness and moral value as he was in the question of ‘being’.

    Just as the Eleatics maintained that you could not say that the opposite of ‘being’, that is ‘not being’, exists — such a statement is in their assumptions self-contradicting — so Euclides states that the opposite

    of ‘good’ cannot exist.

As we have seen, the influence of Eleatic ‘logic’ of this kind was strong in many viewpoints and arguments of the Sophistic movement.

Statements involving the verb ‘to be’ invariably involved the notion of ‘being’ in the sense of real, genuine existence, not the mere linking of a predicate to a subject to express what that subject is in part, as in,

for instance, the statements the apple is round, or, the apple is green.

This exhaustive ‘existential’ meaning of the verb ‘to be’ allowed no such variations or dilutions of ‘being’. Consequently two examples of the kind I mention would be held to be contradictory of each other.

This information about Euclides probably comes from a source book written by a doxographer. Cicero’s statements and those of Diogenes Laertius have much in common. Diogenes also tells us how Euclides

took over and adapted Parmenides’ teachings." (pp. 193-194)

28. Rosen, Stanley. 1980. "Dynamis, Energeia, and the Megarians." *Philosophical Inquiry* no. 1:105-119.

Reprinted as Chapter Seven in S. Rosen, *Essays in Philosophy: Ancient*, edited by Martin Black, South Bend, St. Augustine Press, 2013.

"In this paper, I shall summarize a series of arguments taken from a more extensive analysis of Aristotle's treatment or non-being. That analysis is itself intended to serve as a foundation for studying the

ostensible resolution of the problem of non-being in contemporary analytical philosophy. My paper will be divided into three parts. l begin with a sketch of a critical aporia in Aristotle's doctrine of predication.

If my sketch is sound, the implications for contemporary philosophy will be easy to see. In the second part I shall offer

some general observations on the senses of *dunamis* and *energeia* in everyday discourse.

These observations begin from a consideration of the Aristotelian text and the pre-theoretical situation as it was accessible to Aristotle and is still accessible to us. The doctrine of predication is itself based

upon an analysis of everyday discourse and, despite the logical revolution of the present century, continues to play a central role in contemporary philosophy. In the third part of my paper I shall discuss Aristotle's

criticisms of the Megarian thesis and attempt to formulate in such a way as to show that Aristotle has not refuted it." (p. 105)

29. Santos, Ricardo. 2019. "The Pre-Analytic History of the Sorites Paradox." In *The Sorites Paradox*, edited by Oms, Sergi and Zardini, Elia, 289-306. Cambridge: Cambridge University Press.

"Most probably, we owe the discovery of the Sorites Paradox to Eubulides of Miletus.

Eubulides was a philosopher of the Megarian school and a contemporary of Aristotle, who distinguished himself by his outstanding argumentative capacities. Unfortunately, we know very little about him. But Diogenes Laertius(2) attributes to him the formulation of seven arguments ‘with interrogative form’, among which we find the Liar (*pseudomenon*), the Heaper (*sôritês*) and the Bald Man (*phalakron*). Sextus Empiricus(3) says that logic was the only part of philosophy to which Eubulides dedicated himself and, according to Philodemus, he despised every argument that did not contain syllogisms,(4) thus reinforcing his

image of a ‘rigorous dialectician’. But Eubulides was also a polemist, frequently accused of using eristic arguments.(5) He was notorious for his great animosity against Aristotle, against whom he wrote a whole book." (p. 289)

(2) In II 108.

(3) *Adv. math*. VII 13.

(4) Cf. Muller (1985, [*Les Mégariques: Fragments et témoignages*. Traduits et commentés. Paris:

Librairie Philosophique J. Vrin] frag. 88 ad fine, p. 36).

(5) An eristic argument, as Plato and Aristotle characterised it, is a bad argument, based upon some tricky fallacy, used for purely competitive purposes, i.e. aiming at victory rather than knowledge.

30. Sedley, David. 1977. "Diodorus Cronus and Hellenistic Philosophy." *Proceedings of the Cambridge Philological Society* no. 23:74-120.

    Reprinted in: Terence Irwin (ed.), *Hellenistic Philosophy* (Classical Philosophy Collected Papers vol. 8), New York: Routledge, 1995, pp. 270-315.

    "During the last four decades historians of ancient logic have become increasingly aware of the importance of Diodorus Cronus and his pupil Philo as pioneers of the propositional logic which came to flourish in the Stoa. Their direct influence has so far been recognised in two main areas of Hellenistic controversy -- the validity-criteria for conditional propositions, and the definition of the modal terms 'possible' and 'necessary'. But some broader questions have not been satisfactorily answered. What wee Diodorus' own philosophical allegiances and antecedents? What is his place in the history of Greek philosophy? How far-reaching was his influence on the post-Aristotelian philosophers?

    There was little chance of tackling these questions confidently until 1972, when Klaus Döring published for the first time the collected fragments of Diodorus, in his important volume *Die Megariker*. Meagre though they are, these fragments confirm my suspicion that Diodorus' philosophical background has not been fully explored, and also that his influence on the three emerging Hellenistic schools -- the Stoics, Epicureans, and Sceptics -- was far wider than has hitherto been recognised. There has been much discussion as to which earlier philosophers played the most decisive part in shaping Hellenistic philosophy, and the respective claims of the

Platonists and of Aristotle have never lacked expert advocacy. In all this, the claims of so obscure a figure as Diodorus have been underrated." (p. 74)

31. Sentesy, Mark. 2018. "Are Potency and Actuality Compatible in Aristotle?" *Epoché A Journal for the History of Philosophy*:239-270.

    Abstract: "The belief that Aristotle opposes potency (*dunamis*) to actuality (*energeia* or *entelecheia*) has gone untested. This essay defines and distinguishes forms of the Opposition Hypothesis—the Actualization, Privation, and Modal—examining the texts and arguments adduced to support them. Using Aristotle's own account of opposition, the texts appear instead to show that potency and actuality are compatible, while arguments for their opposition produce intractable problems. Notably, Aristotle's refutation of the Megarian Identity Hypothesis applies with equal or greater force to the Opposition Hypothesis. For Aristotle, then, potency and actuality are compatible."

32. Seuren, Pieter A. M. 2005. "Eubulides as a 20th-century semanticist." *Language Sciences* no. 27:75-95.

    Abstract: "It is the purpose of the present paper to highlight the figure of Eubulides, a relatively unknown Greek philosopher who lived ±405–330 BC and taught at Megara, not far from Athens. He is mainly known for his four paradoxes (the Liar, the Sorites, the Electra, and the Horns), and for the mutual animosity between him and his younger contemporary Aristotle.

    The Megarian school of philosophy was one of the main sources of the great Stoic tradition in ancient philosophy. What has never been made explicit in the literature is the importance of the four paradoxes for the study of meaning in natural language: they summarize the whole research programme of 20th century formal or formally oriented semantics, including the problems of vague predicates (Sorites), intensional contexts (Electra), and presuppositions (Horns). One might say that modern formal or formally oriented semantics is essentially an attempt at finding linguistically tenable answers to problems

arising in the context of Aristotelian thought. It is a surprising and highly significant fact that a contemporary of Aristotle already spotted the main weaknesses of the Aristotelian paradigm."

33. Sorabji, Richard. 1983. *Time, Creation and the Continuum: Theories in Antiquity and the Early Middle Ages*. London: Duckworth.

    Chapter 2: *Solutions from Diodorus to Augustine*, pp. 17-32.

    "Diodorus delighted in paradoxes, many of which he took from Aristotle.

    Several will be discussed in later chapters, and it will be seen that he sometimes used atomist theory in order to deal with them. It is not certain whether he tried to solve Aristotle 's paradoxes of time. But there is a certain likelihood that he did, since many of the paradoxes he is known to have tackled are related to Aristotle's. For example, there is a connexion between Aristotle's paradox of the ceasing instant and Diodorus ' question when a wall ceases to exist - while it is intact, or after it has disintegrated.(2) I shall only claim, however, that Diodorus' atomism gave him the *materials* for solving the paradoxes of time. And in this chapter I shall discuss his atomism only so far as is necessary for showing that it supplied these materials.

    Diodorus ideas on atomism are recorded by Sextus Empiricus. An atom, in Greek thought, differs from a geometrical point in that, although it is indivisible is supposed to have a positive size. (We shall see eventually that some Islamic and fourteenth-century Western thought differed in this regard)." (p. 17)

    (2) ap. Sextum, *M* 10.347-9.

34. Temple, George. 1977. "Inference without Axiom of Paradoxes." In *Logic Colloquium 76*, edited by Gandy, Rob Oliver and Hyland, John Martin Elliott, 221-233. Amsterdam: North-Holland.

    "The study of formal, propositional logic has known three great periods - the Greek, the Mediaeval Scholastic and the Modern,

which are, respectively, commonly associated with the names of their reputed

founders: Philo of Megara, Abelard and Frege.

In each period a number of different theories of implication have been advanced of which the most important are

(1) the theory of material implication;

(2) the theory of incompatibility, and

(3) the theory of inclusion.

All three of these theories are attributed to the logicians of the Greek school of Megara in the treatise by Sextus Empiricus ("Outlines of Pyrrhonism", Book ii, 110-112, ca. A.D. 200). Philo is credited with the

theory of material implication, according to which, a proposition p always implies a proposition q unless p is true and q is false. An unnamed Stoic, perhaps Chrysippus, is said to have introduced the notion that p

implies q if p is incompatible with the negation of q. And some who have not been identified are said to define the implication $p \rightarrow q$ to mean that q is virtually included in p." (p. 221)

(...)

"The purpose of this note is to show that a careful analysis of these three theories shows that they are not merely mutually compatible, but essentially the same, the superficial differences exhibiting only a shift of emphasis.

Philonian Implication

We do not possess any of the original works of the Megarian logicians and therefore do not know for certain how they formulated the theory of material implication, but it seems indubitable that they initiated the study of unanalyzed propositions, which were classified as either "True" or "False" accordingly as they corresponded or did not correspond with reality.

This unique scheme of valuation was fatal to their theory of inference.

Philo of Megara (ca. 300 B.C.) recognised three varieties of valid inference, *viz*. from a true antecedent to a true consequent, from a false antecedent to a false consequent, and from a false antecedent to a true

consequent. This is undoubtedly a complete classification, but it is difficult to believe that it was accepted as a definition of inference.

I cannot believe that any Greek politician, barrister or tradesman can ever have sought to persuade his adversary, his judge or his client that a false proposition implies any proposition (true or false), and that a true

proposition is implied by any proposition (true or false).

In fact what is called "Philonian" implication is completely ineffective as a definition, and the Megarian logicians used in its place various schemes of inference. Which we should undoubtedly recognise today as completely satisfactory and sometimes of surprising subtlety.

They also used the unique valuation of propositions as true or false to characterise disjunction and conjunction, but there is no evidence that they were under the illusion that they had provided formal definitions of these connectives." (p. 222)

35. Uckelman, Sara, and Uckelman, Joel. 2007. "Modal and temporal logics for abstract space–time structures." *Studies in History and Philosophy of Science Part B: Studies in History and Philosophy of Modern Physics* no. 38:673-681.

Abstract: "In the 4th century BC, the Greek philosopher Diodoros Chronos gave a temporal definition of necessity. Because it connects modality and temporality, this definition is of interest to philosophers working within branching time or branching spacetime models. This definition of necessity can be formalized and treated within a logical framework. We give a survey of the several known modal and temporal logics of abstract space-time structures based on the real numbers and

the integers, considering three different accessibility relations between spatio-temporal points."

36. Unlu, Hikmet. 2020. "Aristotle, Heidegger, and the Megarians." *Revue Roumaine de Philosophie* no. 64:125-139.

    Abstract: "This paper examines Aristotle's analysis of unenacted capacities to show the role they play in his discovery of the concept of actuality. I first argue that Aristotle begins Metaphysics IX by focusing on active and passive capacities, after which I discuss Aristotle's confrontation with the Megarians, the philosophers who maintain that a capacity is present only insofar as it is being enacted. Using Heidegger's interpretation as a guide, I show that Aristotle's rejection of the Megarian position leads him to propose that presence cannot be confined to activity. I also argue that this provides the context for Aristotle to realize that the relation between capacity and activity can be generalized as the relation between two ways of being."

37. Verde, Francesco. 2013. *Elachista. La dottrina dei minimi nell'Epicureismo*. Leuven: Leuven University Press.

    "The three chapters of this work provide a philological analysis of the primary sources (Epicurus, *Epistle to Herodotus*, 56-59 / Lucretius, *De rerum natura* I 599-634; II 481-499) concerning thetheory of minima (Ch. 1); an analysis of the likely historical background to this theory (Xenocrates, Aristotle and Diodorus Cronus – Ch. 2); and a study of the development of this doctrine within the Garden, based on an examination of the question whether it is legitimate to speak of an "Epicurean geometry" (Ch. 3). The research thus seeks to provide a broad, detailed and comprehensive overview of the Epicurean theory of minima." (English summaries, p. 329)

    "Al di là del dibattito sulla sua appartenenza filosofica, a Diodoro Crono vengono attribuite alcune argomentazioni nella forma di veri e propri "paradossi" concernenti *stricto sensu* non tanto l'esistenza del movimento (tema specifico, invece, dei paradossi di Zenone), quanto la sua "attualità". La fonte privilegiata per la ricostruzione di questi argomenti è il II libro del *Contro i fisici* di Sesto Empirico (*M* X 85-118)441. La

comprensione di due di tali argomentazioni si fonda necessariamente su una dottrina che alcune fonti attribuiscono a Diodoro, ossia l'esistenza di "enti" minimi e indivisibili che, in quanto principi, costituirebbero la materia, lo spazio e (forse) il tempo. La questione se Diodoro abbia teorizzato questi minimi come una propria dottrina oppure solo a fini dialettici (considerata anche la sua affiliazione filosofica, dialettica o megarica che sia) è stata al centro del dibattito moderno(442). La maggior parte della critica ha ritenuto che l'ammissione di minimi privi di parti sia essenzialmente a scopo dialettico, disserendi causa, dunque: Diodoro avrebbe concesso l'esistenza di minimi per confutare dottrine (fisiche) avversarie che evidentemente si basavano su quell'attualità del movimento che le argomentazioni diodoree andavano, per l'appunto, a negare." (p. 214)

(442) Per un'agile ricostruzione dei principali contributi a tale dibattito, cfr. Montoneri 1984, pp. 126-8; si consulti anche Döring 1998, pp. 224-5.

Riferimenti

K. Döring, *Sokrates, die Sokratiker und die von ihnen begründeten Traditionen*, in H. Flashar (Hrsg.), *Grundriss der Geschichte der Philosophie*, Begründet von F. Ueberweg, völlig neubearbeitete Ausgabe, *Die Philosophie der Antike*, Band 2/1: *Sophistik-Sokrates-Sokratik-Mathematik-Medizin*, Basel 1998, pp. 139-364.

L. Montoneri, *I Megarici: Studio storico-critico e traduzione delle testimonianze antiche*, Catania 1984.

38. ———. 2015. "Diodorus Cronus on Perceptible Minima." In *From the Socratics to the Socratic Schools: Classical Ethics, Metaphysics and Epistemology*, edited by Zilioli, Ugo, 134-148. New York: Routledge.

"The main textual evidence illustrating Diodorus' interest in perceptible minima is constituted by two passages from Alexander of Aphrodisias' commentary on Aristotle's *On Sense and Sensibilia*." (p. 134)

"Although they have not, to my knowledge, been the subject of any specific scholarly treatment, Diodorus' perceptible minima have been variously interpreted. As Alan Towey(19) suggests, the range of interpretations may usefully be divided into two. On the one hand, some interpreters (Mau, Denyer, Sedley) have thought of perceptible minima as an idea used by Diodorus in order to "draw an analogy between perceiving something and conceiving of it." On this view, Diodorus will have accepted that something that can be perceived as lacking parts, although actually divisible, cannot be conceived of as having parts. On the alternative view (Sorabji's), Diodorus used the idea in connection with the problem "that a smallest visible size and a largest invisible size differ from each other by an atomic magnitude."(20)" (p. 140)

[I: Alexander of Aphrodisias, On Aristotle's De sensu 122 16–23 Wendland (= SSR II F 9, part); II: n Aristotle's De sensu 172 28–173 10 Wendland (= SSR II F 9). English translation: Towey, A. (ed.) (2000), Alexander of Aphrodisias: *On Aristotle's "On Sense Perception,"* Ithaca/New York, Cornell University Press.]

(19) Towey (2000), *Alexander of Aphrodisias: On Aristotle's "On Sense Perception,"* Ithaca/New York, Cornell University Press. 188 n. 523.

(20) Sorabji (1983), *Time, Creation and the Continuum: Theories in Antiquity and the Early Middle Ages*, Ithaca/New York, Cornell University Press, 345–348.

39. Weidemann, Hermann. 2008. "Aristotle, the Megarics, and Diodorus Cronus on the Notion of Possibility." *American Philosophical Quarterly* no. 45:131-148.

"One of the most remarkable traits of the fragmentary picture which our sources allow us to draw of the philosophy of the Megarics is the conception of possibility ascribed to them by Aristotle. The well-known passage in Aristotle's Metaphysics in which this ascription is made, namely the beginning of the third chapter of book IX (Θ), is, if we leave aside the commentary on this passage which has falsely been attributed to Alexander of Aphrodisias, our only evidence for the Megaric doctrine in

question. Aristotle does not content himself with giving an account of this doctrine, but subjects it to a severe criticism, which he underpins by an exact definition of what, in his opinion, it is for something to have a certain possibility. This definition is fundamental not only to his criticism of the Megaric position, but also to his rejection of a view which is opposed to it in the extreme. He criticizes this extreme anti-Megaric conception of possibility in the first half of chapter 4 of Met. Θ. In my essay I shall first concentrate on this chapter and the chapter preceding it, in order to show that by means of his definition of the notion of possibility Aristotle is able to strike a happy medium between the Megaric position which he attacks in chapter 3 and the extreme anti-Megaric position which the target of his criticism in chapter 4. Then I shall try to show that even in chapter 5, in which at first sight he seems to adopt the view of his Megaric opponents himself, Aristotle firmly sticks to his own conception of possibility. Since this conception is seriously challenged by the famous Master Argument of Diodorus Cronus, who modified the Megaric conception of possibility, I shall finally try to show that this argument is not damaging to Aristotle's position at all, because it fails to be sound." (p. 131)

40. Wheeler, Samuel C. III. 1983. "Megarian Paradoxes as Eleatic Arguments." *American Philosophical Quarterly* no. 20:287-295.

    "The main result reached in the paper is that the Megarians were serious and brilliant philosophers, who in the course of defending views of Parmenides, raised powerful objections via the paradoxes attributed to Eubulides to standard views of the world. In the case of at least twoparadoxes, the Electra and the Sorites, I think the Megarian solutions can teach us a lot. I will briefly defend the Megarian's solution to the Electra and will refer the reader to recent papers by Peter Unger(9) and the author(10) for a defense of the Megarian solution to the Sorites.

    (...)

    "That even Euclid, let alone Eubulides, was an advocate of Parmenides' ideas at all is not conclusively supported by

Diogenes' claim that he read Parmenides' works. Ancient sources besides Diogenes do regard the Megarians as successors of the Eleatics, but are divided as to what Parmenidean doctrines they might be committed to.(14) The main argument I have that the paradoxes are designed to support Parmenidean conclusions is that such a hypothesis gives them a coherent focus and makes them into serious problems with metaphysical consequences. If the ascription of Parmenidean views to the Megarians turns what

the tradition treats as a melange of verbal tricks into a unified and serious program, that is strong evidence in favor of the ascription." (pp. 287-288)

(9) Peter Unger, "There Are No Ordinary Things," *Synthese*, Vol. 41 (1979).

(10) Samuel Wheeler, "Reference and Vagueness," *Synthese*, Vol. 36 (1975), pp. 367-79, and "On That Which Is Not," *Synthese*, Vol. 41 (1979), pp. 155-73.

(14) See W. K. C. Guthrie, *History of Greek Philosophy*, Volume III, (Cambridge University Press: London, 1969), pp. 499-507.

41. White, Michael J. 1979. "An S5 Diodorean Modal System." *Logique et Analyse* no. 88:477-487.

"As is now well known, the alethic modalities were normally conceived in temporal terms by the ancients (1). In particular the Megarian logician Diodorus Cronos defined a possible proposition as one that either is now or will be true, an impossible proposition as one that is now false and will always be false, a necessary proposition as one that is now true and will always be true, and a nonnecessary proposition as one that either is now false or will be false (2).

The research — both historical and logical — of Arthur Prior has proven especially fruitful in the contemporary analytical study of «Diodorean modalities.»" (p. 477)

42. ———. 1980. "Facets of Megarian Fatalism: Aristotelian Criticisms and the Stoic Doctrine of Eternal Recurrence." *Canadian Journal of Philosophy* no. 10:189-206.

"The Megarians, as well as their Stoic heirs, are known to have been fatalists or logical determinists in the following, very broad sense of these terms: with respect to at least certain classes or kinds of nontautologous propositions, they held that the mere truth of a proposition entails its necessity.(1) This paper explores, in a very tentative fashion, the relation between several versions of logical determinism and two passages in the Aristotelian corpus [*], one of which is specifically directed against Megarian doctrine and the other of which is an argument purporting to establish a thesis concerning the necessity of future events which Aristotle wished to reject but which the Megarian logician Diodorus Cronus apparently accepted."

(1) This characterization of logical determinism is broad enough to include even Aristotle: he apparently held that all propositions 'about' the past and present are necessary. *Rhet.* Ill, 17, 1418a3-5; *De Int*. 9, 19a23-25; *Eth. Nic.* 2, 1 139b7-9; and *De Caelo* I, 12, 283b13 are cited by Jaakko Hintikka, "Aristotle and the 'Master Argument' of Diodorus," *American Philosophical Quarterly*, I (April 1964), pp. 101-2. However, Aristotle apparently wished to deny that 'future contingent' propositions are necessary. In order to do so, he at least toyed with the idea of withholding a truth value from such propositions. Vid. *De Int*. 9.

[*] *Metaphysics*, Θ, 3, *De interpretatione* 9.

43. ———. 1985. *Agency and Integrality: Philosophical Themes in the Ancient Discussions of Determinism and Responsibility*. Dordrecht: Reidel.

Chapter Three: *Diodorean Fatalism*, pp. 69-96.

"The basic elements of Diodorus' view are not difficult to ascertain. He retains a "positivistic" or "extensional" conception of the modalities but modifies slightly the conception attributed to the "Megarians" by Aristotle. According to Aristotle's account, the Megarian doctrine apparently is that "what is possible," from the present temporal perspective, is equivalent to "what is *now* actually the case." There is, however, what I believe is a natural tendency to interpret "what is, at present,

possible" in such a way that "present" has "widest scope": and, as a consequence, we tend to apply the phrase "what is, at present, possible" not only to what might be happening at the *present moment*, but also to what might happen in the future relative to the present time. There is, in other words, a temporally *prospective* aspect to the modality of possibility, or at least to some ordinary conceptions of possibility. (27) It is this temporal prospectivity that lends credibility to the premise Aristotle invokes against the Megarians in *Metaphysics* 9.3. Note that without the implicit assumption of the temporal prospectivity of possibility, the fact that the occurrence of an event is impossible now, at the present moment, is apparently irrelevant to the question of whether that event shall occur or fail to occur at some *future time*." (p. 73)

(2/) Hintikka makes essentially the same point in his discussion of the passage (*Time and Necessity*. pp. 197-199). However. far from being a "rather peculiar concept of possibility" (ibid. p. 197), the concept being exploited in the passage by Aristotle strikes me as a very commonly encountered concept."

44. ———. 1986. "What Worried the Crows?" *The Classical Quarterly* no. 36:534-537.

"A well-known epigram by Callimachus on the philosopher Diodorus Cronus (fr. 393 Pfeiffer) reads as follows:

αὐτο`ς ὁ Μῶμος

ἔγραφεν ἐν τοίχοις ‘ὁ Κρόνος ἐστι` σοφός’. [Blame (*Momus*) himself wrote on the walls "Cronus is wise]

ἠνίδε κοἰ κόρακες τεγέων ἔπι “κοῖα συνῆπται”

κρώζουσιν και` “κῶς αὖθι γενησόμεθα’. [And here the crows are, squawking from the rooftops "what conclusions follow?" or "how will we become again?]

The question of the third line, while perhaps recondite from a contemporary perspective, was clear in antiquity. The crows are asking' What follows (from what)?', in allusion to the Hellenistic disputes concerning the truth conditions of

conditional propositions (συνημμένα), disputes in which the views of Diodorus figured prominently.(1)

I agree with Sedley that the question of the last line is 'much more problematic'.(2)

The common interpretation has been to read the αὖθι as a form of αὖθις and to interpret it temporally. The result, in Pfeiffer's estimation, is 'quomodo posthac erimus?'.(3)" (p. 534)

(...)

"The crows' how-question is particularly apposite, then. Because of Diodorus' doctrine of temporal and spatial minima, the 'natural' answer cannot be given to their question how they will come to be at that very place they will later occupy. That is, Diodorus cannot admit that the crows get from one place to an adjacent minimal place by means of a continuous process or κῑ̆νησι ̆ς moving (κινεἰσθαι) that results

in the crows' gradually occupying less and less of the first place while occupying more and more of an adjacent minimal place. Rather, the crows simply are at rest in the first place during one time atom and, during the next time atom, they find themselves at rest at the adjacent minimal place. The crows' question, natural though it may be, is a question that Diodorus cannot answer." (p. 537)

(1) Sextus Empiricus, *PH* 2.110-12 and the discussion in B. Mates, *Stoic Logic* (Berkeley and Los Angeles, 1961), pp. 45-7.

(2) Sedley, 'Diodorus Cronus and Hellenistic Philosophy', *Proceedings of the Cambridge Philological Society* 20 (1977), 108 n. 35.

(3) Pfeiffer, *Callimachus* (Oxford, 1949), i.35.

45. Witt, Charlotte. 1995. "Powers and Possibilities: Aristotle vs. the Megarians." *Proceedings of the Boston Area Colloquium in Ancient Philosophy* no. 11:249-266.

"Book IX of the *Metaphysics* explores Aristotle's complex notion of *dunamis,* a term that its translators have rendered as

power, capacity,and potentiality.(1)I Book IX Aristotle uses words in the same family

to express the notion of possibility (δυνατός) and impossibility (ἀδύνατος) as well. These concepts—powers, potentialities and possibilities—differ markedly from one another. Powers and capacities

are abilities that an object has at present (given certain conditions) to enact or to suffer a change." (p. 249)

(...)

"My paper examines this difficult, but crucial, text in order to tease out the systematic connections, and differences, that Aristotle saw among the powers, potentialities and possibilities of substances." (p. 250)

(...)

"We find Aristotle's only direct argument concerning what is at stake philosophically in the notion of *dunamis* in his criticisms of the Megarians. As Aristotle introduces their position in the first few lines of Book IX, chapter three, the Megarians espoused the doctrine that the only capacities or powers that objects have are those that are manifest or actual. "There are some who say, as the Megaric school does, that a thing can act only when it is acting, and when it is not acting it cannot act" (1046b29-30). A person can build a house, only when she is actually building it; when she has ceased working, she can no longer build. A color can be seen only when it is actually being seen; when no longer being seen the color is no longer visible. Capacities exist only while and as long as they are being actualized. Although we will need to reconsider this point below, Aristotle's initial statement of the Megarian position holds that there exists no *dunamis* that is not being actualized, which is compatible with the idea that what an entity actually is doing, it is capable of doing. That is, capacities exist, but not independently of their being actualized." (p. 252)

(1) For example, Ross uses all three translations of *dunamis* in his translation of Book IX of the *Metaphysics* (Barnes (ed.)

1984).
46. Zeller, Eduard. 1877. *Socrates and the Socratic Schools*. London: Longmans, Green & Co.

Translation of the third edition of E. Zeller (1889).

Chapter XII. *The Megarian and the Elean-Eretrian Schools*, pp. 250-283.

"The starting-point of the Megarian philosophy must be looked for in Socrates' demand for a knowledge of conceptions. With this demand Euclid combined the Eleatic doctrine of a contrast between

sensational and rational knowledge. Distinguishing these two kinds of knowledge by their objects far more than by their form, he arrived at the conviction that the senses show us what is capable of change

and becoming, and that thought only can supply us with the knowledge of what is unchangeable and really existing. He stood, therefore, in general, on the same footing as Plato, and it is possible that this

view was simultaneously arrived at by both philosophers in their intellectual intercourse, and that owing to Plato Euclid was influenced by Heraclitus' view of the world of sense. Socrates had indeed

made the immediate business of thought to be the acquisition of a knowledge of conceptions. Conceptions, accordingly, represent that part of a thing which never changes. Not material things, butt

only incorporeal species, taught Euclid, admit of true being. The same view Stilpo expressed, when he refused to allow the general conception to apply to individual things, on the ground that a general

conception implies something quite different from every individual thing, and not like these having its origin in time. In this respect the Megarians again agree with Plato. Whilst Plato, however, regarded species as living spiritual forces, Euclid,

following in the steps of Parmenides, denied every kind of motion to being. He, therefore, reduced action and passion to the sphere of the becoming.

Of being, he asserted, you can neither predicate action, nor passion, nor yet motion." (pp. 261-262, notes omitted)

Digital Quadrivium Project



History of Logic

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Selected Bibliography on the Megarians and the Dialectical School: Non-English studies

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1. Boutot, Alain. 2001. "Heidegger et les Mégariques." In *Socrate et les Socratiques*, edited by Romeyer Dherbey, Gilbert and Gournat, Jean-Baptiste, 431-456. Paris: Vrin.

   "Le dialogue de Heidegger avec les Mégariques n'a pas eu lieu, et, à moins de forcer les textes ou de se contenter de vagues généralités, il est impossible de savoir ce que Heidegger aurait pu nous en dire.

   Cela est vrai, ou plutôt cela était vrai mais ne l'est plus tout à fait aujourd'hui, à savoir depuis la parution, en 1981, d'un cours donné à rÙniversité de Fribourg pendant le semestre de l'été 1931. Ce cours forme le tome 33 de la *Gesamtausgabe* et a été traduit sous le titre *Aristote. Métaphysique Θ 1-3, De 1'essence et de la réalité de la force*(9). Dans ce texte, Heidegger commente, de manière très détaillée, presque ligne à ligne, les trois premiers chapitres du livre 6 de la *Métaphysique* d'Aristote qui traite de la δὐναμις et de l'ενέργεια de la puissance et de l'acte. Or il se trouve que dans l'un de ces chapitres, le troisième, le Stagirite expose puis réfute une thèse des Mégariques dirigée contre sa doctrine de la puissance. Ce passage(10) est d' autant plus remarquable que c'est le seul endroit du corpus aristotélicien où les Mégariques sont nommément désignés, mis à part les mentions de Bryson(11) dans la *Rhétorique*(12), les *Seconds analytiques*(13) et les

Réfutations sophistiques(14). Heidegger évoque alors dans son commentaire ces penseurs en des termes extrêmement flatteurs: «Qui sont-ils?, demande-t-il. C'est ce que nous devons repérer par exemple à partir de ce passage d'Aristote. Car aucun de leurs 6crits ne nous est parvenu." (pp. 432-433)

(...)

"Avant d'être des dialecticiens, des théoriciens du logos, les Mégariques étaient des métaphysiciens, des théoriciens de l'être. Ils étaient associés à des débats ontologiques tout à fait fondamentaux, comme on peut le voir non seulement dans notre passage de la Métaphysique, mais encore dans le *Sophiste* de Platon(26). En bref, ils faisaient partie de ces penseurs de l' Antiquité pour qui l'être était encore un problème." (p. 434)

(9) Aristoleles, *Metaphysik Θ 1-3, Von Wesen und Wirklichkeit der Kraft*. GA Bd. 33, Francfort. 1981, tr. fr. B. Stevens et P. Vandevelde, Aristote, *Métaphysique Θ 1-3, De l'essence et de la réalité de la force*. Paris, 1991.

(10) Il correspond au fragment 235 de l'édition de H. Ritter et L. Preller, *Historia philosophae graece et romanae ex fontium locis contesta*. 1838, et au fragment 130 A de l'édition de K. Dôring, *Die Megariker, Kommentierte Sammlung der Testimonien*, Amsterdam, 1972 (= *SSR* II B 15).

(11) Bryson ne serait pas un Mégarique authentique (cf. R. Muller, op. cit., p. 142).

(12) *Rhétorique*, III, 1405 b 9.

(13) *Séconds analytiques*, l. 9, 75 b 40.

(14) *Réfutations sophistiques*, 11, 171 b 14; 172 a 6.

(26) En 246 b sq.

2. Dorion, Louis-André. 2001. "Euthydème et Dionysodore sont-ils des Mègariques?" In *Plato: Euthydemus, Lysis, Charmides. Proceedings of the V Symposium Platonicum: Selected Papers*, edited by Robinson, Thomas M. and Brisson, Luc, 35-50. Sankt Augustn: Academia Verlag.

   International Plato Studies, vol. 13.

3. Hartmann, Nicolai. 1993. "Le concept mégarique et aristotélicien de possibilité. Contribution à l'histoire du problème ontologique de la modalité." *Laval Théologique et Philosophique* no. 49:131-146.

   Traduction de Hartmann (1937) par Jean-Pierre Narbonne.

   "La métaphysique de l'Antiquité tardive, et non moins celle du Moyen Age, sont dominées par le concept aristotélicien de possibilité, qui s'érige à partir de l'opposition de la dynamis et de l'energeia. L'ambiguïté interne de ce concept a tôt fait d'être remarquée, étant de fait déjà rendue sensible chez Aristote lui-même. On s'est pourtant attaché à ce concept, car on n'en trouvait aucun autre, qu'on aurait pu mettre à sa

   place." (p. 131)

   (...)

   "Compte tenu de ces circonstances, il est du plus haut intérêt, d'un point de vue historique, de constater que le concept aristotélicien de possibilité, dans la philosophie antique, n'a été ni le seul ni le premier. Avant lui en advint un tout autre, qui était tout à fait connu d'Aristote, qui a été par lui le plus énergiquement combattu et qui fut enfin presque supprimé. Celui-là est le concept de possibilité de l'École de Mégare,

   fondée par l'élève de Socrate, Euclide. Ce concept se situe à plusieurs égards beaucoup plus près de la relation réelle {*Realverhältnis*) de l'être-possible que la dynamis aristotélicienne, et il est contrairement à elle un véritable concept modal ontologique. Il n'a cependant — sauf dans la polémique du Stoïcisme — presque plus reçu d'attention chez les philosophes plus tardifs; sans doute pour aucune autre raison que, dans la

   perspective aristotélicienne toujours plus dominante, il ne pouvait que paraître absurde.

   Ce concept mégarique de possible énonce: «Seul est possible, cela qui est réel»; ou encore «une chose est seulement possible, quand elle est réelle». C'est sous cette forme que ce concept

nous est transmis, de manière apparemment fidèle, par Aristote(3)." (p. 134)

(3) Métaph. G. 1046 b, 29 f: («Il y en a certains qui prétendent, comme par exemple les Mégariques, qu'il y a seulement puissance lorsqu'il y a acte, et que lorsqu'il n'y a pas acte, il n'y a pas puissance»).

4. Henne, Désiré. 1843. *École de Mégare*. Paris: Cez Joubert, libraire-éditeur.

"Ce qu'on va lire n'est pas le panégyrique d'Euclide; moins encore celui de son école. La place de l'école mégarique nous semble à jamais marquée parmi les écoles de second ordre, et il y aurait abus à inscrire

le nom d'Euclide sur la liste des vrais grands hommes.

Toutefois, en considérant l'histoire générale des doctrines et le progrès continu de la pensée philosophique, on trouve que l'école d'Euclide a une très-grande importance. Si l'on demandait quelle est celle des écoles antiques qui s'est jetée avec le plus d'ardeur dans le mouvement de la philosophie contemporaine; celle qui se lie le plus étroitement aux écoles qui l'ont précédée, qui a le plus influé sur celles qui l'ont suivie, ce serait peut-être l'école de Mégare qu'il faudrait nommer. C'est qu'en effet elle touche à tout. Les plus grands noms de la philosophie grecque sont ceux de ses précurseurs, de ses alliés, de ses adversaires. Héritière de Parménide, fille de Socrate, elle a eu Platon pour élève, les écoles d'Elis et d'Erétrie pour appendices; elle a lutté contre les successeurs d'Héraclite et de Démocrite, contre Aristote et contre Platon

lui-même. Enfin, elle s'est perpétuée en deux de ses disciples dont l'esprit vit encore dans ce monde, Pyrrhon d'Elis, Zénon de Cittium." (pp. 9-10)

(...)

Or, c'est un fait avoué d'Aristote lui-même, qu'avant lui les Mégariques avaiént logiquement distingué l'acte et la puissance, et résolu d'après leurs idées systématiques la question des rapports qu'ils ont entre eux. Un autre titre de

gloire d'Aristote, c'est d'avoir tiré de l'analyse des divers procédés de l'intelligence les lois de l'intelligence elle-même. Or, avant l'auteur de l' *Organum*, Euclide et les dialecticiens de son école

s'étaient exercés sur ces matières, et c'est une remarque de Diogène de Laërte que Clinomaque de Thurium, l'un d'eux, est le premier qui ait écrit *sur les propositions, les prédicats et autres sujets de cette nature* (1). Le stoïcisme a les mêmes origines. D'abord, sa dialectique fut purement mégarienne." (pp. 10-11)

(1) "Κλεινόμαχος ... πρῶτος περι` ἀξιωμάτων και` κατηγορημάτων και` τῶν τοιούτων συνέγραψε " *De Vita Philos*. II, 112.

5. Humbert, Jean. 1967. *Socrate et le petits socratiques*. Paris: Presses universitaires de France.

Sommaire: Première partie: Socrate; Deuxième partie: Les petits socratiques: I. Eschine; II. Antisthène; III. Aristippe; IV. Euclide; V. Phédon; VI. Autres socratiques.

"Nous voyons bien que l'originalité d'Euclide consiste principalement dans la synthèse d'une logique de type éléatique et d'une éthique de type socratique : mais la grande difficulté pour nous est de nous représenter comment fonctionnait un système de l'un constitué d'une métaphysique de la connaissance et d'une éthique qui, du moins chez Socrate, écartait toute métaphysique. Assurément il n'y avait pas incompatibilité rédhibitoire entre certaines formes de l' éléatisme et le mouvement socratique : dans le *Parménide* Platon exalte le fondateur de cette école aux dépens de son disciple Zénon ; mais il faut dire que Platon, entraînant lui aussi l'enseignement de Socrate vers une métaphysique, voyait dans les positions propres de Parménide comme une garantie pour sa théorie des Formes, fort étrangère à la pensée même de Socrate. Si Euclide n'a pas été qu'un éristique essentiellement négatif comme l'ont été après lui les Mégariques ou s'il ne s'est pas immobilisé dans la contemplation de l'un qui est le Bien, si cet esprit si pugnace

ne s'est pas contenté de s'enivrer d'unité, il semble que cela n'a pu se produire que suivant l'hypothèse que propose L. Robin dans sa *Pensée grecque*(803) : le Bien unique est l'être de chaque essence qui garde son immuable unité et exclut l'Autre comme un non-être. Comme on suppose que la pensée est susceptible d'atteindre chaque essence, l'unité du Bien n'empêche point de passer d'une essence à l'autre. Suivant

l'heureuse formule de L. Robin « l'unité du bien n'est pas plus incompatible avec la pluralité des essences que l'unité de l'être avec la pluralité des atomes ». Euclide aurait abouti à une sorte d' « atomisme logique », à une dialectique « morcelante », que peut-être Platon a en vue dans le *Sophiste* quand il défend la réalité de l'Autre et du Non-Être. Il semble qu'il n'y a pas d'autre moyen d'expliquer le fonctionnement

de cette éthique socratique à base éléatique."

(803) L. Robin, *La Pensée grecque et les origines de l'esprit scientifique*, Paris : La Renaissance du Livre 1923, p. 196.

6. Mallet, Charles Auguste. 1845. *Histoire de l'école de Mégare et des écoles d'Élis et d'Éretrie*. Paris: Maire-Nyon, Libraire.

"La méthode que j'ai suivie déjà dans mon *Histoire de la Philosophie Ionienne*, m'a paru également applicable à cette nouvelle publication.

Ici encore j'ai adopté pour plan une série de monographies., précédées d'une introduction générale, cherchant ainsi à concilier l'aperçu synthétique de l'ensemble avec l'exposé analytique des détails.

Indépendamment des documents qui nous sont fournis par l'antiquité, et qu'on rencontre épars dans Platon, dans Aristote, dans Diogène de Laërte, dans Sextus, dans Plutarque, dans Eusèbe, dans Athénée, dans Cicéron, dans Aulu-Gelle, j'ai dû m'entourer des principaux travaux publiés plus récemment, et surtout en Allemagne, sur la philosophie mégarique. L'excellent travail de M. Deycks [*] m'a été surtout d'un très-utile et puissant secours. Toutefois, je me suis imposé la loi de ne faire de mon livre ni un commentaire, ni surtout une reproduction de la dissertation de ce savant critique. J'ai voulu exposer les

doctrines des Mégariques d'après mes propres recherches, et apprécier ces doctrines d'après mes propres impressions.

Aussi, ai-je proposé, sur plusieurs points importants de cette philosophie, des solutions tout à fait différentes de celles que les travaux de Schleiermacher et de Deycks ont accréditées en Allemagne, et que l'autorité attachée au nom de ces grands critiques ont fait adopter chez nous.

L'histoire d'une école philosophique dont tous les travaux ont péri, offre toujours de graves difficultés. Mais peut-être ces difficultés augmentent - elles encore quand il s'agit d'une philosophie contentieuse et subtile, comme fut celle de Mégare. Ce serait mon excuse, j'espère, auprès de ceux qui jugeraient qu'il reste en ce travail, des points à compléter ou à éclaircir." (pp. III-IV)

[*] *De Megaricorum doctrina ejusque apud Platonem et Aristotelem vestigiis*. - Scripsil Fernidandus Deycks, Bonnae, apud E. Weberum, MDCCCXXVII (1827).

7. Muller, Robert. 1988. *Introduction à la pensée des Mégariques*. Paris: Vrin.

Table des matières: Première partie: Préliminaires méthodologiques et historiques. 1. Problèmes généraux de la connaissance et de l'interprétation de l'École de Mègare 11; I. Historique 33; Deuxième partie: La philosophie mégarique: essai d'Interprétation. I. La visée éthique 71; II. Un rationalisme abstrait 83; III. La dialectique 111; Troisième partie et Conclusion. I. Le rôle de Dodore et de Stilpon 185; II. Le Destin de l'École de Mègare 198; Appendice: L'édition de Döring et l'édition de Giannantoni 205; Index des fragments 221; Note bibliographique 223; Index nominum 227-232.

"Avant-propos. Longtemps délaissés, les Mégariques sont depuis peu l'objet d'études de plus en plus nombreuses. Venant après quelques articles remarquables mais trop discrets, le travail le plus décisif de ces dernières années a sans doute été la publication par K. Döring de la quasi-totalité des fragments et témoignages concernant cette école, dans une édition fiable et commode: *Die Megariker. Kommentierte Sammlung der*

Testimonien, Amsterdam, Grüner, 1972. L'importance de cet ouvrage nous a incité à proposer une traduction française, assortie d'un commentaire, des textes de Döring: *Les Mégariques. Fragments et témoignages,* Paris, Vrin, 1985. A peu près en même temps paraissaient deux autres publications comparables, l'une de L. Montoneri *(I Megarici. Studio storico-critico e traduzione delle testimonianze antiche*, Università di Catania, 1984), et l'autre de G. Giannantoni *(Socraticorum reliquiae,* Roma, Ed. dell'Ateneo, 4 vol., 1983-85 - mais disponibles en 1985 seulement) (1). On ne peut que se féliciter de cette soudaine richesse, en dépit des inconvénients qui résulteront des numérotations différentes dont les textes mégariques sont désormais affectés.

Il nous a semblé qu'il convenait de contribuer à cette renaissance en offrant au lecteur non-spécialiste un aperçu systématique -- quoique moins ambitieux -- de l' état de nos connaissances sur le sujet. Tel est donc l'objet du présent ouvrage, qui s'efforce de ne pas faire double emploi avec notre publication précédente. Ce livre se distingue du précédent sur deux points: 1. le commentaire fragment par fragment ne permettant guère les vues d'ensemble, nous avons au contraire cherché ici à présenter une vision plus synthétique de la philosophie mégarique, voire -- pour autant que la documentation l'autorise, et justement parce que cette documentation fragmentaire a trop souvent servi de prétexte à des recherches ponctuelles -- une tentative de reconstruction de la doctrine, dans son unité et sa cohérence; 2. les mêmes raisons font que certains développements particuliers intéressant des fragments éloignés les uns des autres (le problème des Amis des Idées du *Sophiste,* le contexte et la nature exacte de la dialectique mégarique), ou impliquant une mise en perspective des auteurs les uns par rapport aux autres (l'évolution de l'école), ne pouvaient trouver leur place et leur portée que dans ce cadre-ci.

Enfin, nous avons jugé utile d'ajouter en appendice une courte comparaison des deux éditions de fragments disponibles et auxquelles on devra désormais se référer, suivie de deux tables de concordance destinées à faciliter la confrontation."

(1) Comme l'indique son titre, ce dernier recueil est beaucoup plus large puisqu'il concerne tous les (Petits) Socratiques. Le vol. I contient les textes relatifs aux Socratiques en général (section I), aux Mégariques (sect. II); aux philosophes d'Elis et d'Erétrie (sect. III), et aux Cyrénaïques (sect. IV); le vol. II est entièrement consacré à Antisthène et aux Cyniques. Le vol. III comprend les "notes" (en fait, une série de chapitres sur les principaux auteurs et les problèmes concernant leurs écoles, dont l'ensemble constitue un commentaire très substantiel des deux premiers vol.); le vol. IV enfin, la bibliographie et deux index (les sources; les noms propres).

8. ———. 2008. "A propos du possible mégarique." In *Dunamis. Autour de la Puissance chez Aristote*, edited by Crubellier, Michel, Jaulin, Annick, Lefebvre, David and Morel, Pierre-Marie, 303-325. Louvain-la-Neuve: Peeters.

   "Comme intepréter la nègation mégarique de la puissance?

   (...)

   "Sur le fond, la problématique de la puissance ou du possible engage la réflexion dans des directions multiples et des aventures périlleuses qu'on ne saurait examiner ici. A cela s'ajoute que pour les Mégariques la documentation est disparate, ce qui rend malaisé le «retour au texte»; il faudrait en effect se pencher sur un grand nombre de passages difficiles à réunir en un temps limité, parfois assez longs (le livre Θ de la *Métaphysique*, par exemple), et parfois empruntés à des problématiques de prime abord étrangères à la question (la doctrine du mouvement). Je vous propose en conséquence un projet plus modeste: voir si l'on ne pourrait pas éclairer la position mégarique en l'interprétant comme une réaction critique à un usage lui-même ambigu, voire contradictoire, des notions de puissance et de possible. Toutefois, dans la mesure où les formules controversées sont le plus souvent citées allusivement et hors contexte, il me paraît nécessaire de faire d'abord une revue rapide de la documentation et de la façon dont elle est ordinairement comprise. Ce n'est qu'ensuite que j'essaierai de comprendre ce qui est exactement refusé par la définition mégarique du possible, et de montrer que ce refus

s’accompagne d’une avancée de la position de l’école sur la question des événements, et partant de la liberté." (pp 303-304)

(…)

"Les sources sur lesquelles reposent les discussions autour du possible mégarique sont peu nombreuses, mais disparates et difficiles à interpréter : d’abord parce qu’on a affaire à des citations ou commentaires d'auteurs très différents (Aristote et ses commentateurs, Cicéron, Epictète, Plutarque), et ensuite parce que les préoccupations et les intentions de ces auteurs ne sont pas immédiatement claires (il s’agit généralement de critiques de la position mégarique, mais pas toujours; en outre la position mégarique ne constitue pas l’objet direct ou premier du texte, elle n’apparaît qu’incidemment dans le cours du débat). La part de reconstruction et d’interprétation est donc particulièrement forte, ne serait-ce que parce que nous réunissons dans une même discussion des sources qui ne parlent pas tout à fait de la même chose. Cela dit, voyons rapidement quels sont les textes qui d’une façon ou d’une autre nous informent sur la doctrine du possible:

1. Aristote, *Métaphysique* Θ 3 (fr. 130 A), qui affirme que selon les Mégariques «il n’y a puissance que quand il y a acte» (ὁταν ἐνεργη μόνον δὐνασθαι); formule lapidaire qu’il convient de compléter par la discussion des chapitres 3 et 4 en entier;

2. Diodore, cité par divers auteurs:

a) la définition du possible seule: «est possible ce qui est ou sera |vrai]» (fr. 133, 134, 136, 137, 138, et 139);

b) en rapport avec l’argument Souverain (κυριεὐων λὀγος), dont on dit qu’il sert à établir la définition diodoréenne du possible: fr. 131, 135, et probablement 132 (le Souverain n’est pas explicitement nommé);

c) la définition du possible utilisée dans la doctrine de la proposition ou du raisonnement conditionnel (συνημμένον) (fr. 140 143)." (p. 305)

[Les réfèrences sont à R. Muller (éd.), *Les Mégariques. Fragments et témoignages*, Paris : Vrin, 1985.]

9. Rosen, Stanley. 1982. "La critique aristotélicienne des Mégariques." *Les Etudes Philosophiques*:309-330.

   "Pour conclure j'ai suggéré que le problème sous-jacent à la controverse entre Aristote et les Mégariques n'est autre que celui de la nature du néant (et par limitation du non-être). On pourrait aussi exprimer

   ce problème de la façon suivante : pour Aristote comme pour Platon, être, c'est être quelque chose de défini, c'est, comme nous dirions aujourd'hui, être comptable ou nommable(47). Un *genus* ne peut être que

   cette espèce-ci ou cette espèce-là en acte; une *ousia* ne peut admettre que l'un des deux contraires à la fois; et, pour ne faire que mentionner ce que je regarde comme une difficulté sérieuse en soi, de la même

   façon exactement que la perception du sensible ne peut saisir que l'une de deux perceptions contraires à la fois (e.g. le froid ou le chaud), de même l'intellect ne peut comprendre qu'un *eidos* à la fois, quoiqu'il

   doive être les autres en puissance. Pour un Mégarique pourtant, puisque l'être est un, l'exigence de choisir« ceci» ou« cela» est rejetée ou classée comme apparence ou illusion. La puissance, dans la *technè*, de construire, n'est pas distincte ontologiquement de l'activité de construire. Dans sa formulation la meilleure possible, la thèse mégarique mène à ou tend vers Hegel. Pourtant, la version éléatique elle-même est une alternative honorable à Aristote, pourvu qu'elle soit exposée d'une façon honorable."

   (47) *Mét*., Γ, 4, 1006 b 7-11.

10. Slama, Paul. 2016. *Elementa logicae heideggerianae. Heidegger interprète d'Aristote : logos, être et temporalité*. Bruxelles: Éditions Ousia.

    Quatrième partie: *Logos* et temporalité : Heidegger, Aristote, et les Mègariques: Chapitre 1 : Heidegger et les Mégariques : la

réalisation comme horizon de la *dunamis*, 349; Chapitre 2 : Interpretation phénoménologique de *De Int*. 9 : *logos* et finitude, 395-478.

"En effet : il y a des lieux essentiels où Heidegger évoque les Mégariques. Il les évoque dans le grand cours sur le *Sophiste* de 1924/25, mais sans manifester de réelle connaissance sur la secte, ni sans montrer sa pertinence philosophique - elle ne sert qu'à mettre en scène Antisthène et sa thèse sur le discours faux. En revanche, dans le cours de 1931 sur *Mét*. Θ 1-3, les développement sur l'école de Mégare sont nombreux et d'une grande profondeur, certes orientés vers Θ 3 et la discussion qu'on y trouve avec les Mégariques." (p. 354, notes omises)

Studi in Italiano

1. Alesse, Francesca. 1997. "Il tema stoico del διαλεληθως σοφος e il διαλανθάνων λόγος dell'eristica megarica." *Elenchos: Journal of Studies on Ancient Thought* no. 18:57-75.

   "Riguardo, invece, all'altro motivo che caratterizza la teoria della προκοπή, quello del διαλεληθως σοφος, esso sembra aver meno attirato l'intresse degli interpreti, pur con una significativa eccezione: C.

   Prantl (8) avanzò l'ipotesi, accolta da K Döring (9), che il διαλεληθως σοφος abbia a che vedere con il διαλανθάνων λόγος, uno degli argomenti aporetici nati nell'ambito della dialettica megarica(10), e al quale anche Crisippo avrebbe dedicato la sua attenzione, componendo su di esso un breve trattato.(11)" (pp. 59-60)

   (...)

   "Lo scopo di questo studio è quello di accertare la validità dell'ipotesi di Prantl e di portare meglio alla luce la relazione fra il tema stoico del διαλεληθως σοφος e il διαλανθάνων λόγος dell'eristica megarica, partendo però, questa volta, dalla più conosciuta dottrina della προκοπή. Gli eventuali risultati di questa ricerca andranno comunque inquadrati all'interno della storia dei rapporti fra la riflessione stoica

e la dialettica socratica, ad uno sviluppo della quale gli storici del socratismo riconducono la formulazione dei λὸγοι ἀποροι da parte dei successori di Euclide" (pp. 60-61, alcune note abbreviate od omesse)

(8) *Geschichte der Logik in Abendlander* Leipzig 1855-67, rist. Graz 1955, I, p. 490. Scettico su quest'ipotesi si mostrò E. Zeller, [*Die Philosophie der Griechen in ihrer geschichtlichen Entwicklung*, III 1, Leipzig 1923^5] p. 262 nota 2.

(9) *Die Megariker. Kommentierte sammlung der Testimonien*, Amsterdam 1972, p. 112 nota 5.

(10) Cfr. Diog. Laert. II 108 = S.S.R. II 13.

(11) Precisamente il Περι` τοῦ διαλεληθότος προ`ς Ἀθηνάδην, in un solo libro, cfr. Diog. Laert. VII 198

2. Cambiano, Giuseppe. 1971. "La Scuola megarica nelle interpretazioni moderne." *Rivista di Filosofia* no. 62:227-253.

   "Rassegna delle interpretazioni della Scuola Megarica a partire dagli inizi dell'Ottocento: dalle ricostruzioni tendenziose di Tennemann e Hegel alle ricerche di Schleiermacher, Deycks, Henne e altri, dalla presentazione negativa della logica megarica dovuta a Prantl e Zeller e combattuta da Grote e Gomperz sino alla storiografia del Novecento, che ha insistito soprattutto negli ultimi decenni sull'importanza della logica Megarica (Lukasiewicz, Mates, Kneale). ma la filosofia Megarica, benchè sia un campo ampiamente esplorato, sembra costituire ancor oggi uno dei problemi piu difficili per la ricerca storica, filologica e filosofica."

3. ———. 1977. "Il problema dell'esistenza di una scuola Megarica." In *Scuole socratiche minori e filosofia ellenistica*, edited by Giannantoni, Gabriele, 25-53. Bologna: Il Mulino.

   "Se esiste, dunque, un filo documentato che lega tra loro tutti gli appartenenti alla scuola megarica, questo è per noi costituito soltanto da questi esigui appellativi di 'eristico' e 'dialettico' . Certo non erano appellativi che andavano ad essi soltanto, ma questa tendenza abbastanza generale delle fonti nell'usarli non

può essere del tutto casuale. All'ipotesi dell'esistenza di una scuola megarica vorrei sostituire un'altra

ipotesi: le denominazioni 'eristico' e 'dialettico' dipendevano dalla costruzione degli schemi di successione e riflettevano il contributo fornito all'elaborazione di questi stessi schemi dall'interesse per la problematica e il metodo dialettico, comune a tutti questi pensatori - anche se non solo ad essi (ma negli altri casi si trattava di pensatori, ad esempio stoici, che potevano ricevere una collocazione meno controversa in una scuola). Gli storici della filosofia di età tardo-ellenistica avevano di fronte a loro ben documentata l'esistenza di scuole istituzionali, con successioni al loro interno: si pensi agli elenchi degli Accademici e degli Stoici, che sono stati conservati. Non poteva non essere tentante l'utilizzazione della categoria di scuola per sistemare tutte le informazioni concernenti i filosofi antichi, generalizzando all'indietro una realtà del loro tempo e, comunque, risalente almeno sino all' Accademia platonica.

(...)

"Le tre denominazioni della scuola, ricordate da Diogene Laerzio, Megarica, Eristica e Dialettica possono essere contemporanee all'attività dei filosofi che la storiografia posteriore classificò sotto di esse. Sappiamo che Megarici era un'espressione già usata da Aristotele e dialettici e eristici erano termini all'ordine del giorno nel linguaggio dell'Accademia.

Ma il progetto di costruire classi abbastanza rigorose di filosofi megarici, eristici e dialettici dovette essere proprio della storiografia filosofica ellenistica. Partendo da Stilpone la denominazione Megarici era pienamente giustificata, ma non lo era più partendo da Diodoro, dal momento che non è nota un'attività di apprendimento e/o di insegnamento di Diodoro a Megara. Non solo, ma l'appellativo Megarico

non poteva adattarsi neppure a molti altri, antecedenti sia a Stilpone sia a Diodoro. Ciò può spiegare il ricorso alla denominazione più generale, e necessariamente più vaga, di Dialettica, che sottolineava una proprietà comune a quella

catena di filosofi che doveva ricondurre da Stilpone e Diodoro a Socrate. Il fatto che nell'elenco di 10 *airéseis* fornito da Diogene Laerzio I, 18 - 19 possano essere istituite le connessioni

Megarica-Dialettica e Cinica-Stoica potrebbe anche suggerire l'ipotesi che la denominazione Dialettica fosse un corollario della tesi storiografica che ricollegava lo stoicismo al cinismo e non al megarismo, nel senso che il megarismo sarebbe confluito nella Dialettica e non nello stoicismo." (pp. 50-51)

4. Casari, Ettore. 1958. "Sulla disgiunzione nella logica megarico-stoica." In *Actes du VIIIe Congres international d'histoire des sciences : Florence-Milan, 3-9 septembre 1956*, 1217-1224. Paris: Hermann.

5. Celluprica, Vincenza. 1982. "Necessità megarica e fatalità stoica." *Elenchos* no. 3:361-385.

6. Donini, Pierluigi. 1977. "Stoici e Megarici nel *de fato* di Alessandro di Afrodisia?" In *Scuole socratiche minori e filosofia ellenistica*, edited by Giannantoni, Gabriele, 173-194. Bologna: Il Mulino.

   "Al trattato di Alessandro gli studiosi moderni hanno costantemente rivolto l'accusa di professare, nella sua parte costruttiva, una dottrina non genuinamente aristotelica, ma influenzata dallo Stoicismo, e di non riuscire nelle pagine polemiche ad argomentare in modo sempre pertinente contro gli Stoici : tutto questo, benché non una sola volta Alessandro nomini esplicitamente gli Stoici, o un qualsiasi stoico,

   nemmeno come bersaglio della sua polemica. È forse tempo, allora, di suggerire che la parte dello Stoicismo possa essere, nel *de fato*, minore di quella che comunemente si assume, soprattutto nella funzione di ispiratore di Alessandro, ma anche in quella di suo obiettivo polemico. Ed è poi importante domandarsi chi siano gli avversari di Alessandro, là dove sia dimostrato che non sono gli Stoici ." (p. 173)

   (...)

   "In ogni caso, non si potrà più ragionevolmente sostenere che il trattato di Alessandro sia uno scritto di polemica antistoica, e

non si potrà indiscriminatamente indicare come stoIca ogni tesi combattuta da Alessandro. Non si potrà però nemmeno dare una paternità assolutamente precisa alle tesi non stoiche combattute da Alessandro. Se infine è vero che il grande commentatore, vissuto fra il II e il III secolo si sente già cosè insicuro a proposito delle dottrine dei Megarici, sembrerà giusto domandarsi quanto di valido resti nelle testimonianze sui Megarici fornite da autori di età ancor più recente, o di acume, dottrina e scrupolo minori di quelli di cui era fornito Alessandro. Ma questo è un discorso che non poteva più essere sviluppato qui." (p. 194)

7. Ettari, Dario. 2002. "La polemica sul possibile nel IV secolo a.C. [Aristotele, Filone, Diodoro Crono, Crisippo] in una interpretazione moderna." *Metalogicon* no. 15:27-32.

   "Il passo aristotelico sopra riportato [Aristotele,. Metaphysica, 1046b – 1047a] polemicamente indirizzato contro una tesi "megarica" non meglio precisata, mentre da un lato conferma il convincimento del suo autore circa il sussistere di uno stadio particolare dell'essere – vale a dire quello dell'essere-in-potenza come divenire, movimento – dall'altro lato offre un importante "aggancio" teorico per una comprensione della concezione aristotelica – ed indirettamente di quella megarica – del possibile, intorno al quale sorse nel IV secolo a. C. un fervido dibattito i cui protagonisti possono individuarsi appunto in Aristotele, nei Megarici (in particolare Diodoro Crono e Filone di Megara) e nel grande stoico Crisippo, ma la cui eco giunse fino a personaggi molto posteriori quali Alessandro di Afrodisia, Cicerone, Boezio, che ce ne lasciano

   importanti testimonianze."

   (...)

   "È comunque prassi storiografica comune attribuire appunto a Diodoro la tesi confutata da Aristotele, tesi che è formulabile all'incirca nei termini seguenti: *possibile è soltanto ciò che è o sarà* (3) laddove viceversa ciò di cui non si dà mai il caso avrebbe la caratteristica della impossibilità." (p. 28)

8. Giannantoni, Gabriele. 1980. "Aristotele, Diodoro Crono e il moto degli atomi." *Siculorum Gymnasium*:125-133.

9. ———. 1983. "La polemica antimegarica nel XVIII libro *Della natura* di Epicuro." *Cronache Ercolanesi* no. 13:15-19.

10. ———, ed. 1990. *Socratis et Socraticorum Reliquiae. Vol. IV*. Napoli: Bibliopolis.

    Nota 3. Euclide Megarico: a) la patria e la cronologia. —b) gli scritti. — c) l'iconografia,

11. Gomperz, Theodor. 1933. *Pensatori greci. Storia della filofia antica. Vol. II: L'Illuminismo, Socrate e i Socratici*. Firenze: La Nuova Italia.

    Libro Quarto: Socrate e i socratici; Capitolo VIII: I Megarici e le tendenze affini, pp. 607-660.

    "Nuovi Elea ti: così potrebbero essere indicati i Megarici. E la novità consiste in ciò, che gli antichi motivi speculativi trovano una nuova materia cui applicarsi nella filosofia socratica del concetto. Ciò si mostra chiaro non appena si prendano in considerazione i due problemi capitali dei quali si occuparono. In linguaggio dotto essi vengono indicati come *problema della inerenza* e *problema della predicazione*.

    (...)

    "Come si vede, le due questioni si riducono in fondo ad una sola, a quella concernente il *rapporto dell'unità con la pluralità*. Gli Eleati avevano negato ogni e qualsiasi possibilità di un tale rapporto. Precisamente lo stesso fanno i loro prosecutori, i Megarici. Solo che gli Eleati avevano specialmente fatto oggetto di considerazione la pluralità nella· successione, *il problema del mutamento*, e ciò in quanto le loro menti erano dominate dai due postulati della materia che si erano lentamente venuti costituendo attraverso le ricerche dei fisiologi." (pp. 614-615)

12. Kneale, William Calvert, and Kneale, Martha. 1972. *Storia della logica*. Torino: Einaudi.

    A cura e con una premessa di Amedeo G. Conte.

Capitolo III: *I megarici e gli stoici*, pp. 131-207.

"Mentre la teoria logica d'Aristotele sembra sia stata promossa soprattutto dalla riflessione sopra la dimostrazione quale ricorre, ad esempio, in geometria, sembra invece che i megarici abbiano concentrato

l'attenzione sulla dialettica di Zenone e su quelle dispute di ogni giorno onde nacque ciò che Platone ed Aristotele chiamano eristica. O almeno, è facile vedere come le caratteristiche delle argomentazioni dei megarici possano essere nate dall'aver essi concentrato l'attenzione su ciò, ed è attestaita un'ascendenza eleatica. Euclide, fondatore della scuola megarica, sembra abbia studiato le opere di Parmenide,(1) e Diodoro Crono, uno dei membri piu eminenti della scuola, sembra abbia costruito argomenti contra la possibilità del movimento.(2) Ed è significativo che la logica stoica fosse chiamata dialettica.(3)" (p. 131)

(...)

"I megarici apportarono tre contributi importanti allo sviluppo della logica: l'invenzione di numerosi interessanti paradossi, il riesame delle nozioni modali, l'inizio d'un importante dibattito sulla natura degli asserti condizionali." (p. 138)

(1) Diogene Laerzio, II, 106.

(2) Sesto Empirico, *Adv. Math.* X, 85.

(3) Diogene Laerzio, VII, 43.

13. Levi, Adolfo. 1932. *Le dottrine filosofiche della Scuola di Megara*. Roma: Rendiconti della Reale Accademia dei Lincei.

Ristampa: Roma, Libreria Editrice Aseq, 2010.

"In breve, si può dire che l'opera di Euclide consiste nello sforzo di conciliare e fondere i due insegnamenti che aveva ricevuto; infatti egli ritiene che il solo pensiero arreca la conoscenza vera la quale ha per oggetto un'unica realtà, che da una parte assume l'aspetto della rielaborazione ontologica dell'eticismo socratico compiuta nel senso del monismo parmenideo, dall'altra appare interpretazione etico-religiosa (derivante dal

Socratismo) della metafisica eleatica. Nella confutazione delle opinioni degli avversari, Euclide, e molto più di lui i suoi discepoli, si vale di un ἔλεγχος che fa predominare il momento eristico sul socratico, ma riceve significato e valore etico dal fine cui è rivolto." (p. 466)

14. Longo Auricchio, Francesca. 1975. "I filosofi megarici nella *Retorica* di Filodemo." *Cronache Ercolanesi* no. 5:77-80.
15. ———. 1985. "I Megarici nei papiri ercolanesi." *Cronache Ercolanesi* no. 15:187-189.
16. Magris, Aldo. 1977. "Aristotele e i Megarici. Contributo alla storia del determinismo antico." *Atti dell'Accademia delle Scienze di Torino, Classe di Scienze Morali, Storiche e Filologiche* no. 111:113-133.
17. Mondini, Ugo Carlo Luigi. 2017. "La preoccupazione filosofica dei corvi nel fr. 393 Pf. di Callimaco." *Acme. Annali della Facoltà di studi Umanistici dell'Università degli Studi di Milano* no. 1:61-72.

    Abstract: "Riguardo alle due domande poste dai corvi nel fr. 393 Pf. di Callimaco la critica moderna ha proposto varie interpretazioni, suscitate in parte dal commento di Sesto Empirico al passo. Corroborando la tesi già sostenuta da H. Kurzová [*], questo contributo cerca di spiegare le due domande come allusione al più conosciuto argomento dialettico di Diodoro Crono, il κυριεύων λόγος. Inoltre si tenterà di capire la fonte da cui Sesto ha tratto il distico, per valutare il suo strano commento."

    [*] *What worried the crows in Callimachus' epigram* (2009).

    Callimaco fr. 393 Pfeiffer:

    αὐτο῀ς ὁ Μῶμος

    ἔγραφεν ἐν τοίχοις ‘ὁ Κρόνος ἐστι῀ σοφός’.

    ἠνίδε κοὶ κόρακες τεγέων ἔπι ‘κοῖα συνῆπται’

    κρώζουσιν και῀ ‘κῶς αὖθι/αὖθις1 γενησόμεθα’.

“Momo stesso scriveva sui muri: «Crono è sapiente»” (Diogene Laerzio, libro II, 111, tr. Reale, p. 261)

“Senti come anche dai tetti i corvi gracchiano: « Quante Cose si sono congiunte? » e « Come di nuovo vivremo? »” (tr. Russo, p. 102)

Sesto Empirico, (*Adv. math*. 1,309-312 = test. 128 Döring = SSR ii F 18)

18. Pelucchi, Marco. 2016. "Callimaco, il Fedone e la scuola filosofica cirenaica nell'epigramma per Cleombroto (Call. 23 Wil.)." *Acme. Annali della Facoltà di studi Umanistici dell'Università degli Studi di Milano* no. 69:93-109.

    Abstract: "Muovendo dall’epigramma per Cleombroto (*AP* 7,471 = 23 *Wil.* = 53 G.-P.), l’articolo si propone di rivalutare la posizione di Callimaco rispetto a un autentico interesse per la filosofia. Contro le interpretazioni più recenti, che hanno letto l’epigramma alla luce di una polemica innanzitutto “metacomunicativa”, si cerca di mostrare come l’intento ironico dei versi possa essere compreso pienamente solo ammettendo una simpatia di Callimaco per la scuola cirenaica. L’epigramma sembra dunque presupporre una critica alle tesi sostenute nel *Fedone*, in effetti incompatibili con le dottrine dei Cirenaici, che non dovevano condividere la lettura platonica dell’insegnamento di Socrate, almeno per come questa emerge nel dialogo. È così possibile riconoscere la *pointe* dell’epigramma nell’intenzione di mostrare le tensioni interne al *Fedone*, specificamente in merito alla questione del suicidio."

19. Reale, Giovanni. 2018. *Storia della filosofia greca e romana*. Milano: Bompiani.

    Libro II: *Socrate, Sofisti e Socratici minori*, Parte VII: *I Socratici minori*, Sezione IV: *Euclide, la Scuola Megarica e i suoi sviluppi*, pp. 437-455.

    "1. L’evoluzione della dottrina megarica – Come abbiamo dimostrato sulla base dei documenti, la Scuola megarica si dedicò prevalentemente alla dialettica e all’aspetto eristico di questa. Non trascurò le dottrine

morali, ma in questo ambito non raggiunse risultati ragguardevoli né originali.(1)" (p. 444)

(...)

"In effetti, sono due i principi speculativi che i Megarici cercaronodi riguadagnare:

1) non esiste il molteplice (né il molteplice empirico, né il molteplice metafisico del platonico mondo delle Idee),

2) non esiste alcuna forma di movimento e in genere di divenire.

(...)

"I nomi più famosi del secondo megarismo sono quelli di Eubulide, di Alessino, di Diodoro Crono e di Stilpone, che di tutti fu il più famoso e ammirato." (p. 445)

(1) Si veda quanto abbiamo precisato nel capitolo precedente.

20. Spinelli, Emidio. 1986. "Metrodoro contro i dialettici?" *Cronache Ercolanesi* no. 16:29-43.

    Nuova edizione con traduzione e commento dei Papiri Ercolanesi (P. Herc.) 255, fr. 1 ; 418, fr. 3, 4, 6 et 16 ; 1084, fr. 1, 2 et 5 ; 1091, fr. 2 ; 1112, fr. 2.

Deutsche Studien

1. Döring, Klaus. 1989. "Gab es eine Dialektische Schule?" *Phronesis* no. 34:293-310.

    English abstract: "Until recently, students of ancient philosophy have generally believed that Diodorus Cronus was a member of the Megarian school founded by Socrates' pupil Euclides of Megara. In 1977, however, David Sedley claimed that Diodorus should be associated with the so-called Dialectical school. The article argues against this view. The main results are (1) There are no testimonies which suggest that we should distinguish between Megarians and Dialecticians. (2) The so-called Dialectical school never existed; it is a construct of ancient historians of philosophy."

"Ich fasse zusammen.

Die Sichtung der Zeugnisse hat vor allem zu den folgenden beiden Ergebnissen geführt: 1. Weder aus der Zeit um 300 noch aus späterer Zeit gibt es Zeugnisse, die dazu zwängen oder es auch nur nahelegten, in Zukunft anders, als es bisher üblich war, zwischen Megarikern und Dialektikern zu unterscheiden und Stilpon den Megarikem und Diodor den Dialektikern zuzuordnen. 2. Versteht man unter einer philosophischen Schule, wie wir dies bewußt oder unbewußt üblicherweise tun, eine über mehrere Generationen hin durch bestimmte institutionelle Bindungen, vor allem aber durch einen Fundus gemeinsamer Gundüberzeugungen zusammengehaltene Gemeinschaft philosophisch interessierter und gebildeter Personen, dann hat es eine Megarische Schule nie gegeben." (p. 309)

(...)

"Liegen die Dinge so, wie ich sie gerade skizziert habe, dann können wir Diodoros Kronos und seinen Schüler Philon in unseren Philosophiegeschichten und die sie betreffenden Testimonien in unseren Textsammlungen guten Gewissens an dem Ort belassen, an dem sie bis jetzt gestanden haben, bei den Megarikern. Wir müssen nur darauf achten, daß wir mit der Bezeichnung "Megariker" keine falschen Vorstellungen verbinden." (p. 310)

2. ———. 1998. "Eukleides aus Megara und die Megariker." In *Die Philosophie der Antike. Band 2/1 Sophistik, Sokrates, Sokratik, Mathematik, Medizin*, edited by Flashar, Helmut, 207-237. Basel: Schwabe.

   Zweites Kapitel: Sokrates, die Sokratiker und die von ihnen begründeten Traditionen

   § 13. Sokrates. - § 14. Die Sokratiker im allgemeinen. - § 15. Xenophon. - § 16. Aischines aus Sphettos. - § 17. Eu-kleides aus Megara und die Megariker. - § 18. Phaidon aus Elis und Menedemos aus Eretria. - § 19. Aristipp aus Kyrene und die Kyrenaïker. - § 20. Antisthenes, Diogenes und die Kyniker der

Zeit vor Christi Geburt. - § 21. Sokratische Dialoge ungewisser Herkunft.

3. Döring, Klaus, and Ebert, Theodor, eds. 1993. *Dialektiker und Stoiker. Zur Logik der Stoa und ihrer Vorläufer*. Stuttgart: Franz Steiner.

   Inhaltsverzeichnis: Vorwort 7; Abkürzungsverzeichnis 8; Teilnehmerverzeichnis 9; Wolfram Ax: Der Einfluss des Peripatos auf die Sprachtheorie der Stoa 11; Mariano Baldassarri: Ein kleiner Traktat Plutarchs über stoische Logik 33; Jonathan Barnes: Meaning, Saying and Thinking 47; Susanne Bobzien: Chrysippus' Modal Logic and Its Relation to Philo and Diodorus 63; Walter Cavini: Chrysippus on Speaking Truly and the Liar 85; Theodor Ebert: Dialecticians and Stoics on the Classification of Propositions 111; Urs Egli: Neue Elemente im Bild der stoischen Logik 129; Michael Frede: The Stoic Doctrine of the Tenses of the Verb 141; Gabriele Giannantoni: Die Philosophenschule der Megariker und Aristoteles 155; Karlheinz Hülser: Zur dialektischen und stoischen Einteilung der Fehlschlüsse 167; Katerina Ierodiakonou: The Stoic Indemonstrables in the Later Tradition 187; Fritz Jürss: Zum Semiotik Modell der Stoiker und ihrer Vorläufer 201; Mario Mignucci: The Stoic *Themata* 217; Luciano Montoneri: Platon, die Ältere Akademie und die stoische Dialektik 239; Luciana Repici: The Stoics and the *Elenchos* 253; Andreas Schubert: Die stoischen Vorstellungen 271; Gerhard Seel: Zur Geschichte und Logik des *therizon logos* 291; Hermann Weidemann: Zeit und Wahrheit bei Diodor 319; Literaturverzeichnis 331; Register 343-361.

4. Ebert, Theodor. 1991. *Dialektiker und frühe Stoiker bei Sextus Empiricus. Untersuchungen zur Entstehung der Aussagenlogik*. Göttingen: Vandenhoeck & Ruprecht.

   Inhalt: Einleitung 13; I. Teil: Der Ursprung der Stoischen Theorie des Zeichens 29; Erstes Kapitel: Die stoische Theorie des Zeichens bei Sextus Empiricus 29; Zweites Kapitel: Die stoische Theorie des Zeichens vor dem Hintergrund der Berichte bei Diogenes Laertius 54; Drittes Kapitel: Dialektiker und frühe Stoiker zur Theorie des Zeichens 66; II. Teil: Die

Dialektiker bei Sextus Empiricus 83; Viertes Kapitel: Die Dialektische Klassifikation der Aussagen bei Sextus Empiricus 83; Fünftes Kapitel: Die Dialektische Klassifikation der Aussagen als Vorstufe der stoischen 108; Sechstes Kapitel: Die Dialektische und die stoische Klassifikation der Fehlschlüsse bei Sextus Empiricus 131; Siebtes Kapitel: Die Dialektiker über Trugschlüsse und ihre Auflösung 176; III. Teil: Der Ursprung der Stoischen Theorie des Beweises; Achtes Kapitel: Der frühstoische Charakter der Theorie des Beweises bei Sextus Empiricus 219; Neuntes Kapitel: Übereinstimmungen und Unterschiede in den Referaten des Sextus zur stoischen Beweistheorie und das genetische Verhältnis ihrer Quellen 232; Zehntes Kapitel: Von den Dialektikern zu Chrysipp - der Weg einer Theorie in der Alten Stoa 287; Anhang: Texte aus Sextus Empiricus zu den Dialektikern und den Stoikern 311; Literaturverzeichnis 329; Register: 337.

5. Fritz, Kurt von. 1931. "Megariker." In *Paulys Realencyclopädie der classischen Altertumswisseschaft. Supp. V*, 707-724. Stuttgart: J. B. Metzler.

   Nachdruck: H. von Fritz, *Schriften zur griechischen Logik*, Band 2: *Logik, Ontologie und Mathematik*, Stuttgart - Bad Cannstat: Frommann-Holzboog, 1978 pp. 75-92.

6. Giannantoni, Gabriele. 1993. "Die Philosophenschule der Megariker und Aristoteles." In *Dialektiker und Stoiker. Zur Logik der Stoa und ihrer Vorläufer*, edited by Döring, Klaus and Ebert, Theodor, 155-165. Stuttgart: Franz Steiner Verlag.

   "Das Thema meines Vortrages ist die Polemik des Aristoteles gegen die Megariker.

   Diese Polemik ist in doppelter Hinsicht bedeutsam: Einmal wegen des ihr innewohnenden philosophischen Gehalts, zum anderen wegen der möglichen Konsequenzen, die sich aus ihr für eine historische Rekonstruktion der sogenannten megarischen Schule ergeben. Nicht umsonst hat dieser Gegenstand immer wieder das Interesse der Historiker der antiken Philosophie und der Logik auf sich gezogen, und vor einiger Zeit wurde die antimegarische Polemik des Aristoteles erneut einer systematischen Prüfung unterzogen. Es handelt

sich um die Arbeit eines italienischen Kollegen, Aldo Magris,(1) in der gegen K. von Fritz und gegen Döring die Meinung vertreten wird, die eleatische Komponente im Megarismus sei seit Euklid von zentralem Gewicht gewesen. Dies erkläre die Polemik des Aristoteles, die noch an einer ganzen Reihe anderer Stellen in seinem Werk spürbar sei, auch wo die Megariker nicht ausdrücklich genannt werden.

Aus meinen Ausführungen wird hervorgehen, daß ich die These nicht für richtig halte. Zunächst möchte ich mich jedoch darauf beschränken, die in diesem Zusammenhang bekannteste Stelle bei Aristoteles näher zu untersuchen, aus der eine antimegarische Polemik mit Sicherheit hervorgeht, da hier die Megariker ausdrücklich genannt und kritisiert werden." (p. 155)

(1) Magris, A. (1977). Aristotele e i Megarici. Contributo alla storia del determinismo antico. In: Atti dell'Accademia delle Scienze di Torino 111 (1977) 113-133

7. Göbel, Christian. 2002. "Megarisches Denken und seine ethische Relevanz." *Classica et Mediaevalia* no. 53:123-140.

   English abstract: "The most famous concept of possibility and necessity in Antiquity is the Aristotelian one. However, there was a totally different understanding in ancient Greek philosophy: in the Megarian school, possibility was seen as only a modal moment within the real. The present paper suggests a re-reading of this concept in order to explore its implications, its possibilities and challenges. Here, ‘Megarian thinking’ is understood in the larger sense of a philosophical ‘facticism’. Thus, Parmenides of Elea and Aristippus of Cyrene can be seen as ‘Megarian thinkers’ and the onto-theological and ethical relevance of this kind of thinking becomes obvious. "

8. Hartmann, Nicolai. 1937. "Der Megarische und der Aristotelische Möglichkeitsbegriff. Ein Beitrag zur Geschichte des ontologischen Modalitätsproblems." *Sitzungsberichte der Preußischen Akademie der Wissenschaften* no. 10:85-100.

   Nachdruck in N. Hartmann, *Kleinere Schriften*, Band II: *Abhandlungen zur Philosophie-Geschichte*, Berlin: Walter de

Gruyter 1955, ss. 85-99.

Traduction française: "Le concept mégarique et aristotélicien de possibilité. Contribution à l'histoire du problème ontologique de la modalité", *Laval Théologique et Philosophique*, 49, pp. 131-146.

"Die Metaphysik des späteren Altertums, und nicht weniger die des Mittelalters, ist beherrscht vom Aristotelischen Möglichkeitsbegriff, der sich auf dem Gegensatz von Dynamis und Energeia aufbaut. Die innere

Zweideutigkeit dieses Begriffs ist früh bemerkt worden, ja sie machte sich schon bei Aristoteles selbst fühlbar. Dennoch hielt man an ihm fest, denn man fand keinen anderen, den man an seine Stelle hätte setzen

können." (s. 85)

(...)

"Angesichts dieser Sachlage ist es von hohem geschichtlichem Interesse, daß der Aristotelische Möglichkeitsbegriff in der antiken Philosophie weder der einzige noch der erste war. Ihm voraus ging ein ganz anderer, der dem Aristoteles wohlbekannt war, von ihm aufs nachdrücklichste bekämpft und schließlich fast verdrängt wurde. Es ist dieses der Möglichkeitsbegriff der von dem Sokratesschüler Eukleides gestifteten Megarischen Schule. Er stand in mancher Hinsicht dem Realverhältnis des Möglichseins weit näher als die Aristotelische Dynamis und ist im Gegensatz zu ihr ein echt ontologischer Modalbegriff. Er hat aber —

außer in der Polemik der Stoa — bei den Späteren kaum mehr Berücksichtigung gefunden; wahrscheinlich aus keinem anderen Grunde, als Der Megarische und der Aristotelische Möglichkeitsbegriff weil er von der sich, immer mehr durchsetzenden Aristotelischen Sehweise aus unsinnig erscheinen mußßte.

Dieser Megarische M glichkeitsbegriff besagte: „M glich ist nur das, was wirklich ist"; oder „möglich ist etwas nur, wenn es wirklich ist".

In dieser Form ist er uns glaubw rdig von Aristoteles berliefert(1)." (s. 88)

(1) Metaph. Θ. 1046b, 29f.: ε!σί δε τίνες l φασίν οίον οι Μεγαρικοί όταν ενεργή μόνον δύνασθαι, δτσν δε μη ενεργή ου δύνασθαι.

9. Joël, Karl. 1921. *Geschichte der antiken Philosophie. Erster Band*. Tübingen: J.C.B. Mohr (Paul Siebeck).

   Die sokratiken Schule, ss. 838-959 (*Die Megarische Schule*, ss. 838-859).

10. Rüstow, Alexander. 1910. *Der Lügner. Theorie, Geschichte und Auflösung*. Leipzig: Teubner.

    Reprint: New York, Garland, 1987.

11. Stallmach, Josef. 1965. "Vertritt Aristoteles, Metaphysik IX,5, selbst den megarischen Möglichkeitsbegriff?" *Archiv für Geschichte der Philosophie* no. 47:190-205.

12. Weidemann, Hermann. 1993. "Zeit und Wahrheit bei Diodor." In *Dialektiker und Stoiker. Zur Logik der Stoa und ihrer Vorläufer*, edited by Döring, Klaus and Ebert, Theodor, 319-329. Stuttgart: Franz Steiner.

13. ———. 2000. "Diodor. Logik und Common Sense." In *Philosophen des Altertums, Band. I: Von der Frühzeit bis zur Klassik*, edited by Erler, Michael and Graeser, Andreas, 182-190. Darmstadt: Primus Verlag.

14. Zeller, Eduard. 1889. *Die Philosophie der Griechen in ihrer geschichtlichen Entwicklung. Sokrates und die Sokratiker. Plato und die alte Akademie*. Leipzig: O. R. Reisland.

    Zweite Periode. Erster Abschnitt. Sokrates ind die unvelkommenen Sokratiker. B. 2, Die Megarische und die elsch-eretriche Schule, ss. 173-199.

Estudos en Español

1. Chame, Santiago. 2017. "La ontología negativa en las filosofías socráticas y sus proyecciones interepocales." *Eidos* no. 27:39-69.

Resumen "En este trabajo nos proponemos analizar la ontología de distintas corrientes socráticas con un enfoque por Zonas de tensión dialógica. Antístenes y los megáricos Euclides y Estilpón despliegan modelos de negatividad que rechazan la afirmación de principios ontológicos capaces de sustentar lo real y su expresión en el lenguaje. Estas propuestas teóricas no solo ofrecen una perspectiva alternativa a la platónico-aristotélica, sino que influyen de manera decisiva, por medio de la interacción e influencia recíproca, en la construcción de las variantes afirmativas de la época clásica. De este modo, la inclusión de las líneas socráticas permite poner en cuestión el diagnóstico heideggeriano que ve en la filosofía griega la sede del paradigma de la "metafísica de la presencia". La recuperación de las filosofías socráticas, habitualmente invisibilizadas bajo las figuras de Platón y Jenofonte, ofrece una oportunidad para redimensionar la Antigüedad clásica en función de propuestas ontológicas divergentes."

2. Gardella, Mariana. 2013. "Conflictos socráticos en el *Eutidemo*: la crítica platónica a la dialéctica megárica." *Argos* no. 36:45-64.

   Resumen: "En el presente artículo intentaremos mostrar que en el *Eutidemo* Platón desarrolla una crítica contra la dialéctica de los filósofos megáricos que tiene por objetivo señalar los aspectos problemáticos de la teoría del lenguaje que fundamenta el procedimiento erístico. Específicamente, Platón muestra que la falta de un criterio de verdad los lleva a comprometerse con enunciados que socavan los fundamentos de la dialéctica."

3. ———. 2014. "La metafísica megárica: unidad, identidad y monismo predicativo." *Diánoia* no. 49:3-26.

   Resumen: "Este trabajo pretende elucidar los rasgos generales de la metafísica de los megáricos en contra de las interpretaciones tradicionales que les atribuyen la defensa de un monismo numérico o una teoría de las Formas.

   Con base en los testimonios sobre Euclides y Estilpón de Mégara, intentaré mostrar que la metafísica megárica se caracteriza principalmente por el desarrollo de los conceptos de

unidad e identidad de cada cosa consigo misma, lo que conlleva el rechazo de la diferencia y, en consecuencia, de cualquier tipo de cambio. Esta perspectiva no excluye la existencia de múltiples entidades que, sin embargo, no son Formas. Por esta razón, los megáricos no desarrollan un monismo de tipo numérico, sino que su visión es coherente con un monismo de tipo predicativo que impugna la posibilidad de adjudicar atributos múltiples a una misma entidad."

4. ———. 2014. "Euclides de Mégara, filósofo socrático." *Agora. Papeles de Filosofía* no. 33:19-37.

   Resumen: "El objetivo de este trabajo es mostrar la influencia socrática sobre la filosofía de Euclides de Mégara, en contra de la interpretación que señala la influencia de los eleáticos sobre su teoría. Para ello indicaré que la doctrina de Euclides exhibe una fuerte impronta socrática, al menos en lo que concierne a: su labor como escritor de diálogos socráticos, el uso de la dialéctica erística, el desarrollo de algunos postulados éticos sobre la conducta frente a la muerte, el auto-dominio y la unidad de la virtud, y la presentación de una metafísica que coloca al bien en un lugar privilegiado. Aunque esta metafísica excede el socratismo, no puede ser identificada con los postulados de la filosofía eleática."

5. ———. 2014. "El argumento 'Velado' y las críticas megáricas a la predicación atributiva." In *Pensar, desear y actuar en el pensamiento grecolatino. Actas del primer simposio de la Asociación Argentina de Filosofía Antigua*, edited by Fierro, María Angélica and Bieda, Esteban, 169-177. Santa Fr: Asociación Argentina de Filosofía Antigua.

   Resumen: "En este trabajo analizo el razonamiento megárico conocido como "Velado" o "Electra", atendiendo particularmente a la interpretación que aporta Aristóteles en las *Refutaciones sofísticas*. Intentaré mostrar que este razonamiento mantiene una estrecha relación con las críticas de Estilpón de Mégara a la predicación atributiva, pues ambos manifiestan la importancia que adquieren los conceptos

   de "unidad" e "identidad" en el marco de la metafísica megárica."

6. ———. 2016. "Ανθρωπος περιπατεῖ. Los argumentos del tercer hombre megáricos." *Elenchos. Rivista di studi sul pensiero antico* no. 37:69-94.

   Abstract: "The Platonic Theory of Forms has received many critiques from many critics, among which stands out the well-known “Third man argument”. Although traditionally the studies about this subject only have considered the versions of the argument introduced by Plato and Aristotle, the Megarian philosophers also developed other versions of the same reasoning. In this paper I would like to analyze the argument which is attributed by Alexander of Aphrodisias to “the sophists” and to Polyxenus in his commentary on Aristotle’s *Metaphysics*. I will try to show that the main point of these objections is to criticize the homonymy of the universal terms, a problem that Plato evokes in his Parmenides, where he also points out some difficulties in relation to the semantics of his own theory."

7. ———. 2019. "Sobre la influencia de Zenón de Elea en el grupo megárico." *Axioma. Revista Portuguesa de Filosofia* no. 75:697-734.

   Abstract: "The aim of this paper is to revisit the problem about the influence of preceding philosophical theories on the Megaric group. Against the traditional view which defend either the influence of Parmenides or that of Socrates, I will try to show the impact of the philosophical position of Zeno of Elea. I will aim to defend that the Megarics use Zenonian antilogy as a part of eristic refutation. In the first section of this paper, I will present and discuss the aforementioned interpretations that privilege either the Parmenidean or the Socratic influence on the Megarics. Then I will analyze the grounds and scope of Zenonian antilogy taking into account all the testimonies which present it as a tool to dicuss theories, rather than to defend them. Finally, I will show how the Megarics use Zenonian antilogy to construct paradoxes based on the numerous ambiguities concerning the signifier and meaning of words, predication, and reasoning, in order to reveal the limits of lógos and refute those who use it as a tool to grasp reality."

8. Mársico, Claudia. 2012. "Ni el hombre es blanco ni el caballo corre.Argumentos antiplatónicos en Estilpón de Mégara." *Méthexis* no. 25:9-33.

   Abstract: "The testimonies of Stilpo of Megara show an anti-Platonic position within the megaric program against fundationists attempts. This paper studies a particular point of this deployment. We will review the origin of the views that locate thruth on the onomastic or on the predicative level. This initial survey will provide the basis for the study of the paradoxes of the nomination, an element Stilpo used as a tool to challenge the theory of Forms, and the analysis of the aporias of predication, through which he rejects the combination of parts of the sentence in order to represent reality. The figure of Stilpo reveals the dialogical context in whichancient philosophies developed and, at the same time, displays ways of thinking the relationship between language and reality often forgotten."

9. Villar, FRancisco. 2016. "Los megáricos como sofistas erísticos. La respuesta platónica al ataque de isócrates contra los socráticos." *Eidos*:185-213.

   Resumen: "Durante el siglo IV a. C. los intelectuales griegos discutieron sobre los alcances y características de la labor filosófica, en un intento por delimitar esta práctica distinguiéndola de otras. En este artículo me centraré en el retrato del sofista como contracara del filósofo. Analizaré específicamente la respuesta platónica al ataque que Isócrates dirige contra todos los discípulos de Sócrates en *Contra los sofistas* y *Encomio de Helena*.

   Defenderé que la estrategia de Platón para eludir dicha crítica consistió en construir en el *Eutidemo* y la quinta definición del *Sofista* un personaje que reúne los rasgos más censurados por Isócrates: el sofista erístico. Argumentaré que esta figura no remite a los sofistas del siglo V a. C., sino que tras ella se encuentran ocultos los representantes del grupo megárico, a quienes Platón habría colocado como los principales merecedores de la embestida isocrática."

Digital Quadrivium Project



History of Logic

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Selected Bibliography on the *Master Argument* of Diodorus Cronus

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   Abstract: "The Master Argument was shown by Diodorus Cronos to conclude that nothing is possible that neither is true nor will be true and that therefore every (present) possibility must be realized at a present or future time. It leads to logical determinism. Prior tried to reconstruct the argument by means of modal tense logic. As a consequence, Prior proposed several branching time tense logics to resolve the fallacy of the Master Argument. In this paper, we propose a three-valued modal tense logic with a Kripke semantics to defend Prior's original argument."

2. Akama, Seiki, and Nagata, Yasunori. 2011. A Three-Valued Approach to the Master Argument. Paper read at 41st IEEE International Symposium on Multiple-Valued Logic, Tuusula Finland.

3. Alessandrelli, Michele. 2019. "Giannantoni, logica di Aristotele e logica megarica." In *Méghiston agathón. La storiografia filosofica di Gabriele Giannantoni. Atti della giornata di studio (Roma, 30 novembre 2018)*, edited by Brancacci, Aldo, 71-92. Bologna: Diogene Multimedia.

All'articolo di G. Giannantoni sull'argomento dominatore: "Il *kyrieuon logos* di Diodoro Crono" (1981) sono dedicate le pagine 82-92.

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5. Bar-Hillel, Yehoshua. 1965. "Et Tu, Diodorus Cronus?" *Analysis* no. 26:54-56.
6. Barreau, Hervé. 1975. "Le Maître Argument de Diodore: son interprétation traditionnelle, sa signification historique, sa reconstitution contemporaine." *Cahiers Fundamenta Scientiae* no. 46:1-51.
7. ———. 2006. "Cléanthe et Chrysippe face au maître-argument de Diodore." In *Les Stoiciens et leur logique*, edited by Brunschwig, Jacques, 283-301. Paris: Vrin.

   Deuxième édition revue, augmentée et mise a jour (Première edition 1978, pp. 21-40).
8. Barreau, Hervé, and Picolet, Françoise. 1978. "Suite et fin sur le Maître Argument de Diodore." *Cahiers Fundamenta Scientiae* no. 88:1-53.

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10. ———. 1961. "Zur Rekonstruktion des 'kurieuon logos' des Diodoros Kronos." In *Erkenntnis und Verantwortung: Festschrift für Theodor Litt*, edited by Derbolav, Josef and Nicolin, Friedhelm, 250-263. Düsseldorf: Schwann.
11. Bertolet, Rod, and Rowe, William L. 1979. "The Fatalism of 'Diodorus Cronus'." *Analysis* no. 39:137-138.
12. Blanché, Robert. 1965. "Sur l'interprétation du κυριεύων λόγος." *Revue Philosophique* no. 155:133-149.

13. Bolduc, Ghyslain. 2011. "L'appropriation critique de la pensée aristotélicienne par Diodore Kronos." *Gnosis* no. 12:1-14.

14. Boudot, Maurice. 1983. "L'argument dominateur et le temps cyclique." *Les Études Philosophiques*:271-298.

15. Bouveresse, Jacques. 2013. "Le Dominateur, les possibles et le problème de la liberté." In *Dans le labyrinthe: nécessité, contingence et liberté chez Leibniz. Cours 2009 et 2010*, 1-25. Paris: Collège de France.

16. Bull, R. A. 1965. "An Algebraic Study of Diodorean Modal Systems." *The Journal of Symbolic Logic* no. 30:58-64.

    "I shall consider two Diodorean models: what I call the **D**-model, constructed on the set of non-negative reals, and the D-model - in effect the usual one - on that of positive integers. I show that these characterise S4.3 and D, respectively. All the Diodorean models verify S4.3. It is easy to adapt the completeness proof for S4.3 given here to Diodorean models on the non-negative rationals and various other linearly-ordered sets. (The proof depends, in fact, on the linearly-ordered set having a suitable sub-set of ordinal $W2^{\cdot}$) There are other Diodorean systems, but they do not seem to be of any interest." (p. 59)

17. Buzzetti, Dino. 2000. "L'Argomento Dominante e la posizione di Scoto. A proposito di un 'errore' interpretativo di Jules Vuillemin." In *Ob rogatum meorum sociorum. Studi in memoria di Lorenzo Pozzi*, edited by Caroti, Stefano and Pinzani, Roberto. Milano: Franco Angeli.

18. Celluprica, Vincenza. 1977. "L'argomento dominatore di Diodoro Crono e il concetto di possibile in Crisippo." In *Scuole socratiche minori e filosofia ellenistica*, edited by Giannantoni, Gabriele, 55-73. Bologna: Il Mulino.

19. ———. 1984. "Necessità megarica e fatalità stoica." *Elenchos* no. 3:361-385.

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der Philosophisch-Historischen Klasse / Österreichische Akademie der Wissenschaften:235-243.

21. Ciuni, Roberto. 2009. "The Search for the Diodorean Frame." *Humana Mente: Journal of Philosophical Studies* no. 8:47-65.

    Abstract: *"Diodorean modalities* are logical notions that specify, in a precise way, how sentences may be true with respect to time: a sentence is diodoreanly necessary at a given instant iff it is true since that instant on. Arthur Prior has treated them as sentential operators and built up a logic for such modalities (DIOD) conjecturing that the frame for such a logic (the "diodorean frame") was the frame for S4. The Conjecture was soon proved false, through a number of counterexamples that played a role in the research on modal logics between S4 and S5. The present paper aims at showing that (i) the search for the diodorean frame benefited from such a research, and that (ii) there has been a mutual interaction between the search of the diodorean frame and some characterisation results. The paper is divided into five parts. In section 1, I will introduce diodorean modalities, while in Section 2 I will be focusing on Prior's reconstruction of the Master Argument and his characterisation of DIOD. In section 3, I present a conjecture Prior advanced about the characterisation of DIOD and some counterexamples to it. The notions of "frame" and "frame for" will be also introduced. In section 4 I summarise the connections between the search of the diodorean frame and some researches in modal logic. Section 5 presents a short conclusion.

22. Corpina, Fabio. 2016. " The Ancient Master Argument and Some Examples of Tense Logic." *Argumenta* no. 1:245-258.

    Abstract: "The Master Argument of Diodorus Cronus has been long debated by logicians and philosophers. During the Hellenistic period it was so famous that doxographers and commentators took for granted its notoriety and none of them gave us a detailed report. The first section presents a philosophical account of the ancient Master Argument, by trying to retrace its meaning, originated from the Megarian context, and so halfway between ancient logic and metaphysics.

The second section introduces a logical analysis of the Master Argument against the backdrop of the Jarmużek-Pietruszczak semantics for the tense logic K_t4P; but the main aim of the section is to deal with one of the most fascinating attempts to peruse the Master Argument, i.e. A. Prior's reconstruction. Prior stays true to the Diodorean philosophical stance even if he uses modern logical tools. The significance of the work by Prior marks the beginning of tense logic. The third section expounds an argument by Øhrstrøm-Hasle. Danish logicians do not consider additional premises for the Master Argument. They give, in primis, a sentential example for the third premise, proving its inconsistency with the first two. The deterministic conclusion is the implicit result of this stratagem. Finally, in the fourth section, we compare the strategies by Prior and Øhrstrøm-Hasle."

References

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Øhrstrøm, P. and Hasle, P. 1995, *Temporal Logic. From Ancient Ideas to Artificial Intelligence*, Dordrecht: Kluwer.

23. Corpina, Fabio, and Øhrstrøm, Peter. 2017. "The Diodorean approach to time and modality from a historical and a philosophical perspective." In *Logic and Philosophy of Time: Themes from Prior, Volume 1*, edited by Hasle, Per, Blackburn, Patrick Rowan and Øhrstrøm, Peter, 83-101. Aalborg: Aalborg Universitetsforlag.

Abstract: "Diodorus Cronus (ca. 340–280 B.C.) was an important philosopher and logician of the Megaric School. His principal contribution consists in a strong, logically oriented, characterisation of metaphysics, focused on the temporal aspects of important logical notions, in particular the understanding of conditionals and modality. Furthermore, he is well known for his so-called Master Argument which was designed to demonstrate that if something is possible then either it is the case already or it will be the case later. In this way Diodorus suggested a close connection between time and

modality. According to Diodorus time can be seen as a series of temporal atoms. At any such atomic moment a proposition may be true or false.

Since we do not have the details of Diodorus' original argument, several scholars have tried to reconstruct the Master Argument as it might have been. In this paper, we consider two attempted reconstructions of the argument: one based on a certain interpretation of Diodorus' notion of implication, and one suggested by A.N. Prior and based on a tense-logical approach to time and reasoning. We argue that both reconstructions are possible from a historical point of view, but that the latter is more interesting than the former if the argument should be conceived as an argument in favour of determinism."

24. de los Ríos Gutiérrez, Iván. 2018. "Kyrieuon Logos. Diodoro Crono y el problema del determinismo a la luz de *Metaphysica* IX, 9, 3." *Trans/Form/Ação* no. 41:9-30.

    Resumen: "El presente artículo tiene por objetivo la reconstrucción del argumento dominador (*kyrieuon logos*) atribuido a Diodoro Crono y su revisión filosófica a la luz de la crítica aristotélica al actualismo extremo de la Escuela de Mégara en *Metafísica* IX, 3. Desde esta perspectiva, el trabajo aspira a situar el proyecto teórico de Diodoro en el marco de su disputa filosófica con la metafísica aristotélica y su concepto de δὐναμις, con el fin de traducir esta querella dialéctica en lo que, a nuestro juicio, constituye una disputa teórica de importantes consecuencias prácticas: la disyunción excluyente entre el azar y el destino como paradigmas de interpretación conceptual y de acción moral."

25. Denyer, Nicholas. 1981. "Time and Modality in Diodorus Cronus." *Theoria* no. 47:31-53.

26. ———. 1996. "Gaskin on the Master Argument." *Archiv für Geschichte der Philosophie* no. 78:166-180.

    "Richard Gaskin's *The Sea Battle and the Master Argument* (1995) falls into two roughly equal sections each corresponding to one half of its title. The first explores Aristotle's treatment in

De Interpretatione 9 of his puzzle about tomorrow's sea-battle; the second puts some of these results to work in developing a novel account of the Master Argument of Diodorus Cronus. Moreover, throughout the book, Gaskin pays detailed attention to rival interpretations from the mass of commentary that has accumulated around these topics since ancient times, and that continues to accumulate ever faster in our own. On this aspect of Gaskin's book, I will have little more to say than that he discusses all the rival interpretations with a general good sense, and with a patience that I for one could not so long sustain. Moreover, I propose merely to summarise the salient points in Gaskin's own understanding of Aristotle. In the bulk of this critical notice, I will examine at much greater length what I myself take to be Gaskin's most interesting achievement: a reconstruction of the Master Argument that, whatever its faults, is both more plausible historically and more interesting philosophically than all but a handful of the umpteen reconstructions that are now on offer." (p. 166)

27. ———. 1999. "The Master Argument of Diodorus Cronus. A Near Miss." *Logical Analysis and History of Philosophy /Philosophiegeschichte und logische Analyse* no. 2:239-252.

    Abstract: "Diodorus' Master Argument was intended to show that whatever is possible either is or will be true. The intended conclusion does not follow from the extant premisses of the Master Argument. The Near Miss argues however, from those premisses alone, that nothing can be more than momentarily an exception to the Master Argument's intended conclusion. Strong arguments support even the most contentious of those premisses ("every past truth is necessary"). We therefore cannot easily ignore the Near Miss. Moreover, there are various supplementary premisses that would turn the Near Miss into an argument with the full force of the Master Argument itself. Each of Diodorus' ancient rivals, since they accepted such doctrines as eternal recurrence, temporal atomism, and the "extended" present, would grant him at least one of these supplementary premisses. So too would any modern who holds that time is not circular, has no beginning, and does not branch."

28. ———. 2009. "Diodorus Cronus: Modality, the Master Argument and Formalisation." *Humana Mente: Journal of Philosophical Studies* no. 8:33-46.

29. Diodorus Cronus, [pseudonym]. 1965. "Time, Truth and Ability." *Analysis* no. 25:137-141.

    Pseudonym of Richard Taylor and Steven M. Cahn.

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31. Ferre, Julien. 2015. "Logique modale temporelle: Arthur Prior, Jules Vuillemin et l'aporie de Diodore." *Les Études philosophiques* no. 154:581-609.

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33. ———. 1996. "Reconstructing the Master Argument:Response to Denyer." *Archiv für Geschichte der Philosophie* no. 78:181-191.

34. ———. 1999. "Tense Logic and the Master Argument." *Logical Analysis and History of Philosophy / Philosophiegeschichte und logische Analyse* no. 2:203-224.

    Abstract: "Diodorus' Master Argument was intended to show that whatever is possible either is or will be true. The intended conclusion does not follow from the extant premisses of the Master Argument. The Near Miss argues however, from those premisses alone, that nothing can be more than momentarily an exception to the Master Argument's intended conclusion. Strong arguments support even the most contentious of those premisses ("every past truth is necessary"). We therefore cannot easily ignore the Near Miss. Moreover, there are various supplementary premisses that would turn the Near Miss into an argument with the full force of the Master Argument itself. Each of Diodorus' ancient rivals, since they accepted such doctrines as eternal recurrence, temporal atomism, and the "extended" present, would grant him at least one of these supplementary premisses. So too would any modern who holds

that time is not circular, has no beginning, and does not branch."

35. Giannantoni, Gabriele. 1981. "Il *kyrieuon logos* di Diodoro Crono." *Elenchos* no. 2:239-272.

36. Gómez Espíndola, Laura Liliana. 2012. "Disputa de Aristoteles y Diodoro Crono en torno a la necesidad logica." *Praxis Filosófica* no. 35:39-57.

37. Goodman, Lenn E. 1999. "The Diodorean Modalities and the Master Argument." In *From Puzzles to Principles? Essays on Aristotle's Dialectic*, edited by Sim, May, 15-37. Lanham: Lexington Books.

    "My purpose in this chapter is to examine the modalities of Diodorus and the logic of his argument in their behalf, the so-called Master4 Argument." (p. 19)

    (...)

    "What Diodorus seems to me to be saying is that if there is a state of affairs that will never occur, then (for example) it was always true that it would never occur (and always true to say so, as in the version of the argument that Aristotle considers). So the event cannot occur without falsifying that truth or claim, thus, without making over the past, which Aristotle concedes is impossible. Diodorus seems to me to generalize this approach, by assuming that there is always some truth about the past that any falsehood about the future will contradict. The inference is that all falsehoods about the future are impossible and all truths about the future necessary.

    We need not speculate that this line of argument was in fact taken by Diodorus, for we have the testimony of Cicero's *De Fato* to confirm our reconstruction. The core of the argument that Cicero links to the name of Diodorus is this: If p ('Fabius was born at the rising of the Dogstar') entails q ('Fabius will not die at sea'), then the entailment of q by p (a necessary proposition, since it deals with the past) renders q necessary as well, and it becomes impossible for Fabius to die at sea. (27)

The strength of the Diodorean position lay in its capacity to refute the conception of possibility put forward by Aristotle, and that by arguing from his own premises.(28) If real possibility is indeed an incoherent notion and there are no possibilities that are not at some time to be realized, then all truths become necessary and the time dimension itself is called into question. For necessity is timeless. Even though Diodorean necessity was achieved through quantification over time, it has the effect of bracketing or erasing time." (pp. 21-22)

(...)

"With the elimination of real possibility, modality as an independent category is effectively suppressed. A system of modality which does not allow for possibilities that may never be realized cannot distinguish possibility from actuality except in point of temporal placement. Modality as such becomes vacuous; and the distinction of, say, natural from logical necessity, otiose. The Aristotelian, then, and indeed anyone who would retain modal concepts in describing change, causality, or nature has an interest in refuting the Master Argument." (p.22)

27. See Cicero, *De Fato*, vi 12, vii 13; cf. Michael J. White's discussion in "Facets of Megarian Fatalism: Aristotelian Criticisms and the Stoic Doctrine of Eternal Recurrence," *Canadian Journal of Philosophy* 10 (1980): 203-4.

28. For the reliance of the Master Argument on Aristotelian premises, sec, Peter Øhlstrom, "A New Reconstruction," 61 ; and O. Becker, "Zur Rekonstruktion des 'Kyrieuon Logos' des Diodorus Kronos," in *Festschrift für Theodor Litt*, J. Derbolav and F. Nicolin, eds. (Düsseldorf, 1960).

38. Guerry, Herbert. 1967. "Rescher's Master Argument." *The Journal of Philosophy* no. 64:310-312.

39. Gundersen, Lars. 1997. "The Master Argument and Branching Time." *Logic and Logical Philosophy* no. 5:49-60.

Abstract: "It is argued that reconstructions of the so-called ‘Master Argument’ of Diodorus Cronos to the effect that possibility should be understood as present or future truth,

essentially relies on two axioms: i) that every true proposition concerning the past is necessary, and ii) that it follows necessarily from a proposition being true that it always has been the case that it would be true. It is furthermore argued that these two axioms are inconsistent in the sense that any tense/modal semantics which incorporates both collapses either modally (fails to distinguish between truth simpliciter and modalised truth) or temporally (fails to offer a plausible semantical account for propositions about the future). This finding is, furthermore, taken as indicator for the more generel claim that there are principled difficulties involved in construing semantics for combined tense/modal logical systems."

40. Hafemann, Burkhard. 1999. "Indefinite Aussagen und das kontingent Zukünftige.

    Akzidenzien allgemeiner Gegenstände und graduelle Wahrheit in Aristoteles'

    De Interpretatione 7 und 9." *Philosophiegeschichte und logische Analyse / Logical Analysis and History of Philosophy* no. 2.

    Abstract: "Die von Aristoteles in *De Int*. 7 eingeführte „indefinite Aussage" verweist nach meiner Deutung auf ein Universale, welches anteilig an widersprüchlichen akzidentellen Prädikaten teilhat. Dem korrespondiert auf semantischer Ebene die graduelle Wahrheit beider Widerspruchsglieder. In gleicher Weise ist für Aristoteles auch die Aussage, daß ein Individuum zu einem Zeitpunkt seiner kontingenten

    Zukunft so-und-so bestimmt sein wird, nach *De Int*. 9 offenbar als graduell-wahr einzustufen. Das Einzelne kann hinsichtlich seiner kontingenten Zukunft nämlich noch nicht betrachtet werden, sofern es faktisch wäre, sondern nur, sofern es zeitübergreifend ein Universale exemplifiziert. In diesem Zusammenhang werden zugleich fundamentale Bezüge zwischen indefiniter Aussage einerseits und Aristotelischer Modallogik, Statistik und Wissenschaftstheorie andererseits deutlich."

41. Hartmann, Nicolai. 1993. "Le concept mégarique et aristotélicien de possibilité. Contribution à l'histoire du problème ontologique de la modalité." *Laval Théologique et Philosophique* no. 49:131-146.

    Traduit par Jean-Pierre Narbonne.

42. ———. 2017. "The Megarian and the Aristotelian Concept of Possibility: A Contribution to the History of the Ontological Problem of Modality." *Axiomathes*.

    Translated by Frédéric Tremblay and Keith Peterson.

    Abstract: "This is a translation of Nicolai Hartmann's article "Der Megarische und der Aristotelische Möglichkeitsbegriff: ein Beitrag zur Geschichte des ontologischen Modalitätsproblems," first published in 1937. In this article, Hartmann defends an interpretation of the Megarian conception of possibility, which found its clearest form in Diodorus Cronus' expression of it and according to which "only what is actual is possible" or "something is possible only if it is actual." Hartmann defends this interpretation against the then dominant Aristotelian conception of possibility, based on the opposition between *dynamis* and *energeia*, and according to which there is always an open multiplicity of simultaneous "possibilities," the outcome of which remains undetermined. Since, according to Hartmann, reality suffers no indetermination, the Megarian conception of possibility is an account of *real possibility,* whereas the Aristotelian one is merely an account of *epistemic possibility* (Frédéric Tremblay)."

43. Hintikka, Jaakko. 1964. "Aristotle and the 'Master Argument' of Diodorus." *American Philosophical Quarterly* no. 1:101-114.

    Revised reprint as Chapter IX in: J. Hintikka, *Time and Necessity. Studies in Aristotle's Theory of Modality,* New York: Oxford University Press, 1973, pp. 179-213.

44. Hintikka, Jaakko, Knuuttila, Simo, and Remes, Unto. 1977. "Aristotle on Modality and Determinism." *Acta Philosophica Fennica* no. 29.

    In collaboration with Unto Remes and Simo Knuuttila.

45. Ide, Harry A. 1992. "Chrysippus's Response to Diodorus's Master Argument." *History and Philosophy* no. 13:133-148.

Abstract: "Chrysippus claims that some propositions perish. including some true conditionals whose consequent is impossible and antecedent is possible, to which he appeals against Diodorus's Master Argument. On the standard interpretation. perished propositions lack truth values, and these conditionals are true at the same time as their antecedents are possible and consequents impossible. But perished propositions are false. and Chrysippus's conditionals are true when their antecedent and consequent are possible, and false when their antecedent is possible and consequent impossible. The claim of the Master Argument that Chrysippus rejects, then, is stronger that usually supposed."

46. Jansen, Ludger. 2011. "The Master Argument of Diodorus Cronus." In *Just the Arguments: 100 of the Most Important Arguments in Western Philosophy*, edited by Bruce, Michael and Barbone, Steven, 73-75. Malden: Blackwell.

47. Jarmużek, Tomasz. 2009. "Master Argument vs. Sea-Fight Tomorrow." *Bulletin of the Section of Logic* no. 38:205-214.

Abstract: "This paper deals with the Aristotelian problem of Sea-fight tomorrow, but it is analyzed from a Diodorean point of view. Precisely, we examine whether the lost argument of Diodor Cronus, called Master Argument, could be conducted within a frame of future open time. Since we do not know the argument itself, we follow the known reconstructions of Master Argument. Each of them requires special logical assumptions, but also semantic constraints concerning a frame of time. The last detail interests us the most. Showing shortly, step by step, all constraints, we come to the conclusion that the strictly treated reconstructions of Master Argument must prefer a linear model of future."

48. ———. 2018. *On the Sea Battle Tomorrow That May Not Happen*. Berlin: Peter Lang.

A Logical and Philosophical Analysis of the Master Argument.

49. Jarmużek, Tomasz, and Pietruszczak, Andrzej. 2009. "The Tense Logic for Master Argument in Prior's Reconstruction." *Studia Logica* no. 92:85-108.

50. Kutschera, Franz von. 1986. "Zwei Modallogische Argumente für den Determinismus: Aristoteles und Diodor." *Erkenntnins* no. 24:201-217.

51. Lapied, André. 2006. "Aporie de Diodore et formalisation de l'incertitude." *Cahiers d'économie Politique* no. 50:155-164.

52. Mariani, Mauro. 2009. "Commentary: *The Sea Battle and the Master Argument. Aristotle and Diodorus Cronus on the Metaphysics of the Future*, R. Gaskin, de Gruyter, Berlin-New York, 1995." *Humana Mente: Journal of Philosophical Studies* no. 8:191-200.

    Ristampato in: M. Mariani, *Logica modale e metafisica. Saggi aristotelici,* Pisa: Edizioni ETS 2018, pp. 319-330.

    Abstract: "Come risulta chiaro già dal titolo, il libro di Gaskin è diviso in due parti: la prima, che comprende i capitoli 1-14, tratta del famoso e famigerato argomento fatalista di *De Interpretatione* 9, mentre la seconda, che comprende i capitoli 15-25, è dedicata al quasi altrettanto famoso e dibattuto "Argomento Dominatore" di Diodoro Crono, nonché alle sue possibili relazioni con la "Battaglia navale" aristotelica. Seguono poi tre appendici, la prima dedicata ad alcune interpretazioni arabe e medievali di *De Interpretatione* 9, le altre due al tema della prescienza e della contingenza in Alessandro di Afrodisia. Si tratta – è già chiaro da questo sommario – di un libro ricco e stimolante, la cui disamina approfondita richiederebbe molto più spazio di quanto ne ho a disposizione. Mi limiterò dunque a discutere innanzitutto la sua interpretazione della "Battaglia navale", e in secondo luogo il rapporto che la sua ricostruzione dell'"Argomento Dominatore" stabilisce tra Diodoro e Aristotele."

53. Massie, Pascal. 2016. "Diodorus Cronos and the logic of time." *The Review of Metaphysics* no. 70:279-309.

54. McKirahan, Richard. 1979. "Diodorus and Prior and the Master Argument." *Synthese* no. 42:225-253.

55. Meixner, Uwe, and Newen, Albert, eds. 1999. *Antike Philosophie mit einem Schwerpunkt zum Meisterargument = Ancient philosophy with a focus on the Master Argument*. Paderborn: Mentis.

    Philosophiegeschichte und logische Analyse, Vol. 2.

    Inhalt / Contents: Einleitung 1; Uwe Meixner: Die Zentralität der analytischen Methode für die Philosophie, insbesondere die der Antike 25; Fernando Ferreira: On the Parmenidean misconception 37; Erwin Tegtmeier: Parmenides' problem of becoming and its solution 51; Theodor Ebert: Der fragende Sokrates : Überlegungen zur Interpretation platonischer Dialoge am Beispiel des Menon 67; Katarzyna Paprzycka: Socrates meets Carnap : explication in the Theaetetus 87; Burkhard Hafemann: Indefinite Aussagen und das kontingent Zukünftige 109; Fernando Inciarte: Aristotle and Aquinas 139; Nicholas White: Intrinsically valued parts of happiness: Aristotle, Butler, and Mill 149; Verity Harte, Meilssa Lane: Pyrrhonism and Protagoreanism : catching Sextus out? 157; Christian Schäfer: Proklos' Argument aus De malorum subsistentia 31, 5-21 in der modernen Interpretation 173; Hermann Weidemann: «Aus etwas Möglichem folgt nichts Unmögliches»: zum Verständnis der zweiten Prämisse von Diodors Meisterargument 189; Richard Gaskin, Richard: Tense logic and the Master Argument 203; Michael J. White: The lessons of Prior's Master Argument 225; Nicholas Denyer: The Master Argument of Diodorus Cronus 239-252.

56. Michael, Frederick S. 1976. "What is the Master Argument of Diodorus Cronos?" *American Philosophical Quarterly* no. 13:229-235.

57. Mignucci, Mario. 1966. "L'argomento dominatore e la teoria dell'implicazione in Diodoro Crono." *Vichiana* no. 3:3-28.

58. ———. 1987. " Über eine neue Interpretation des Meisterschlusses." *Grazer Philosophische Studien* no. 30:161-172.

59. Mortensen, Chris. 2015. "The Master Argument of Diodorus Cronus as an Alternative Account of Modality." In *Reading, Interpreting, Experiencing: an inter-cultural journey into Greek letters*, 15-22. Parkville, Victoria: Modern Greek Studies Association of New Zealand.

60. Muller, Robert. 1984. "Signification historique et philosophique de l'argument Souverain de Diodore." *Revue de Philosophie Ancienne* no. 2:3-37.

61. Nasti de Vincentis, Mauro. 2018. "Chrysippus' counterargument against the Master Argument: a reappraisal." *SATS. Northern European Journal of Philosophy*.

62. Øhrstrøm, Peter. 1980. "A New Reconstruction of the Master Argument of Diodorus Cronus." *International Logic Review* no. 21:60-65.

63. Øhrstrøm, Peter, and Hasle, Per F. V. 1995. *Temporal Logic: From Ancient Ideas to Artificial Intelligence*. Dordrecht: Kluwer.

    Part 1: Time and Logic; 1.2. *The Master Argument of Diodorus Cronus*, pp. 15-32.

64. Picolet, Françoise. 1977. "A propos d'une reconstitution recente du Maître Argument de Diodore Cronus." *Cahiers Fundamenta Scientiae* no. 72:1-12.

    Sur Barreau (1975).

65. Prior, Arthur Norman. 1955. "Diodoran Modalities." *The Philosophical Quarterly* no. 5:205-213.

66. Purtill, Richard L. 1973. "The Master Argument." *Apeiron* no. 7:31-36.

67. Quevedo, Amalia. 1989. "Posibilidad e indeterminación. Aristóteles frente a Diodoro Crono." *Thémata. Revista de filosofía* no. 6:125-136.

68. Rescher, Nicholas. 1966. "A Version of the 'Master Argument' of Diodorus." *Journal of Philosophy* no. 63:438-445.

Revised version as a Section of: *Truth and Necessity in Temporal Perspective*, in: N. Rescher, *Essays in Philosophical Analysis*, Pittsburgh: University of Pittsburg Press, 1969, pp. 271-302 (see note 36, p. 296).

69. Schotch, Peter M., and Payette, Gillman. 2011. "Worlds and times: NS and the master argument." *Synthese* no. 181:295-315.

70. Schuhl, Pierre-Maxime. 1960. *Le dominateur et les possibles*. Paris: Presses Universitaires de France.

71. Sedley, David. 1977. "Diodorus Cronus and Hellenistic Philosophy." *Proceedings of the Cambridge Philological Society* no. 23:74-120.

    Reprinted in: Terence Irwin (ed.), *Hellenistic Philosophy* (Classical Philosophy Collected Papers vol. 8), New York: Routledge, 1995, pp. 270-315.

    On the Master Argument see § 6, pp. 96-102.

72. Seel, Gerhard. 1982. "Diodore domine-t-il Aristote? En hommage à J. Vuillemin." *Revue de Métaphysique et de Morale* no. 87:293-313.

    Errata: *Revue de Métaphysique et de Morale*, 89, 1984. p. 143.

73. ———. 2018. "The Puzzles of the 'Master Argument' and their Solutions." *International Philosophical Inquiry* no. 41:81-93.

74. Shain, Ralph. 2011. "A Defence of Aristotle's 'Sea-Battle' Argument." *Pli. The Warwick Journal of Philosophy* no. 22:124-137.

75. Slama, Paul. 2016. "Nécessité, contingence, et possibilité. Heidegger, Vuillemin et l'argument Dominateur." *Klesis* no. 36:59-90.

76. Stahl, Gérold. 1963. "Une formalisation du « dominateur »." *Revue Philosophique de la France et de l'Étranger* no. 153:239-243.

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80. Trzęsicki, Kazimierz. 1987. "Is Discreteness of Time Necessary for Diodorean Master Argument." *Bulletin of the Section of Logic* no. 16:125-131.

81. Vidal-Rosset, Joseph. 2009. *Les paradoxes de la liberté*. Paris: Ellipses.

    Chapitre 2: L'argument de Diodore Kronos 7; 2.1 L'argument rapporté par Epictète 8; 2.2 L'argument du pseudo-Diodore (1965) 8; 2.2.1 Exposé de l'argument 8; 2.2.2 Analyse de l'argument 10; 2.3 Retour à l'argument de Diodore (350 av. J.-C.) 14-16.

    "L'« argument dominateur » de Diodore est plus souvent qualifié d'« aporie(1) » que de « paradoxe ». Cela peut s'expliquer par le fait que la prétendue contradiction produite par la conjonction des trois énoncés n'est en rien intuitive. En effet, Vuillemin, après d'autres, s'est efforcé de donner une démonstration formelle de la contradiction, démonstration qu'il corrigée par la suite(2). Pour des raisons de simplicité, je ne reprendrai pas ici les arguments que Vuillemin donne en faveur de sa reconstruction formelle qu'il veut à la fois fidèle à l'histoire et à la philosophie de Diodore. Les reconstructions formelles de l'argument qui ont été données n'entrent pas dans le cadre de cet ouvrage et je ne ferai donc que les mentionner à l'attention du lecteur qui souhaiterait approfondir la question.

    Mon intention est de donner une explication rigoureuse mais intuitive de l'argument de Diodore (appelé « argument dominateur ».) La section qui suit est un « détour » qui devrait permettre de rendre plus transparent et plus aisé le sens réel de l'argument, présenté d'une façon plus simple. On reviendra à la présentation axiomatique dans la section suivante." (p. 8)

(1) On nomme « aporie » (en grec *aporia*, absence de passage, difficulté, embarras) une difficulté à résoudre un problème. Les premiers dialogues de Platon sont dits « aporétiques » parce qu'ils s'achèvent sur une absence de réponse au problème dont il est question dans le dialogue. Ce n'est que par extension de la signification originelle de ce terme que l'on désigne souvent aujourd'hui par « aporie » une problème insoluble et inévitable.

(2) J. Vuillemin : *Necessity or Contingency - The Master Argument*. Numéro Lecture Notes N°56. CSLI Publications, Stanford, 1996.

J. Vuillemin : « Nouvelles réflexions sur l'argument dominateur : une double référence au temps dans la seconde prémisse ». *Philosophie*, (55): 14-30, sept 1997.

82. ———. 2011. "Une preuve intuitionniste de l'argument de Diodore-Prior." *Travaux de logique* no. 20:103-122.

83. von Kutschera, Franz. 1986. "Zwei Modallogische Argumente für den Determinismus: Aristoteles und Diodor." *Erkenntnis* no. 24:203-217.

84. von Wright, Georg Henrik. 1979. "The 'Master Argument' of Diodorus." In *Essays in Honour of Jaakko Hintikka. On the Occasion of His Fiftieth Birthday on January 12, 1979*, edited by Saarinen, Esa, Hilpinen, Risto, Niiniluoto, Ilkka and Hintikka, Merill Provence, 297-307. Dordrecht: Reidel.

85. ———. 1991. "Possibility, plenitude and determinism (with some comments on ancient authors)." In *Peter Geach: Philosophical Encounters*, edited by Lewis, Harry A., 83-96. Dordrecht: Reidel.

86. Vuillemin, Jules. 1979. "L'argument dominateur." *Revue de Métaphysique et de Morale* no. 84:225-257.

87. ———. 1984. *Nécessité ou contingence : L'aporie de Diodore et les systèmes philosophiques*. Paris: Éditions du Minuit.

Nouvelle édition augmentée, 2018.

88. ———. 1984. "Un système de fatalisme logique: Diodore Kronos." *Revue de Philosophie Ancienne* no. 3:39-72.

Repris comme Chapitre III dans: J. Vuillemin, *Nécessité ou contingence. L'aporie de Diodore et les systèmes philosophiques*, Paris: Éditions de Minuit, 1984.

89. ———. 1985. "Sur deux cas d'application de l'axiomatique à la philosophie : l'analyse du mouvement par Zénon d'Élée et l'analyse de la liberté par Diodore Kronos." *Fundamenta Scientiæ* no. 6:209-219.

90. ———. 1985. "Die Aporie des Meisterschlusses von Diodoros Kronos und ihre Lösungen.

    Ein Beispiel für die Anwendung der axiomatischen Methode auf die Philosophie." *Allgemeine Zeitschrift für Philosophie*:1-19.

91. ———. 1986. "Zur Rekonstruktion des Meisterschlusses: Antwort an Helmut Angstl." *Allgemeine Zeitschrift für Philosophie* no. 11:83-87.

92. ———. 1991. "Replies." In *Causality, Method and Modality: Essay in Honor of Jules Vuillemin*, edited by Brittan Jr., Gordon G., 207-224. Dordrecht: Kluwer.

    "This third section responds to a version of Wiggin's article which has been slightly altered. But since the causes of our disagreements have not changed, I did not think it necessary to change my response.

    The first of these disagreements concerns the economy of Diodorus' axioms; it results in part from a misunderstanding, my critique not having taken account of my *retractio* (see note 2). The second disagreement concerns the original axiom E, for which Wiggins substitutes the forms E' and E", without having reflected on the clauses of external hindrance assumed by the Ancients in the notion of the possible. The third, fundamental disagreement is of a philosophical kind: in order to found the analysis, one of us reverts to the suggestions of natural language, the other of us criticizes them in the name of scientific language."

    (2) For the old, faulty version, see J. Vuillemin, *Necessité et Contingence* (Les Editions de Minuit, 1984), chapter 2, pp. 27-

57. For the new version, see J. Vuillemin, "Zur Rekonstruktion des Meisterschlusses, Antwort an Helmut Angstl. " *Allgemeine Zeitschrift fur Philosophie*, Frommann Holzboog, 113, 1986.

93. ———. 1996. *Necessity or Contingency. The Master Argument*. Stanford: Center for the Study of Language and Information.

94. ———. 1997. "Nouvelles réflexions sur l'Argument Dominateur: une double référence au temps dans la seconde prémisse." *Philosophie* no. 55:14-30.

    Repris comme *Addedum* dans la nouvelle édition augmentée de *Nécessité ou contingence. L'aporie de Diodore et les systèmes philosophiques* (2018).

    "Révision de l'interprétation modale de la seconde prémisse de l'argument dominateur d'Epictète, selon laquelle l'impossible ne suit pas logiquement du possible, développée par l'Auteur dans son ouvrage intitulé *Nécessité ou contingence: l'aporie de Diodore et les systèmes philosophiques* (1984). L'Auteur reconstruit son analyse de l'argument aristotélicien du *De Coelo* et aménage le système chrysippéen à la lumière des principes aristotéliciens de la nécessité conditionnelle et de la contraction synchronique de la possibilité."

95. Weidemann, Hermann. 1987. "Das sogenannte Meisterargument des Diodoros Kronos und der Aristotelische Möglichkeitsbegriff." *Archiv für Geschichte der Philosophie* no. 69:18-53.

96. ———. 1999. "„Aus etwas Möglichem folgt nichts Unmögliches". Zum Verständnis der zweiten Prämisse von Diodors Meisterargument." *Philosophiegeschichte und logische Analyse / Logical Analysis and History of Philosophy* no. 2:189-202.

97. ———. 2008. "Aristotle, the Megarics, and Diodorus Cronus on the Notion of Possibility." *American Philosophical Quarterly* no. 45:131-148.

98. ———. 2013. "Die Seeschlacht und das Meisterargument." In *Klassische Argumentationen der Philosophie*, edited by Puster, Rolf W., 73-89. Münster: Mentis.

99. White, Michael J. 1980. "Diodorus' "Master" Argument: A Semantic Interpretation." *Erkenntnis* no. 15:65-72.

100. ———. 1984. "The Necessity of the Past and Modal-Tense Logic Incompleteness." *Notre Dame Journal of Formal Logic* no. 25:59-71.

101. ———. 1985. *Agency and Integrality. Philosophical Themes in the Ancient Discussions of Determinism and Responsibility*. Dordrecht: Reidel.

102. ———. 1999. "The Lessons of Prior's Master Argument." *Philosophiegeschichte und logische Analyse* no. 2:225-238.

Abstract: "Diodorus' Master Argument was intended to show that whatever is possible either is or will be true. The intended conclusion does not follow from the extant premisses of the Master Argument. The Near Miss argues however, from those premisses alone, that nothing can be more than momentarily an exception to the Master Argument's intended conclusion. Strong arguments support even the most contentious of those premisses ("every past truth is necessary"). We therefore cannot easily ignore the Near Miss. Moreover, there are various supplementary premisses that would turn the Near Miss into an argument with the full force of the Master Argument itself. Each of Diodorus' ancient rivals, since they accepted such doctrines as eternal recurrence, temporal atomism, and the "extended" present, would grant him at least one of these supplementary premisses. So too would any modern who holds that time is not circular, has no beginning, and does not branch."

103. Wiggins, David. 1991. "Temporal Necessity, Time and Ability: a philosophical commentary on Diodorus Cronus' Master Argument as given in the interpretation of Jules Vuillemin." In *Causality, Method and Modality: Essay in Honor of Jules Vuillemin*, edited by Brittan Jr., Gordon G., 185-206. Dordrecht: Kluwer.

104. Zeller, Eduard. 1882. "Über Den *Kurieuon* des Megarikers Diodorus." *Sitzungberichte der Preussischen Akademie der Wissenschaften*:151-159.

Reprinted in E. Zeller, *Kleine Schriften,* Band I, edited by Otto Leuze, Berlin: Reimer, 1910, pp. 252-262.



History of Logic from Aristotle to Gödel

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Alexander of Aphrodisias' logic: Annotated bibliography

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Studies in English

1. Barnes, Jonathan. 1968. "Peripatetic Negations." *Oxford Studies in Ancient Philosophy* no. 4:201–215.

   "Ancient logicians did not question the Aristotelian view that 'for every affirmation there is an opposite negation, and for every negation an opposite affirmation' (*de lnterpretatione* 17a32-3); nor did they doubt that 'a single affirmation has a single negation' (17b37): every affirmation, *P*, has one and only one negation *neg:P*. Moreover, it was taken to be constitutive of the notion of negation that *P* and *neg:P* cannot both be true and cannot both be false.(1) And it was supposed that a negation, *neg:P*, will normally be constructed from its affirmative twin, *P*, together with a negative operator.(2)

   Those common notions form the background to a short essay on negation which Alexander of Aphrodisias inserted into his commentary on Aristotle's *Prior Analytics*. Alexander defends an Aristotelian account of negation and argues against a rival account.(3) The rival account is generally supposed to be Stoic or even Chrysippean; and it contains indisputably Stoic elements. But Alexander does not name his opponents, nor does he offer any information about the history of the dispute. (4)" (pp. 201-202)

   (1) It does not follow, nor was it generally accepted, that the Law of Bivalence has unrestricted validity.

   (2) See e.g. Galen, *Inst. Log*. vi. 2 (where exceptions to the normal rule are noted).

   (3) *In Aristotelis Analytica Priora* 402. 1-405. 16. Scholarly attention was first drawn to this passage b.y A. C. Lloyd, 'Definite Propositions and the Concept of Reference', in *Les Stoiciens et leur logique,* ed J. Brunschwig (Paris, 1978). I have recently had the advantage of reading an unpublished paper by Paul Moraux on the passage. [Only after finishing this paper did I receive a copy of Walter Cavini's long paper on 'La Negazione di Frase nella Logica Greca', in *Studi su Papiri Greci*

di Logica e Medicina, Accademia Toscana di scienze e lettere 'la Colombaria', Studi LXXIV, by W. Cavini, M. C. Donnini Maccio, M. S. Funghi, D. Manetti (Florence, 1985). Cavini discusses the passage from Alexander on pp 67-80; on pp 122-6 there is a thorough bibliography on Greek negation.]

(4) Alexander is not normally reluctant to name his opponents or to refer to the Stoics.

He frequently speaks of Στοικοι οι απο τής Στοας or οι νεώτεροι, and he more than once cites Chrysippus by name. In the essay on negation, however, the opponents remain anonymous (they are introduced impersonally at 402. εἰοι... οἰς δοκεῖ-and never later identified); and that is perhaps an indication that the men in question were not simply identifiable as Stoics or Chrysippeans.

2. Bobzien, Susanne. 2000. "Wholly Hypothetical Syllogisms." *Phronesis.A Journal for Ancient Philosophy* no. 45:87–137.

Abstract: "In antiquity we encounter a distinction of two types of hypothetical syllogisms.

One type are the 'mixed hypothetical syllogisms'. The other type is the one to which the present paper is devoted. These arguments went by the name of 'wholly hypothetical syllogisms'. They were thought to make up a self-contained system of valid arguments. Their paradigm case consists of two conditionals as premisses, and a third as conclusion. Their presentation, either schematically or by example, varies in different authors. For instance, we find 'If (it is) A, (it is) B; if (it is) B, (it is) C; therefore, if (it is) A, (it is) C'. The main contentious point about these arguments is what the ancients thought their logical form was.

Are A, B, C schematic letters for terms or propositions? Is 'is', where it occurs, predicative, existential, or veridical? That is, should 'ἐστι' be translated as 'it is an A', 'A exists', 'As exist' or 'It is true/the case that A'? If A, B, C are term letters, and 'is' is predicative, are the conditionals quantified propositions or do they contain designators? If one cannot answer these questions,

one can hardly claim to know what sort of arguments the wholly hypothetical syllogisms were.

In fact, all the above-mentioned possibilities have been taken to describe them correctly. In this paper I argue that it would be mistaken to assume that in antiquity there was one prevalent understanding of the logical form of these arguments - even if the ancients thought they were all talking about the same kind of argument. Rather, there was a complex development in their understanding, starting from a term-logical conception and leading to a propositional-logical one.

I trace this development from Aristotle to Philoponus and set out the deductive system on which the logic of the wholly hypothetical syllogisms was grounded."

3. ———. 2014. "Alexander of Aphrodisias on Aristotle's Theory of the Stoic Indemonstrables." In *Strategies of Argument: Essays in Ancient Ethics, Epistemology, and Logic*, edited by Lee, Mi-Kyoung, 199–227. New York: Oxford University Press.

   "In her important 1979 paper “Aristoteles über Syllogismen ‘aufgrund einer Hypothese,’(1) Gisela Striker provided an in-depth analysis of these vexing and perplexing Aristotelian arguments. She showed that they were Aristotle’s way of providing a logical vehicle for inferences based on other than term-logical relations; that the “hypothesis” that gives them their name is best understood as a rule that is not based on a relation of terms,(2) rather than as a premise; and that in those arguments “the thing taken instead” (το ̀ μεταλαμβανόμενον) is an assertion that is used instead of the demonstrandum.(3) It was upon reading this paper that I realized that the (then) prevalent interpretation of later ancient texts on hypothetical syllogisms as presenting the Stoic theory of indemonstrables needed a thorough revision. For it is possible to show that, starting from Aristotle’s “syllogisms based on a hypothesis,” a specifically Peripatetic (and from the third century CE also partly Platonist) development can be traced through the centuries up to the late ancient passages on hypothetical syllogistic in Philoponus and Boethius. Although the Stoic indemonstrables undoubtedly played a role in this

development, the various theories of hypothetical syllogisms over the centuries are all Peripatetic (and sometimes a little Platonist) in form, function, and terminology.(4) The present paper looks at Alexander of Aphrodisias' role in this development." (p. 199)

(1) Striker [1979]. See now also Striker [2009], 174–8, 201, 237–238.

(2) Striker [1979], 46.

(3) Ibid., 43.

(4) Here I am in agreement with Maroth [1989]. The arguments the Stoics called hypothetical syllogisms were completely different from those the Peripatetics called hypothetical syllogisms: see my [1997].

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Maroth, M. [1989], *Ibn Sina und die peripatetische "Aussagenlogik"* (Leiden: Brill).

Striker, G. [1979] "Aristoteles über Syllogismen 'aufgrund einer Hypothese,' " *Hermes* 107, 33–50.

Striker, G. [2009] Aristotle, *Prior Analytic*s: Book I (Oxford: OUP).

4. Castelli, Laura M. 2015. "Alexander on Aristotle, *An. Pr.*, I, 31, Division and Syllogistic." *Documenti e studi sulla tradizione filosofica medievale* no. 26:33–54.

Abstract: "*An. Pr.*, I, 31 is one of the several passages Aristotle devotes to the method of division.

From other texts we know that he is not unwilling to make room for a constructive use of division within the search for and the formulation of definitions. However, in *An. Pr.*, I, 31 the basic issue seems to be whether division understood as a procedure typically embedded in a standardized argumentative practice can be regarded as a part of a general deductive

method. Although the results of Aristotle's discussion in this chapter are mainly negative, I shall argue that Alexander takes seriously the idea that division might actually play some role in the formulation of some deductive arguments. In spelling out this proposal, Alexander relies on a theory of deductive arguments much richer than Aristotle's syllogistic in the *Analytics* and provides a systematic theoretical framework to interpret Aristotle's claim that division is only a 'small part' of syllogistic."

5. Fazzo, Silvia. 2023. "Aporiai with Multiple Solutions in Alexander of Aphrodisias." In *Ancient Greek Dialectic and Its Reception* edited by Mouzala, Melina G., 277–286. Berlin: de Gruyter.

6. Flannery, Kevin. 1993. "Alexander of Aphrodisias and Others on a Controversial Demonstration in Aristotle's Modal Syllogistic." *History and Philosophy of Logic* no. 14:201–214.

   Abstract: "Aristotle's treatment of mixed, first-figure, problematic-assertoric syllogisms has generated a good deal of controversy among modern commentators. I argue that W. D. Ross's criticism of A. Becker's criticism of Aristotle's treatment is unsuccessful. I then attempt to justify Aristotle's treatment, employing some ideas found in Alexander of Aphrodisias."

7. ———. 1995. *Ways into the Logic of Alexander of Aphrodisias*. Leiden: Brill.

   "The present work is intended to be an introduction to Alexander's logic. A point-by-point treatment of Alexander's logical writings (besides being an enormous task) would not produce this. First of all, much of what might be called Alexander's logic is simply Aristotelian logic-and that falls beyond the scope of the intention I have just enunciated. Secondly, much of what is distinctive in Alexander's logical writings has to do with his dialogue with (or, perhaps more precisely, opposition to) the Stoic logical tradition. It is not my intention to go into this material either, except to the extent that it helps to explain Alexander's own ideas. (This occurs in chapter 3, for instance, where Alexander's dismissal of the Stoics' duplicating and non-differently concluding arguments

sheds a good deal of light on his positive conception of Aristotelian syllogistic deduction.) I take up, rather, three themes, one from each of the main areas of traditional logic: the assertoric syllogistic,(12) the modal syllogistic, and the area of metalogical concerns. There will be aspects of Alexander's thought which, on account of this way of proceeding, I skip over; but this is inevitable in any introduction. The other possible concern-that the resulting account of Alexander's logic might be very disjointed-will be dispelled, I am quite sure, as the reader proceeds through it." (*General Introduction,* pp. XXI-XXII)

(12) Actually, my discussion of ecthesis also involves to a small extent the modal syllogistic but not in any essential way. The method of ecthesis itself belongs basically to the asseItoric syllogistic.

8. Flannery, Kevin. 2003. "Logic and Ontology in Alexannder of Aphrodisias's Commentary on *Metaphysics* IV." In *Alessandro di Afrodisia e la «Metafisica» di Aristotele*, edited by Movia, Giancarlo, 117–134. Milano: Vita e Pensiero.

"What, therefore, can we say after this fairly detailed analysis of some passages in Alexander’s commentary on the *Metaphysics*? Three things. I affirm the first two with some confidence; the third is an hypothesis. I believe that I have demonstrated that, when he wrote *in Metaph*., Alexander was under the influence of a certain model of the proper method of doing philosophy, including first philosophy - that is, he was much attached to the demonstrative method found in the *Posterior Analytics*. On account of this attachment, he had an antipathy for going below the logical and linguistic level of analysis, to the level of signification. I believe that I have also demonstrated that, being so inclined, Alexander *in in Metaph*. also occasionally forces the reading a text. Often he offers us a series of possible interpretations of a text, thereby giving the appearance of objectivity; but, in fact, as we have seen in one such passage, even while doing so, he is capable of succumbing to this most common of academic temptations.

This brings me to the hypothesis. Of course, we cannot assume that mature scholars are never tempted to force a text, but there are also other factors that suggest that *in Metaph*. (or, at least, *in Metaph*. IV) is less mature than some other works of Alexander's. We have seen that, in *in APr*., Alexander seems to adopt a more balanced approach: i.e., he seems to have a more exact understanding of the relationship between the logical and the non-logical. We have also seen that in *in Metaph*. he demonstrates a certain ignorance regarding the way in which the game of dialectics is played - an ignorance (I might add) that he does not demonstrate in his comment on the Topics. (57) Since there are references in *in Top*. to *in APr*. but not in *in APr*. to *in Top*.,(58) the order of composition that I would suggest is the following: *in Metaph*., *in APr*., *in Top*. This is, however, only an hypothesis; such issues demand a more thorough study than I can perform here." (p. 134)

(57) See, e.g., *in Top*. 577.5-15. It is noteworthy also that at *in Metaph*. 204.13-14, Alexander says that something in fact found in *Top*. is found in *APo*., suggesting with this that, at the time he was writing this section of *in Metaph*., he did not know *Top*. especially well.

(58) *in Top*. 7.11, 166.21.

9. Garin, Sergei. 2019. "Alexander of Aphrodisias on syllogistic reasoning." *ΣΧΟΛΗ. Ancient Philosophy and the Classical Tradition* no. 13:32–47.

Abstract: "The article deals with ancient ideas on the nature of syllogistics on the example of Empire's official Peripatetic philosopher, Alexander of Aphrodisias. We interpret Alexander's position on the syllogistic form as a theory of constant function. Alexander offers a conjunctive and purely formal understanding of the nature of syllogistic necessity.

This approach to the modal properties of assertoric judgments differs from Theophrastus' ontological position, who believed that modal characteristics of assertoric premises are determined by looking to the state-of-affairs to which they refer. Also the paper examines Theophrastus' legacy of hypothetical syllogisms related to Alexander.

Stoic and Peripatetic versions are also compared against the background of Alexander's logical amalgamation. The article elucidates late “Peripatetic conservatism” regarding the hypothetical syllogistics. We discuss the syntax of propositional / term relations (ei to A, to B), tackling the problem of grammatical ellipsis."

10. Gaskin, Richard. 1993. "Alexander's Sea Battle: a discussion of Alexander of Aphrodisias *De Fato* 10." *Phronesis.A Journal for Ancient Philosophy* no. 38:75–94.

    "The tenth chapter of Alexander of Aphrodisias' *De Fato*(1) contains a treatment of fatalism and future truth which clearly harks back to Aristotle's famous 'Sea Battle' discussion in *De Interpretatione* (DI) 9.(2) Alexander's discussion has not yet been satisfatorily interpreted: this paper is intended to help remedy this lack." (p. 75)

    (1) The text of the *De Fato* is available in *Supplementum Aristotelicum* II.ii. 164-212, ed. I. Bruns, Berlin, 1892. Bruns' text is reproduced in the commentary of R. Sharples: *Alexander of Aphrodisias on Fate* (London, Duckworth, 1983).

    (2) The literature on DI 9 is vast: the references in the following footnotes are no more than highly selective samples: I am myself preparing a study of the chapter.

11. Gili, Luca. 2012. "Alexander of Aphrodisias’ Solution to the Puzzle of the Two Modal Barbaras: a Semantic Approach." *Documenti e studi sulla tradizione filosofica medievale* no. 23:35–64.

    Abstract: "In this paper I dwell on Alexander of Aphrodisias’ reconstruction of a famous puzzle of Aristotle’s modal logic. Aristotle’s claim that a LX-L Barbara is a valid syllogism, whilst a XL-L Barbara is an invalid formula within the syllogistic system has been contested not only in recent times, but by ancient Peripatetics too. I show that Alexander accepted Aristotle’s claim, and criticized Theophrastus, who firstly contested the above thesis. My claim is that Alexander introduced a ‘dictum de omni et de nullo’ for modal propositions, and that, on the basis of it, he proved the validity

of the LX-L Barbara syllogism. However, this proof is problematic, because it seems to be inconsistent with Alexander's proof for the validity of the rules of conversions for modal propositions. I suggest that Alexander had good arguments for avoiding the above difficulty, by making appeal to his semantics for modal propositions. This semantics is at the same time a temporal semantics and is rooted in Alexander's theory of predication. The second part of the paper offers a brief account of this semantics and presents its theoretical advantages."

12. ———. 2015. "Categorical μη` κατα` χρόνον Propositions in Alexander of Aphrodisias' Modal Syllogistic." *Apeiron* no. 48:466–482.

    Abstract: "In this paper I deal with Alexander of Aphrodisias' theory of categorical μη` κατα` χρόνον propositions, namely of propositions which are neither necessity nor contingency propositions, but which are true not only at a certain instant in time. I argue that these propositions are true at least at two instants in time, but their presentation does not commit Alexander to a revision of his general semantic scheme for modal propositions, in which he showed that categorical propositions are not necessity propositions, and thus cannot be true at every instant in time. In the last section, I shall argue that Alexander's presentation of categorical μη` κατα` χρόνον propositions is linked to his theory of predication and that such a semantic framework may explain the apparently difficult classification of this set of propositions."

13. ———. 2015. "Alexander of Aphrodisias and the heterodox *dictum de omni et de nullo*." *History and Philosophy of Logic* no. 36:114–128.

    Abstract: "Aristotle's explanation of what is said 'of every' and 'of none' has been interpreted either as involving individuals (of which something is said 'of every', or of which something is said 'of none'), or as regarding exclusively universal terms. I claim that Alexander of Aphrodisias endorsed this latter interpretation of the *dictum de omni et de nullo*. This interpretation affects our understanding of Alexander's

syllogistic: as a matter of fact, Alexander maintained that the *dictum de omni et de nullo* is one of the core principles of syllogistic."

14. ———. 2015. "A neglected source of Boethius's « De syllogismo categorico." *Mnemosyne*:304–307.

    Abstract: "This paper shows that Boethius's *De syllogismo categorico* had among its sources Alexander of Aphrodisias's commentaries on the *Topics* and on the *Prior Analytics*. The first of these sources has been neglected by scholars until now. Boethius's usage of these sources shows the originality of his logical treatise."

15. ———. 2020. "Erotetic Logic, Uncertainty and Therapy: Galen and Alexander on Logic and Medicine." In *Ancient Greek Medicine in Questions and Answers: Diagnostics, Didactics, Dialectics*, edited by Meeusen, Michiel, 108–132. Leiden: Brill.

    Abstract: "Syllogistic is grounded upon dialectics. Dialectics is a version of erotetic logic, because it deals with questions and answers. This paper intends to explore the erotetic logics of Galen and of Alexander of Aphrodisias in order to establish whether the differences in their logical systems correspond to differences in their understanding of medicine.

    Galen and Alexander of Aphrodisias were almost contemporaries. Both of them shared the idea that doctors should know logic to practice medicine. The radical difference between Alexander and Galen consists in the fact that Alexander has a modal logic,

    whereas Galen does not. In other words, the premises—the answers in a dialogical exchange—include a modal operator for Alexander, but not for Galen. This absence is not without consequences. This will become clearer if one pays attention to the role of

    contingency syllogistic within Alexander's own account of medicine."

16. ———. 2020. "Categories in Alexander of Aphrodisias." *Ancient Philosophy* no. 40:453–468.

"There is no reason to doubt that Alexander wrote a commentary on Aristotle's *Categories*. Both Simplicius (Simpl. *In Cat*. 1,16) and Olympiodorus refer to it (Olymp. *In Cat*. 13,24-35).(1) Alexander's notion of 'category', however, has not received much attention after Prantl's sketchy reconstruction (see Prantl 1955, 623-624). The loss of Alexander's commentary on Aristotle's *Categories* might explain this relative neglect." (p. 453)

(...)

"I intend to show what categories are for Alexander.5 No scholar has ever attempted (to my knowledge) to reconstruct Alexander's concept of 'category' and this gap in the scholarly literature should probably be filled before any other undertaking concerning the lost commentary on the *Categories*. In my interpretation, Alexander maintains that a κατηγορία is, first and foremost, a 'predication', i.e., a linguistic structure of this form: 'S-is-P', where 'S' represents the grammatical subject, 'is' is the copula, and 'P' is the grammatical predicate. According to Alexander, there are as many κατηγορίαι as there are meanings of the copula 'is'.

Different predications allow us to single out different types of predicates. If there are n predications ('S-is_1-P', 'S-is_2-P', 'S-is3-P'... 'S-is_n-P'), there will be *n* types of predicates (P_1, P_2, P_3, ... P_n) such that 'S-is_1-P_1', 'S-is_2-P_2' ... 'S-isn-P_n' are grammatical phrases, whereas 'S-is_1-P_2', 'S-is_2-P_1', 'S-is_3-P_1... 'S-is_n-$_{Pk(k=/=n)}$)' are not grammatical phrases.6 From the κατηγορία-predication is possible to deduce the κατηγορία qua class of predicates, but the former κατηγορία has an explanatory priority." (pp. 454-455)

(1) Barnes 2005, 23 casts doubts on the veracity of Olympiodorus' account.

(5) There is an important debate on the status of the categories in Aristotle's writings. The debate echoes the ancient discussions that are summarized by Boethius (*PL* 64, *In Cat*. 161ff.) and Simplicius (*in Cat*. 9,4-10,19). According to Simplicius, the *Categories* is a treatise about ten γένη (*in Cat*.

9,7), but commentators disagree about the nature of these γένη. According to some commentators, these γένη are mere words, for others they are beings, others maintain that they are concepts. Alexander, in turn, claims that these γένη are words that signify the concepts that represent the most simple beings (Simpl. *In Cat*. 10, 9-19). Simplicius' account of Alexander's opinion on the 'goal' (σκοπός) of the Categories is, however, not entirely reliable because it is suspiciously similar to Simplicius' own opinion about the σκοπός of the treatise. Luna 2001, 79-84 has written enlightening pages on the different opinions held by the commentators on the σκοπός of the *Categories*, and she concludes that Alexander is likely to have maintained something different from what Simplicius attributes to him.

The modern debate on the status of Aristotle's categories was inaugurated by Trendelenburg 1846 that argued that the distinction among the several categories relied on grammatical considerations.

Despite its early criticism by Bonitz 1853, 591-645, Trendelenburg's opinion was highly influential.

For a detailed and dense summary of the interpretation of the status of the Aristotelian categories after Trendelenburg, see Oehler 1983, 67-96.

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17. Gili, Luca, and Podolak, Pietro. 2018. "Hugh Eterianus, Alexander of Aphrodisias and syllogistic demonstrations: a

newly discovered fragment of Alexander of Aphrodisias' « Commentary » on Aristotle's « Posterior analytics »." *Documenti e Studi sulla Tradizione Filosofica Medievale* no. 29:137–184.

Abstract: "Hugh Eterianus (ca. 1110/1120-1182), an Italian theologian who worked in Byzantium as an advisor to Manuel I Comnenos, is the author of the treatise *De sancto et immortali deo*, where he argues against the Orthodox denial of the *filioque*. In this treatise, Hugh quotes from the works of Plato, Aristotle and other Greek philosophers. In chapter I, 4, Hugh includes a short passage from a certain 'Alexander' who commented on Aristotle's *Posterior Analytics*. We show that this passage is a fragment from Alexander of Aphrodisias' lost commentary on the *Posterior Analytics*. This article includes a new edition of the fragment with an English translation and a philosophical commentary."

18. Guyomarc'h, Gweltaz. 2023. "The Services of Dialectic: Dialectic as an Instrument for Metaphysics in Alexander of Aphrodisias." In *Ancient Greek Dialectic and Its Reception* edited by Mouzala, Melina G., 249–276. Berlin: de Gruyter.

"It is commonplace to think that ancient commentators aimed to systematize Aristotle.

(…)

Alexander of Aphrodisias' attempt to make metaphysics into a demonstrative science would be a prime example of such tendency.(4) More generally, his exegetical method is held to rest on a "systematic presupposition" and to aim for a "unified" or even "dogmatic Aristotelianism".(5)

To put it plainly—I think this is painting too unilateral and simple a picture, and I would like to contribute, here, following others,(6) to enrich and detail it. To do so, I will look into Alexander's usage of dialectical method in metaphysics, with particular interest for his exegesis of book Beta of the M*etaphysics* and his use of the aporetic method. Alexander's aporetic method in the *Quaestiones*(7) as well as the one he puts to use in his commentary on *Metaphysics* Beta has led to

the same diagnosis. In both cases, no “honest perplexity”(8) is displayed, and the Beta aporiae are not treated like genuine puzzles but rather as simple exposition devices.(9) In contrast to this view, I would like to show two things: first, that aporia retains an authentically exploratory function for Alexander; and, second, that Alexander’s use of aporia in metaphysics does not originate in systematization, but rather in the fulfillment of dialectic’s status as an organon within Aristotelian tradition." (pp. 249-250)

(4) Bonelli (2001).

(5) Donini (1994), pp. 5035 and 5042. See also, for instance, Moraux (2001), p. 252, Cerami (2016), p. 164 (“The ultimate goal of this agenda is to establish an all-embracing philosophical system capable of responding in the best possible way to the philosophical issues debated by his contemporaries”), and Frede (2017) (“In general, Alexander goes on the assumption that Aristotelian philosophy is a unified whole, providing systematically connected answers to virtually all the questions of philosophy recognized in his own time”).

(6) In particular Kupreeva (2017), with whom I am in complete agreement.

(7) Fazzo (2002), pp. 17–18. For a more nuanced view, see Rashed (2007), pp. 3–4.

(8) Cf. Madigan in Madigan and Dooley (1992), p. 79.

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Indirekte Überlieferungen; Allgemeines; Nachträge). Berlin and Boston: de Gruyter, pp. 5027–5100.

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19. Kupreeva, Irina. 2023. "Alexander of Aphrodisias on the Principle of Non-Contradiction: The Argument “from Signification”." In *Ancient Greek Dialectic and Its Reception* edited by Mouzala, Melina G., 287–330. Berlin: de Gruyter.

20. Mignucci, Mario. 1985. "Logic and omniscience: Alexander of Aphrodisias and Proclus." *Oxford Studies in Ancient Philosophy* no. 3:219–246.

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21. ———. 1990. "Alexander of Aphrodisias on Inference and Syllogism." In *Estudios de historia de la logica. Actas del III Simposio de Historia de la Logica*, edited by Angelelli, Ignacio, 381–412. Pamplona: Ediciones Eunate.

22. Todd, Robert B. 1976. "Alexander of Aphrodisias on *De interpretastione* 16a 26-29." *Hermes* no. 104:140–146.

"At *de interpretatione* i6a 26-29 Aristotle makes the brief assertion that names (ὄνοματα) exist by convention and not by nature. In his note on this text Ammonius, the fifth century Alexandrian commentator, reports that Alexander of Aphrodisias had proposed the following syllogism, presumably in his own commentary on this work which is no longer extant: ὄνοματα and ρἐματα are sounds' (φοναι), sounds exist by nature, therefore so do ὄνοματα and ρἐματα. Ammonius then proceeds to offer a refutation of this argument. Although he does not explicitly attribute this subsequent reasoning to Alexander I shall try to show in this note that he must be offering an account of the earlier exegete's thought, for all the essentials and some of the details of Ammonius' report can be paralleled in some philosophically interesting ways from texts in other Alexandrian works." (pp. 140-141, some notes omitted)

(3) *In de int*. 39, I7-32 Busse.

23. Weidemann, Hermann. 1996. "Alexander of Aphrodisias, Cicero, and Aristotle's Definition of Possibility." In *Studies on the History of Logic: Proceedings of the Third Symposium on the History of Logic*, edited by Angelelli, Ignacio and Cerezo, Maria, 33–41. Berlin, New York: Walter de Gruyter.

    "My strategy in this paper is as follows: First I shall examine what may be called Aristotle's definition of possibility. Then I shall explain the use that Alexander of Aphrodisias makes of this definition in an interesting argument of his. And finally I shall try to show that the soundness of this argument depends on a conception of truth that is tacitly presupposed by Aristotle and strongly rejected by Cicero. Some glimpses beyond will round off the picture." (p. 33)

Studi in Italiano

1. Abbamonte, Giancarlo. 2013. "Cicerone, Alessandro di Afrodisia, Boezio: tre modi di leggere i *Topici* di Aristotele tra I sec. a.C. e VI d.C." In *Aristoteles Romanus. La réception de la science aristotélicienne dans l'Empire gréco-romain*, edited by Lehmann, Yves, 341–369. Turnhout: Brepols.

"L’obiettivo del presente studio è di delineare gli stadi ancora visibili della fortuna di cui godette la teoria dei τόποι, elaborata da Aristotele, nel mondo greco-romano, a partire da Cicerone fino al commento e alla monografia che all’operetta ciceroniana dedicò Boezio in piena età ostrogota (c. 520-523), mettendo in luce anche le possibili cause che determinarono l’eclissi del testo aristotelico dal panorama degli studi filosofici nell’Europa occidentale fino alla metà del XX secolo." (p. 342)

(...)

"Il documento che viene cronologicamente dopo Cicerone e che attesta la fortuna del trattato aristotelico anche nei primi secoli dell’impero è l’enorme commentario continuo ai *Topici* scritto da Alessandro di Afrodisia tra la fine II d.C. e l’inizio del III d.C.: il testo occupa 591 pagine dell’edizione curata da Max Wallies nel 1891 e ci è pervenuto quasi per intero, anche se fortemente interpolato con materiale bizantino sia anonimo sia ascrivibile al commento di Leone Magentino(50)" (pp. 361-362)

(50) Wallies racchiude in parentesi quadre [ ] gli scoli anonimi ed in parentesi quadre doppie [ ] le parti in cui è stato inserito il commentario di Leone Magentino. Su Leone Magentino (fine XII-in. XIII sec.) vd. M. Wallies, “Die griechische Ausleger der aristotelischen Topik”, in *Wissenschftliche Beilage zum Programm des Sophien-Gymnasium zu Berlin* 65, 1891, p. 1-27;(,,,)

2. Baldassarri, Mariano. 1986. *La logica stoica. Testimonianze e frammenti. Testi originali con introduzione e traduzione commentata, V A: Alessandro di Afrodisia. Dal Commento agli Analitici primi. Dal Commento ai Topici*. Como: Libreria Noseda.

3. Bonelli, Maddalena. 2022. "Alessandro di Afrodisia et il *De interpretatione*: il caso della proposizione." *Rivista di storia della filosofia* no. 77:195–207.

   Abstract: "This article considers a passage in Alexander of Aphrodisias' commentary on the *Prior Analytics* (*in APr*., 10, 13-28) concerning the definition of proposal (premiss or proposition). Its interest lies in the fact that Alexander

establishes a very articulated relationship between the definition of proposal that we find in Aristotle's *Prior Analytics* (24a16-17) and that of Apophantic reason (position) in *De interpretatione* (4, 17a2-3). Nonetheless, the author aims to demonstrate that this relationship is problematic and unnecessary because the definition of proposal in Prior Analytics is in fact independent from the definition of Apophantic reason. However, it is also the author's intention to show why Alexander does this."

4. Dal Forno, Davide. 2019. "Alessandro di Afrodisia e Proclo sulla dialettica." *Elenchos* no. 40:165–197.

   Abstract: "In this paper I compare Alexander of Aphrodisias' and Proclus' conceptions of dialectic by discussing a passage from Alexander's commentary on Aristotle's *Topics* and texts from Proclus' *Platonic Theology* and commentary on Plato's *Parmenides*. I show how Alexander takes up Aristotle's view of dialectic as an argumentative technique that has no specific object but can be put in the service of philosophy e. g. to establish first principles. In a key passage, Alexander quotes some lines from the *Parmenides* to emphasize that this was also Plato's view on dialectic. By contrast, Proclus uses the *Parmenides* as a crucial source for his conception of dialectic as the crowning glory of philosophy, and fiercely criticizes such interpretations of the *Parmenides* as that of Alexander, which reduce it to the illustration of a logical method. I argue that the difference in their conceptions of dialectic lies in Alexander's positive and Proclus' negative view on *doxa* and on its role in knowledge."

5. Gili, Luca. 2011. *La sillogistica di Alessandro di Afrodisia*. Hildesheim: Georg Olms.

   "Questo lavoro ha come oggetto una esposizione dei principali temi della sillogistica di Alessandro di Afrodisia, delineati a partire dal suo commento agli *Analitici Primi* di Aristotele.

   Il tema finora è stato poco studiato, sebbene negli ultimi anni siano fioriti gli studi dedicati alla filosofia tardoantica. In questa generale riscoperta di un periodo ingiustamente trascurato dalla storiografia precedente, anche Alessandro di

Afrodisia è tornato al centro dell'attenzione. Fino ad ora tuttavia la sua sillogistica non è stata oggetto di una indagine complessiva. Dopo la fondamentale edizione critica del commento di Alessandro agli *Analitici Primi* curata da Maximilien Wallies (cfr. Wallies [1883]), l'unico testo che ha affrontato la logica di Alessandro di Afrodisia nel suo complesso è Volait [1907]. Questa monografia raramente si eleva dall'essere una parafrasi, peraltro utile, di alcune sezioni del commento di Alessandro agli *Analitici Primi*." (p. 5)

(...)

"Una ricerca che abbia per proprio oggetto la sillogistica di Alessandro di Afrodisia nel suo complesso e che affronti sia la parte categorica che la parte modale potrebbe apparire troppo ampia ed ambiziosa per una trattazione esaustiva.

Ho cercato tuttavia di portare a termine questa impresa, operando evidentemente delle scelte: i capitoli del commento di Alessandro esaminati analiticamente nella mia ricerca sono solo una parte di quelli pervenutici del suo commento. Ho scelto infatti i capitoli o i blocchi di capitoli che credo costituiscano il nocciolo più significativo per la ricostruzione della sillogistica categorica (*in Anal. Pr*. A, 1-2, 4-7) e modale (*in Anal. P*r. A, 3, 8-9, 13-15) del commentatore di Afrodisia." (p. 7)

Riferimenti

Volait [1907], *Die Stellung des Alexander von Aphrodisias zur aristotelischen Schlusslehre*, G. Volait, Druck von Ehrhardt Karras, Halle, 1907.

Wallies [1883], *Alexandri in Aristotelis Analyticorum Priorum librum I commentarium*, edidit M. Wallies, Typis G. Reimeri, Berolini, 1883.

6. ———. 2011. "Boeto di Sidone e Alessandro di Afrodisia intorno alla sillogistica aristotelica." *Rheinisches Museum für Philologie* no. 154:375–397.

"Boeto di Sidone fu un aristotelico. La tradizione filosofica nella quale egli volle inserirsi è perciò la stessa alla quale appartenne

poi Alessandro di Afrodisia, che tuttavia non cita mai espressamente il peripatetico di Sidone nel suo commento agli *Analitici Primi* di Aristotele.(1)

"La tesi di questo lavoro è che la presentazione della sillogistica di Alessandro sia radicalmente alternativa a quella di Boeto e che ciò possa essere spiegato con un differente approccio dei due autori alla tradizione peripatetica a loro precedente. Questo confronto dottrinale con Boeto, che nel testo di Alessandro rimane implicito, costituisce a mio parere una delle chiavi interpretative che consentono di apprezzare l'originalità della presentazione della sillogistica fornita dall'esegeta di Afrodisia e di fornire una spiegazione di alcune prese di distanza, da parte del commentatore, rispetto a molte tesi di un'autorevole tradizione peripatetica risalente a Teofrasto.(2)" (p. 376)

(1) Alessandro tuttavia doveva conoscere l'opera di Boeto, che sicuramente citava nel suo commento alla *Fisica,* da cui Simplicio molto probabilmente trasse i frammenti dell'opera di Boeto che ci ha trasmesso con il proprio commento (cfr. P. Golitsis, *Les Commentaires de Simplicius et de Jean Philopon à la Physique d'Aristote*, Berlin 2008, 70–71).

(2) Il presente studio non intende stabilire che Alessandro di Afrodisia abbia deliberatamente espresso posizioni alternative a quelle di Boeto di Sidone, perché allo stato attuale delle nostre conoscenze non ci sono evidenze testuali che mostrino la conoscenza e la critica da parte dell'esegeta di Afrodisia della logica di Boeto.

Questo saggio vuole piuttosto stabilire un confronto dottrinale fra le posizioni dei due autori, che occupano un posto di primo rilievo nella storia dell'aristotelismo, per mostrare come sia stata possibile la elaborazione di teorie logiche fra loro così diverse.

[Su Boeto di Sidone si veda: Riccardo Chiaradonna et Marwan Rashed (éds.), *Boéthos de Sidon – Exégète d'Aristote et philosophe*, Berlin de Gruyter 2020.]

7. ———. 2015. "Il confronto di Giovanni Filopono con Alessandro di Afrodisia intorno al problema della conversione delle

proposizioni." *Elenchos* no. 36:317–338.

Abstract: "In this paper I compare Philoponus's account of the laws of conversion for categorical and modal propositions with Alexander's exposition of the same topic. I argue that Philoponus's main source was Alexander's commentary on Aristotle's *Prior Analytics* and that Philoponus had no access to independent sources to reconstruct Theophrastus's proof for the conversion of universal negative propositions.

I suggest that the different solutions that Alexander and Philoponus offer to the puzzles of the doctrine of the laws of conversion depend on the two commentators' different exegetical strategies. Alexander tries to solve the puzzles by means of doctrines, which Aristotle expounded elsewhere. Philoponus instead interprets Aristotle's passage as implying a hierarchy among propositions – a doctrine which is not explicitly present in Aristotle's text."

8. Mignucci, Mario. 1983. "Alessandro di Afrodisia e la logica modale di Crisippo." In *Atti del Convegno internazionale di storia della logica organizzato dalla Società italiana di logica e filosofia delle scienze (SILFS), San Gimignano, 4-8 dicembre 1982*, edited by Abrusci, Michele , Casari, Ettore and Mugnai, Massimo, 47–58. Bologna: CLUEB.

   "La logica peripatetica è stata studiata finora comparativamente meno di quella stoica e di quella aristotelica. Per giustificare quest'asserzione dovrei naturalmente chiarire che cosa intendo per 'logica peripatetica'. Non è tuttavia mia intenzione affrontare qui questo complesso problema. Al mio scopo è sufficiente dire che sotto l'etichetta di 'logici peripatetici' raccolgo tutti i commentatori greci delle opere logiche di Aristotele, anche se essi appartengono a scuole filosofiche diverse. Non mi propongo nemmeno di spiegare i motivi per i quali gli storici hanno trascurato questa parte della logica. Mi limito a far presente che fra le ragioni di questo abbandono non c'è quella che i non addetti ai lavori potrebbero sospettare che ci fosse, e cioè che la logica peripatetica è una logica non interessante o, addirittura, una piatta ripetizione dei punti di vista di Aristotele. A prova del fatto che essa merita di

essere ripresa in considerazione illustrerò qui alcune delle obiezioni che Alessandro di Afrodisia rivolge contro una tesi di logica modale sostenuta da Crisippo." (p. 47)

9. ———. 2001. "Alessandro di Afrodisia e la logica modale di Aristotele." In *Antichi e moderni nella filosofia di età imperiale: atti del II colloquio internazionale: Roma, 21-23 settembre 2000*, edited by Brancacci, Aldo, 239–263. Napoli: Bibliopolis.

   "È ad Albrecht Becker, in un saggio del 1933, che dobbiamo una chiara messa a punto dei problemi interpretativi e di consistenza che le tesi aristoteliche [sulla logica modale] sollevano(2). Da allora la sillogistica modale di Aristotele è stata variamente analizzata e discussa, senza però che si giungesse mai a un'interpretazione capace di dar conto unitariamente delle molte contrastanti affermazioni in essa contenute. Anche gli studi più recenti, sebbene numerosi e molto sofisticati, più che pervenire a un modello interpretativo coerente, hanno soprattutto mostrato che non c'è unanimità fra gli specialisti sulla diagnosi delle ragioni degli errori di Aristotele(3).

   Non è senza significato quindi cercare di saggiare 1'approccio di Alessandro a questa parte della dottrina aristotelica, perché il suo compito di commentatore è messo alla prova in una misura che eccede la norma." (p. 240)

   (...)

   "Naturalmente nel breve arco di questo saggio non potremo esaminare tutto il commento di Alessandro alla sillogistica modale. Ci limiteremo a prendere in considerazione le sue definizioni di possibilità e di attualità e alcune applicazioni di queste definizioni nel contesto della discussione di tesi controverse della sillogistica." (p. 242)

   (2) A. Becker, *Die aristotelische Theorie der M6glichkeitsschlusse. Eine logisch-philologische Untersuchung der Kapitel 1 3-22 von Aristoteles Analytica Priora* I, Berlin 1933.

(3 Tra il 1994 e il 1996 sono stati pubblicati non meno di quattro volumi sulla sillogistica modale di Aristotele. Si veda: F. Buddeensiek, *Die Modallogik des Aristoteles in den Analytica Priora A,* Hildesheim-Zürich-New York 1994; R. Patterson, *Aristotle's Modal Logic. Essence and Entailment in the Organon*, Cambridge 1995; U. Nortmann, *Modale 5yllogismen, möglichen Welten, Essentialismus. Eine Analyse der aristotelischen Modallogik*, Berlin-New York 1 996; P. Thom, *The Logic of Essentialism. An Interpretation of Aristotle's Modal 5yllogistic,* Dordrecht-Boston-London 1996.

10. Militello, Chiara. 2013. "Il lessico dell'astrazione in Alessandro di Afrodisia." *Giornale Critico della Filosofia Italiana* no. 9:302–321.

    Abstract: "Analisi dei termini usati per indicare il processo di astrazione che separa forma e materia sia nelle opere attribuite con certezza, sia in quelle dubbie : in particolare, l'uso in tal senso di ἀφαιρέω sembra potersi leggere come indizio di paternità dubbia."

Études en Français

1. Bonelli, Maddalena. 2009. "Alexandre d'Aphrodise et le « De interpretatione »." In *Interpréter le De Interpretatione*, edited by Husson, Suzanne, 51–67. Paris: Vrin.

    "Le commentaire d'Alexandre d'Aphrodise sur le *De interpretatione* d'Aristote est perdu, mais on en retrouve plusieurs fragments, ou plutôt des paraphrases, principalement dans le commentaire de Boèce(1). Dans cet article, je considérerai deux de ces « fragments », portant tous deux sur le premier chapitre de l'oeuvre d'Aristote ; mais, auparavant, je présenterai l'arrière-plan, à savoir la tradition dans laquelle le commentaire d'Alexandre s'insère, en commençant brièvement par les autres commentaires anciens sur le De interpretatione." (p, 51)

    (1) C. Meiser (ed.), *Anicii Manlii Severini Boeti Commentarii in librum Aristotelis PERI ERMENEIAS*, editio secunda, Leipzig, Teubner, 1880 (désormais cité In *De int. II*).

2. Ferroni, Lorenzo, and Gili, Luca. 2014. "Syllogistique et méréologie chez Alexandre d'Aphrodise: remarques textuelles sur deux passages difficiles du commentaire aux "Premiers analytiques"." *Revue de Philologie, de Littérature et d'Histoire Anciennes* no. 88:91–110.

   Résumé : "Examen du texte d'Alex. Aphr., *In APr*. 60, 21-25 et 129, 33-130, 13. Le premier passage discute le syllogisme catégorique dit « Darii » : il ne faut pas éditer le texte admis, τὶ δε᾽ τοῦ Β ἐστι᾽ το᾽ Γ (c'est-à-dire que tout Γ est une partie de B, soit que B est dit de tout Γ), car on ne peut le déduire de la prémisse mineure qui précède. Il faut donc éditer τι᾽ δε᾽ τοῦ Β ἐστὶ <τι> τοῦ Γ (« quelque chose de B est quelque chose de Γ ») pour que l'argumentation soit valide. Cette tournure trouve des parallèles en Alex. Aphr., *In APr*. 34, 9-10 ; 121, 33-122, 1 ; 174, 23-24, etc. Dans le second passage, il faut placer les guillemets fermants en 130, 1, après ἐξ ἀνάγκης : il s'agit d'une version modale du « dici de omni et de nullo » employée par Alexandre pour résoudre le problème de la validité de « Barbara LX-L ». En 130, 4-5, l'expression impliquant ἐν τῇ οὐσίᾳ ne se laisse pas comprendre comme une affirmation de la position d'Alexandre lui-même mais comme une objection fictive qui est fautive. En 130, 11, la reconstruction du raisonnement d'Alexandre indique qu'il faut restituer une virgule après ὄντων, rejeter l'ajouter de δὲ au profit du οὕτως des manuscrits et ajouter un point-en-haut après αὐτῶν."

3. Gavray, Marc-Antoine. 2005. "*Premiers analytique*s, 25a14-17: Alexandre d'Aphrodise et autres interprétations." In *Logique et ontologie : perspectives diachroniques et synchroniques : liber amicorum in honorem Huberti Hubiani*, edited by Beets, François and Gavray, Marc-Antoine, 1–17. Liège: Édiitons de l'Université de Liège.

4. Guyomarc'h, Gweltaz. 2013. "Les sources post-hellénistiques du questionnaire de Porphyre." *Methodos. Savoirs et textes* no. 13:1–23.

   Résumé : Le début de l'*Isagogè* de Porphyre énonce une série de trois questions à propos des genres et des espèces, que l'on

tient pour l'origine de la médiévale « Querelle des universaux ». Mais la question s'est posée aux interprètes de savoir si, dans ce texte, Porphyre se référait à certaines thèses historiquement déterminées ou bien s'il construisait ces alternatives de façon théorique, dans une *lingua franca* non connotée d'un point de vue doctrinal. Cet article, en se concentrant sur la première alternative du questionnaire, tente de montrer que le texte porphyrien prend davantage sens si l'on s'avise que l'époque post-hellénistique (IIe s. av. J.-C. – début du IIIe s. ap.J.-C.) donne déjà à voir une polémique scolaire sur le statut des universaux. Ce n'est ainsi pas seulement le vocabulaire employé par Porphyre qui est doctrinalement connoté, mais l'alternative elle-même, qui fait très probablement référence à un débat entre les thèses platoniciennes, stoïciennes et péripatéticiennes. Alexandre d'Aphrodise constitue une aide précieuse pour reconstruire ce débat, dont l'article esquisse une cartographie."

Abstract: "At the beginning of his *Isagoge*, Porphyry establishes a famous set of questions concerning genera and species, which is the origin of the medieval “Quarrel of universals”. But this text gave rise to difficulty for interpreters: does Porphyry, when elaborating this set of questions, refer to historical positions or does he offer these alternatives in a *lingua franca*, which would be neutral from a doctrinal point of view? This article focusing on the first of the three alternatives raised by Porphyry aims to show that replacing Porphyry's text in its historical and philosophical background can shed light on the meaning of this alternative. During the Post-Hellenistic period (100 B.C.–200 A.D.), the different schools discussed the ontological status of universals. Therefore, not only does Porphyry use the terminology shaped by former philosophers, but he also alludes to the debate between Stoics, Middle Platonists and Peripatetics. Alexander of Aphrodisias constitutes a precious help to reconstruct this dispute, which this article tries to depict."

5. Guyomarc’h, Gweltaz. 2017. "« Métaphysique » et « Organon » selon Alexandre d’Aphrodise : l’utilité de la logique pour la philosophie première." In *Alexandre d’Aphrodise et la*

métaphysique aristotélicienne, edited by Balansard, Anne and Jaulin, Annick, 83–117. Leuven: Peeters.

"si, comme on le dit, Alexandre d'Aphrodise travaille à «systématiser» l'oeuvre d'Aristote (en un sens qui reste pour partie à déterminer), il est légitime de s'interroger sur la façon dont il conçoit les frontières entre

les différentes disciplines dans la cartographie aristotélicienne des savoirs.

Dans le cas de la métaphysique, ce sont les relations avec deux types de discours qui méritent en priorité un examen: d'une part, la physique, pour d'évidentes raisons internes à l'aristotélisme; d'autre part, la logique, pour des raisons qui tiennent aussi au contexte d'Alexandre. C'est à cette dernière que l'on souhaite s'intéresser ci-dessous. On voudrait plus précisément essayer d'éclairer le sens et la portée de trois passages du *Commentaire à la Métaphysique*, trois textes qui font explicitement se croiser logique et métaphysique." (p. 83)

6. Hugonnard-Roche, Henri. 2015. "Les épîtres syriaques de Sévère Sebokht et leurs sources grecques." *Studia greco-arabica* no. 5:53–104.

   "Abstract: "The aim of this paper is to provide the edition, with translation and commentary, of a short Syriac epistle by Severus Sebokht, bishop of Qenneshre (7th century), in which the author discusses some issues related to Aristotle's *Peri Hermeneias* and *Analytics*. The commentary examines in detail Severus' Syriac text by comparison with the Greek sources, namely the commentaries by Alexander of Aphrodisias, Ammonius, and Philoponus. In addition, in an appendix a study is included of a part of another epistle by Severus, concerning the existence of the possible, which shows a remarkable similarity with Alexander's *Question* II 4."

7. Lafleur, Claude. 2012. "Alexandre d'Aphrodise et l'abstraction selon l'exposé sur les universaux chez Boèce dans son Second commentaire sur l'« Isagoge » de Porphyre »." *Laval théologique et philosophique* no. 68:35–89.

   Avec la collaboration de Joanne Carrier.

Résumé : "Cette première traduction française d'une portion significative de l'*In « Isagogen » Porphyrii Commentorum Editio secunda*, en regard d'un texte latin reponctué en conséquence et accompagné d'annotations critiques, est précédée d'une présentation historico-doctrinale mettant en relief le rôle — à la fois central et problématique — de l'abstraction dans la solution boécienne, ouvertement rattachée à Alexandre d'Aphrodise (dont le traité *De l'âme* est ici examiné), du statut des genres et des espèces dans ce texte qui, à travers l'exégèse du célèbre questionnaire porphyrien, a fait connaître le problème des universaux à l'Occident latin et en est demeuré l'expression la plus achevée jusqu'au XIIe siècle, où Abélard en a donné un métacommentaire particulièrement brillant dans sa Lo*gica « Ingredientibus » : Super Porphyrium*, éditée, traduite et étudiée ci-après dans ce numéro thématique."

Abstract: "This first French translation of a relevant portion of the I*n "Isagogen" Porphyrii Commentorum Editio secunda*, in parallel with a consequently reponctuated and critically annotated Latin text, is preceded by a historico-doctrinal presentation highlighting the role — both central and problematic — of abstraction in the Boethian solution, openly linked to Alexander of Aphrodisias (whose treatise *On soul* is here examined), of the status of genera and species in this text which, through the exegesis of the well-known porphyrian questionary, has revealed the problem of universals to the Latin West and remained its most achieved expression until the 12th century, where Abelard wrote on those pages a particularly brilliant metacommentary in his *Logica Ingredientibus" : Super Porphyrium*, edited, translated and studied hereafter in this thematic issue."

8. Moraux, Paul. 1979. *Le Commentaire d'Alexandre d'Aphrodise aux «Seconds Analytiques» d'Aristote*. Berlin: Walter de Gruyter.

   "Les fragments du commentaire perdu d'Alexandre d'Aphrodise aux *Seconde Analytiques* d'Aristote devaient, en principe, être présentés dans le troisième volume de mon *Aristotelismus bei den Griechen,* qui sera consacré tout entier â l'oeuvre

d'Alexandre. Sans doute n'en aurais-je abordé l'examen que dans quelques années, si le thème proposé pour le huitième *Symposium Aristotelicum* (Padoue, 7-15 septembre 1978), â savoir l'étude des *Seconde Analytiques* eux-mêmes, ne m'avait incité â modifier mon plan de travail pour rassembler plus tôt que je ne l'aurais fait autrement les restes du commentaire d'Alexandre â ce traité.

Dans les pages qui suivent, on trouvera, groupés dans l'ordre même du texte commenté, les témoignages anciens qui peuvent être rapportés, avec certitude ou avec une assez grande probabilité, au commentaire perdu. J'y ai joint les principaux passages parallèles, ceux-ci nous montrant que les commentateurs grecs ont souvent puisé à l'ouvrage d'Alexandre sans mentionner leur source. Aux textes grecs eux-mêmes font suite quelques brèves explications; elles n'ont pas la prétention de résoudre tous les problèmes soulevés par le texte d'Aristote ou par le commentaire d'Alexandre; elles sont avant tout destinées à aider le lecteur, soit en lui rappelant quelles déclarations d'Aristote ont provoqué les remarques du commentateur, soit en éclairant d'une courte paraphrase le texte, parfois difficile, des interprétations de l'Exégète. Mon étude est donc avant tout philologique. J'espère pourtant que les philosophes qui étudieront les *Seconds Analytiques* trouveront matière à réflexion dans les vestiges, trop maigres, hélas! d'un commentaire qui, tant par son contenu que par l'influence qu'il a exercée, fait date dans l'histoire de l'aristotélisme." (Avant-Propos, pp. VII-VIII)

9. Rashed, Marwan. 2011. "Un corpus de logique anti-platonicienne d'Alexandre d'Aphrodise." In *Plato, Aristotle or Both? Dialogues between Platonism and Aristotelianism in Antiquity*, edited by Bénatouïl, Thomas, Maffi, Emanuele and Trabattoni, Franco, 85–94. Hildesheim: Georg Olms.

   Repris dans M. Rashed, *L'Héritage aristotélicien. Textes inédits de l'Antiquité*, Paris: Les Belles Lettres 2016.

Deutsche Studien

1. Lee, Tae-Soo. 1984. *Die griechische Tradition der aristotelischen Syllogistik in der Spätantike. Eine Untersuchung über die Kommentare zu den Analytica priora von Alexander Aphrodisiensis, Ammonius und Philoponus*. Göttingen: Vandenhoeck und Ruprecht.
2. Volait, Georges. 1907. *Die Stellung des Alexander von Aphrodisias zur aristotelischen Schlusslehre*. Halle a.d.S.: Ehrhardt Karras.

   Reprint: New York, Hildesheim: Georg Olms 1975.
3. Weidemann, Hermann. 1997. "Ein drittes modallogisches Argument für den Determinismus: Alexander von Aphrodisias." In *Das weite Spektrum der analytischen Philosophie: Festschrift für Franz von Kutschera*, edited by Lenzen, Wolfgang, 429–446. Berlin: de Gruyter.

Estudios en Español

1. Correria, Manuel. 2024. "El silogismo como combinación en Alejandro de Afrodisias." *Daimon. Revista Internacional de Filosofía* no. 92:177–190.

   Resumen: "En el antiguo comentario a la lógica aristotélica, el vocablo griego συζυγία (*syzygía*) se refiere a un par de proposiciones que tienen uno o ambos términos en común. Esta voz griega se presenta como el género desde donde se especifican las tres reglas deductivas de la lógica aristotélica: conversión (si ambos términos son comunes, pero cambian su posición), oposición (si ambos términos son comunes, pero no cambian su posición) y silogismo (si un solo término es común y cambia su posición). Esta enseñanza no es explícita en Aristóteles, pero ya es conocida por su principal comentarista Alejandro de Afrodisias.

   En este artículo se muestra que la presencia de esta enseñanza, que mira al silogismo como una combinación (syzygía), conduce a describir la silogística como la actividad que busca las premisas que justifican una conclusión, que es la tarea de la dialéctica de los *Tópicos* de Aristóteles y lo que explica por qué el comentario de Alejandro propone un contexto dialéctico para

discutir la silogística en *APr*. Finalmente, sobre la base de que el uso del término *syzygía* está atestiguado en autores contemporáneos y anteriores a Alejandro, como Cicerón, Galeno y Apuleyo, el artículo sugiere que la elaboración y transmisión de esta enseñanza está relacionada con una fuente anterior, quien podría ser el discípulo de Aristóteles, Teofrasto de Ereso."

Abstract: "In the ancient commentary on Aristotelian logic, the Greek word συζυγία (*syzygía*) refers to a pair of propositions that have one or both terms in common. This Greek voice is presented as the genus from which the three deductive rules of Aristotelian logic are specified: conversion (if both terms are common, but change their position), opposition (if both terms are common, but do not change their position) and syllogism (if a single term is common and changes its position). This teaching is not explicit

in Aristotle, but it is already known by his main commentator Alexander of Aphrodisias. This article shows that the presence of this teaching leads to describe syllogistic as the activity that seeks the premises that justify a conclusion, which is the task of the dialectic of Aristotle's *Topics* and explains why Alexander's commentary proposes a dialectical context to discuss syllogistic in Prior Analytics. Finally, on the basis that the use of the term syzygía is attested in authors contemporary and prior to Alexander, such as Cicero, Apuleius and Galen, the article suggests that the elaboration and transmission of this teaching is related to an earlier source, who could be Aristotle's disciple, Theophrastus of Eresus."

2. Salles, Ricardo. 2009. "Alejandro de Afrodisia y el problema de la instrumentalidad de la lógica. Notas sobre *in A. Pr.* 2, 22-33." *Estudios de Filosofía* no. 40:223–243.

   Resumen: La contribución de Ricardo Salles se centra en la interpretación peripatética de Alejandro en contra de la tesis estoica de que la lógica no es "instrumento", sino "parte" de la filosofía. Según Alejandro, si la lógica fuera parte de la filosofía, como pretenden los estoicos, la filosofía no podría ocupar el lugar más elevado en la jerarquía del conocimiento; pero esto

sería, en cierto modo, paradójico, argumenta Salles, pues todos –tanto estoicos como peripatéticos– consideran, por diversas razones, que la filosofía es, por su objeto, la disciplina más elevada. De acuerdo con Salles, sin embargo, esta aguda crítica no es lo suficientemente penetrante para poner de manifiesto una verdadera inconsistencia en el estoicismo.

Salles cree que esto sería paradójico, pues todos –tanto estoicos como peripatéticos– consideran, por diversas razones, que la filosofía es, por su objeto, la disciplina más elevada. De acuerdo con Salles, sin embargo, la aguda crítica de Alejandro no es lo suficientemente penetrante para poner de manifiesto una verdadera inconsistencia en el estoicismo. Su principal debilidad, en su opinión, radica en el hecho de que el razonamiento sobre el cual descansa depende de supuestos aristotélicos que los estoicos rechazan."

Abstract: "Ricardo Salles' contribution is focused on Alexander's Peripatetic interpretation against the Stoic thesis that logic is not an "instrument", but a "part" of philosophy. According to Alexander, if logic were part of philosophy, as the Stoics maintain, philosophy could not occupy the highest place in the hierarchy of knowledge. Salles takes this to be paradoxical since both the Stoics and the Peripatetics consider that philosophy is, due to its object, the highest discipline. According to Salles, Alexander's acute criticism is not penetrating enough to make obvious a real inconsistency in Stoicism. In his view, Alexander's main weakness is that the reasoning on which such criticism is based depends upon some Aristotelian assumptions that the Stoics reject."



History of Logic from Aristotle to Gödel

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Bibliography on the Ancient Commentaries on Aristotle's *De Interpretatione*

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2. Bonelli, Maddalena. 2009. "Alexandre d'Aphrodise et le *De interpretatione*." In *Interpréter le De Interpretatione*, edited by Husson, Suzanne, 51–68. Paris: Vrin.
3. Brunschwig, Jacques. 2008. "Le chapitre 1 du *De Interpretatione*. Aristote, Ammonius et nous." *Laval Théologique et Philosophique* no. 64:35–87.

   "La treizième réunion du *Symposium Aristotelicum*, en 1993, a eu une très étrange et très triste destinée. Certes, elle s'est tenue dans le cadre enchanteur de la Chartreuse de Pontignano, près de Sienne; elle a donné lieu, comme ses devancières, à des communications et à des discussions d'un vif intérêt. Mais l'édition de ses Actes, pour une fois, s'est heurtée à d'insurmontables obstacles. La charge en avait été initialement confiée à Mario Mignucci et à Michael Frede, deux des plus fidèles et stimulants participants du Symposium. Ils ont été tragiquement enlevés à notre admiration et à notre affection, le

premier en 2004, sous les coups d'une longue et impitoyable maladie, le second en 2007, en conséquence d'un accident imprévisible et brutal. Le retard causé à la publication du XIIIe Symposium par cette double et douloureuse disparition n'a pu être comblé jusqu'à présent; les membres du comité organisateur m'ont assuré qu'à leur avis, il risquait de ne l'être jamais.

Par une coïncidence émouvante (en tout cas pour moi), trois semaines seulement avant la mort de Michael Frede, mon collègue et ami Thomas De Koninck me demanda si j'accepterais de publier dans le *Laval théologique et philosophique* l'étude que j'avais présentée, plus de dix ans auparavant, au XIIIe Symposium. Je passe sur les divers scrupules qui me firent hésiter quelque temps. L'insistance du Professeur De Koninck et celle de ses collaborateurs, Paul Asselin et Martin Achard, en eurent finalement raison, ce dont je leur suis très profondément reconnaissant.

Quant à ce texte, le lecteur voudra bien se souvenir de la longue histoire dont il est l'ultime fruit. Il serait bien difficile de le résumer: il est, il tente d'être cela même pour quoi il se donne, à savoir pour une lecture détaillée du commentaire par Ammonius du célèbre premier chapitre du *De Interpretatione*, lecture focalisée non pas tellement sur la lumière que le commentaire ancien peut (ou peut ne pas) jeter sur la lettre et sur l'interprétation du texte aristotélicien que sur ce que ce commentaire peut nous apprendre sur les méthodes, les choix, les comportements intellectuels de son auteur lui-même, et sur ses propres motivations philosophiques et pédagogiques face à un texte comme celui qu'il entreprend de commenter."

4. Busse, Adolf. 1900. "Über die in Ammonius' Kommentar erhaltene Überlieferung der aristotelischen Schrift Περὶ ἑρμηνείας." In *Festschrift Johannes Vahlen, zum siebengizsten Geburtstag*, 73–85. Berlin: G. Reimer.

5. De Rijk, Lambertus Marie. 2003. "Boethius on *De interpretatione* (ch. 3): is he a reliable guide?" In *Boèce ou la chaîne des savoirs. Actes du Colloque International de la*

fondation Singer Polignac (Paris, 8-12 juin 1999), edited by Galonnier, Alain, 207–227. Paris: Peeters Publishers.

"There can be no doubt whatsoever about Boethius's exceptional merits for transmitting Aristotle's logic to us. But while 'Aristotelian' logic is in many respects synonymous with 'Aristotelico-Boethian' logic, the question can be raised whether Aristotle himself was an 'Aristotelian'. To give just one example: from Lukasiewicz onwards there has been much debate among scholars about the telling differences between traditional syllogistic and that of the *Prior Analytics*. (1)

In this paper I intend to deal with two specimens of Boethius's way of commenting upon Aristotle's text. They are found in his discussion of *De interpretatione*, chapters 2 and 3, which present Aristotle's views of *ónoma* and *rhema*. (2) One concerns the semantics of indefinite names, the other that of isolated names and verbs." p. 227

(1) Jan Lukasiewicz, *Aristotle's Syllogistic from the Standpoint of Modern Formal Logic*, Oxford, 1951. G. Patzig, *Aristotle's Theory of the Syllogism. A logico-philological study of Book A of the Prior Analytics*, Dordrecht, 1969.

(2) *Rhema* properly stands for 'what is said of', including not only our 'verb' but also adjectives, when used in attributive position. One should realise, however, that 'verb' refers to a word class, rather than a semantic or syntactical category, as *rhema* does.

"Conclusion. Returning now to Boethius' manner of commenting upon Aristotle's texts, the following points can be made:

[1] In the wake of Ammonius, (3) Boethius explains [*De int.*] 16b22-25 on the apophantic level, i.e. in terms of statement-making, instead of framing significative concepts, i.e. on the onomastic level.

[2] Whereas in Ammonius' report of the predecessors, Alexander and Porphyry, as well as his own exposition of the issue, there are many clues to the previous alternative reading

and interpretation on the onomastic level, Boethius does not even refrain from cleansing the text (including his 'quotations'), by changing, at any occurrence, '*ens*' into '*est*'.

[3] In doing so, Boethius decisively influenced the commentary tradition on account of the purport of *De int*. 3, 16b19-25. He effectively contributed to the common verdict on this paragraph in terms of 'a curious medley'.

[4] As far as the semantics of the indefinite verb (3, 16b14-15) is concerned, Boethius' apparently adhering to the so-called 'Ammonii recensio' was far less desastrous for the common understanding of Aristotle on this score, and, in effect, merely provided us with some stimulating Medieval discussions of the semantics of term infinitation.

[5] Finally by way of speculative surmise, it might be suggested that both the fact that Boethius dealt with the 'Ammonii recognise' without reading it in his lemma of 16b14-15, as well as his rather ruthlessly interfering in the quotations of the pre-Ammonian sources, should make it more plausible that Boethius had extensive, but incomplete marginal notes to his Greek text of Aristotle at his disposal, rather than a full copy of Ammonius' commentary (or those of other Greek commentators).

To comment upon Aristotle's work naturally includes developing his lore. But nothing can ever guarantee that this will happen *ad metem auctoris*. (4)"

(3) It is unmistakably plain that in *De int*. ch. 3, Boethius is strongly influenced by what he read in Ammonius (or in marginal notes on Ammonius' view).

(4) Cf. the interesting paper on this subject by Frans A.J. de Haas, "Survival of the Fittest? Mutations of Aristotle's Method of Inquiry in Late Antiquity" (forthcoming). [Conference: *The Dynamics of Natural Philosophy in the Aristotelian Tradition (and beyond)*, Nijmegen, 16-20 August 1999.]

6. Diebler, Stéphane. 2002. "Les canons de Proclus: problèmes et conséquences de l'interprétation syriano-proclienne du *De interpretatione*." *Dionysius* no. 20:71–94.

"Ammonius' commentary on the third section of Aristotle's *De interpretatione* offers insight into the hermeneutical and logical debates of the 5th-cent. Neoplatonic school in Athens. These debates reveal one of the rare cases of a theory that was developed by Proclus in contradiction to that of his teacher Syrianus, and in the course of which the authoritative status of *De interpretatione* as a carefully composed, syntagmatic work was itself put into question. Ammonius was concerned to establish the coherence of Int. 19 B 19-20 B 12. According to his interpretation, this section falls into two further sections, arranged around two types of logical sequences : the first section (19 B 19-20 A 6) is explained according to an interpretation that derives from Syrianus ; the second (20 A 20-20 B 13) recalls the canons of Proclus."

7. Fernández Garrido, María Regla. 1996. "Los comentarios griegos y latinos al « De interpretatione » aristotélico hasta Tomás de Aquino." *Emerita.Boletín de Lingüística y Filología Clásica* no. 64:307–323.
8. Furlani, Giuseppe. 1922. "Aristoteles, *De Interpretatione*, 16a, 6-7, nach einem syrisch erhaltenen Kommentar." *Zeitschrift für Semitistik und verwandte Gebiete* no. 1:34–37.
9. Gaskin, Richard. 1993. "Alexander's Sea Battle: A Discussion of Alexander of Aphrodisias *De Fato*." *Phronesis* no. 38:75–94.
10. Gombocz, Wolfgang L. 1990. "Apuleius is Better Still: A Correction to the Square of Opposition [*De Interpretatione* 180, 19-181, 7 Thomas]." *Mnemosyne* no. 43:124–131.
11. Groneberg, Michael. 2002. "Ammonios und die Seeschlacht. Seels Entlarvung des Aktualismus der Neuplatoniker." *Freiburger Zeitschrift für Philosophie und Theologie* no. 49:236–250.
12. Hasmaoui, Chantal. 2003. "La tradition des commentaires grecs sur le *De interpretatione* (*Int.*)." In *Dictionnaire des philosophes antiques. Supplément*, edited by Goulet, Richard, 122–173. Paris: CNRS Éditions.
13. Hugonnard-Roche, Henri. 2005. "Scolies syriaques au *Peri Hermeneias* d'Aristote." In *Scientia in margine. Études sur les*

marginalia dans les manuscrits scientifiques du Moyen Âge à la Renaissance, edited by Jacquart, Danielle and Burnett, Charles F., 27–55. Genève: Droz.

14. ———. 2011. "Du commentaire a la reconstruction: Paul le Perse interprete d'Aristote (sur une lecture du *Peri Hermeneias*, à propos des modes et des adverbes selon Paul, Ammonius et Boece)." In *Interpreting the Bible and Aristotle in Late Antiquity: The Alexandrian Commentary Tradition between Rome and Baghdad*, edited by Lössl, Josef and Watt, John W., 207–224. Burlington: Ashgate.

15. Ieodiakonou, Katerina. 2002. "Psellos' Paraphrasis on Aristotle's *De interpretatione*." In *Byzantine Philosophy and its Ancient Sources*, edited by Ieodiakonou, Katerina, 157–181. Oxford: Clarendon Press.

16. Ierodiakonou, Katerina. 2019. "The Byzantine Reception of Aristotle's Theory of Meaning." *Methodos* no. 19:1–17.

    Abstract: "Byzantine scholars composed, primarily for educational purposes, paraphrases and commentaries on Aristotelian logic and, in particular, on Aristotle's *De interpretatione*. Some of these works clearly betray their ancient provenance and others are testimony either to lost ancient traditions or to the Byzantines' own attempts to make sense of Aristotle's puzzling text.

    My aim is to present the Byzantine comments on the first chapters of the *De interpretatione*, in which we find traces of Aristotle's theory of meaning. I begin by collecting the relevant textual material from the eleventh to the fifteenth century and, then, I discuss the Byzantine views on four topics that seem to be of some philosophical and historical interest: Are the same thoughts shared by all people? In what way do likenesses, symbols and signs differ? Are names by nature or by convention? Do parts of composite names have meaning?"

17. Isaac, Jean. 1953. *Le Peri hermeneias en Occident de Boèce à Saint Thomas. Histoire littéraire d'un traité d'Aristote*. Paris: Vrin.

18. Kreter, Fabian. 2006. *Kann Fabius bei einer Seeschlacht sterben: Die Geschichte der Logik des Kontingenzproblems von Aristoteles, De interpretatione 9 bis Cicero, De fato*. Trier: WVT Wissenschaftlicher Verlag Trier.

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    Reprinted in D. Blank- N. Kretzmann (eds.), *Ammonius on Aristotle On Interpretation 9 with Boethius on Aristotle On Interpretation 9*, Duckworth: London 1998, pp. 24-52.

20. Magee, John. 1989. *Boethius on Signification and Mind*. Leiden: Brill.

    Contents: Acknowledgements IX; Sigla X; Abbreviations and Editions XI; Introduction 1; I. Aristotle: *Peri Hermeneias* I, 16a3-9; 7; II. Boethius' Translation 49; III. Orandi Ordo 64; IV. Cogitabilis Oratio 93; Afterword 142; Bibliography 150; Index Locorum 155; Index Nominum et Rerum 162-165.

    "The present work is divided into four chapters, taking as its starting point the lines of Aristotle's *Peri Hermeneias* around which Boethius' theory of signification turns. The first chapter of the study plunges in *medias res*, and for that the reader's patience is requested. The Greek text is both difficult and compressed, and necessarily brings into consideration questions of the history of transmission and commentary, as well as numerous aspects of Aristotle's thought both in this and in other works. But since Boethius translated either all or part of the *Peri Hermeneias* before commenting upon it, and then revised the translation for the second commentary; and since in his translation, as in all translations, there is an element of "commentary" upon the meaning of the original, it has been thought necessary to come to a clear understanding of what Aristotle wrote before proceeding to the translation and commentaries. After careful examination of the Greek passage and of the questions it poses, there follows in the second

chapter an analysis of Boethius' Latin translation of the same, and of the interpretation implicitly contained therein." (pp. 1-2)

21. ———. 2010. "On the Composition and Sources of Boethius' Second *Peri hermeneias* Commentary." *Vivarium* no. 48:7–54.

    Abstract: "The paper is in three parts, prefaced by general remarks concerning Boethius' logical translations and commentaries: the text of the *Peri Hermeneias* as known to and commented on by Boethius (and Ammonius); the organizational principles behind Boethius' second commentary on the *Peri Hermeneias*; its source(s). One of the main purposes of the last section is to demonstrate that the *Peri Hermeneias* commentaries of Boethius and Ammonius are, although part of a common tradition, quite independent of one another, and special consideration is given to the question of how Boethius interpreted and shaped the doxographical material concerning Aspasius, Herminus, and Alexander that had been handed down to him by Porphyry."

    "Sifting through the interpretations of earlier commentators was painstaking and laborious, Porphyry's interpretation of 19b22-24 alone requiring, as we have seen, seventeen pages of commentary. By about the year 515 Boethius' attention must have been turning toward other projects, to new translations and commentaries, the theological tractates, logico-rhetorical monographs, and so on. If the Peri Hermeneias were allowed to consume so much time and energy, what would become of the rest of the *Organon* and Aristotle, not to mention Plato? Even for a treatise as rich and complex as the *Peri Hermeneias* Boethius may have had finally to calculate his "point of diminishing returns." He may have grown impatient with the project, his copy of Porphyry may have failed, or both. Had he known of the premature end that awaited him, he might have thought differently about how to weight the commentary, might have sought compensation in other projects for problems left unsolved in connection with the *Peri Hermeneias*; but as it is, he left a work which, despite its imperfections, has proved to be one of his most fascinating and influential." (p. 54)

22. ———. 2011. "Preliminary Observations on the Textual Tradition of Boethius' First *Peri Hermeneias* Commentary." In *Logic and Language in the Middle Ages: A Volume in Honour of Sten Ebbesen*, edited by Fink, Jakob Leth, Hansen, Heine and Mora-Márquez, Ana María 13–26. Leiden: Brill.

"In editing the first of Boethius' two commentaries on Aristotle's *Peri Hermeneias* Carl Meiser essentially worked from a single witness, F (below), which he ranked both *antiquissimus* and *optimus*. (1) Readings from three other munich manuscripts, e (MS Bayer. Staatsbibl. clm 14401, s. XI), M (below), and T (MS Bayer. Staatsbibl. clm 18479, s.XI), he reported *perpetuo more* but with varying degrees of accuracy. (2) He further consulted two st. Gall manuscripts, G (below) and S (MS Stiftsbibl. 817, s. XI-XII) *omnibus locis paulo difficilioribus* — citing them only infrequently, however, in his critical apparatus. from *Peri Hermeneias* 17b20 on, F preserves excerpted lemmata, and Meiser correctly recognized that the supplemented versions found in other witnesses violate Boethius' intention. (3)

But F is in fact neither *antiquissimus* nor *optimus*, and Meiser's edition suffers from a particular failure to distinguish between the three versions of Boethius' *Peri Hermeneias* translation, two of which form his commentary lemmata. Hence a full assessment of the evidence seems called for. In what follows, I hope to shed some light on certain salient characteristics of the textual tradition." (p. 13)

(1) Boethius, *Commentarii in librum aristotelis περι ερμηνειασ, pars prior versionem continuam et primam editionem continens*, ed. C. Meiser (Leipzig: Teubner, 1877), pp. VIII-X.

(2) Cf. J. Magee, 'On the Composition and sources of Boethius' second *Peri Hermeneias* Commentary', *Vivarium* 48 (2010), 15, n. 32.

(3) Above, n. 1; cf. Aristotle, *De interpretatione vel Periermenias: Translatio Boethii*, ed. L. Minio-Paluello, AL 2.1 (Bruges: Desclée de Brouwer, 1965), pp. XI; LIII.

[MS F = Munich Bayer. Staatsbibl. clm 6374, s. IX

MS M = Munich Bayer. Staatsbibl. clm 14377, s. X-XI]

23. Menne, Albert, and Öffenberger, Niels. 1980. "Über eine mehrwertige Darstellung der Oppositionstheorie nicht-modaler Urteilsarten. Zur Frage der Vorgeschichte der mehrwertigen Logik." *Philosophia (Athens)* no. 10-11:304–327.

    Nachdruck: A. Menne und N. Öffenberger (Hrsg.), Zur modernen Deutung der Aristotelischen Logik. Band III: Modallogik und Mehrwertigkeit, Hildesheim: Georg Olms 1988, s. 253-273.

24. Mignucci, Mario. 1989. "Truth and modality in late antiquity: Boethius on future contingent propositions." In *Le teorie delle Modalità. Atti del Convegno internazionale di storia della logica*, edited by Corsi, Giovanni, Mangione, Corrado and Mugnai, Massimo, 47–78. Bologna: CLUEB.

25. ———. 1996. "Ammonius on Future Contingent Propositions." In *Rationality in Greek Thought*, edited by Frede, Michael and Striker, Gisela, 279–310. Oxford: Clarendon Press.

26. ———. 1998. "Ammonius' sea battle." In *Ammonius: On Aristotle On Interpretation 9 with Boethius: On Aristotle On Interpretation 9*, edited by Blank, David L. and Kretzmann, Norman, 53–86. Ithaca: Conell University Press.

27. ———. 2001. "Ammonius and the Problem of Future Contingent Truth." In *Ammonius and the Seabattle: Texts, Commentary and Essays*, edited by Gerhard, Seel, 247–284. Berlin: Walter de Gruyter.

28. Øhrstrøm, Peter, and Per Hasle, F. V. 1995. "Łukasiewicz's Contribution to Temporal Logic." In *Temporal Logic*, 149–154. Dordrecht: Kluwer.

Chapter 2.3.

"In a series of articles during the 1920's and 30's the famous Polish logician Jan Lukasiewicz advocated a particular interpretation of Aristotle's discussion of the status of sentences about the contingent future, as developed in his 'sea-fight'

example (from *De Interpretatione* chapter IX). Lukasiewicz' interpretation crucially rests on a rejection of the principle of bivalence. In fact, this kind of interpretation was not new, but had been formulated as early as by the Epicureans. However, Lukasiewicz presented this position more clearly than had ever

been done before, and developed it with the aid of modern symbolic logic." (p. 149)

(...)

"Lukasiewicz' interpretation was disputed by Prior [1962, p. 240 ff.], who pointed out a significant difference between Lukasiewicz's trivalent logic and Aristotle's text: according to Aristotle it is true already today, that there either there will or there will not be a sea-fight tomorrow, even though the truth value of the two constituents of the disjunction are separately unknown, or possibly 'undetermined'. " (p. 152)

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30. Seel, Gerhard, ed. 2001. *Ammonius and the Seabattle: Texts, Commentary and Essays*. Berlin: Walter de Gruyter.

    In collaboration with Jean-Pierre Schneider and Daniel Schulthess.

    Ammonius on Aristotle: De Interpretation 9 (and 7, 1-17) Greek Text established by A. Busse, reprint from CAG IV/v.

    English translation by David Blank, revised by J.-P. Schneider and Gerhard Seel.

    Philosophical Commentary by Gerhard Seel.

    Essays by Mario Mignucci and Gerhard Seel.

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31. Sillitti, Giovanna. 1980. *Tragelaphos. Storia di una metafora e di un problema*. Napoli: Bibliopolis.

32. Suto, Taki. 2011. *Boethius on Mind, Grammar and Logic. A Study of Boethius' Commentaries on Peri Hermeneias*. Leiden: Brill.

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Introduction 1; Part One. Boethius on Words and Minds. I. The Significatum of Spoken Words 17; II. Words as ‘Notae’ 43; III. Three Types of Speech 77; Part Two. Boethius on Logic and Grammar. IV. Nouns, Verbs, and Conjunctions 117; V. The Varieties of Speech 151; VI. The Verb 'To Be' 187; VII. General Conclusions 223; Bibliography 237; Index of Ancient and Medieval Texts 269; Index of Names (Ancient and Medieval Authors) and Subjects 285; Index of Modern Authors (Selective) 294-296.

"This work aims to be a study of his commentaries on Aristotle’s *Peri hermeneias* (*De interpretatione*). For my discussion of these commentaries, I use Carl Meiser’s edition, which is the only critical edition currently available. Deviations from the critical edition are recorded in the footnotes of the quotations.

Boethius wrote two commentaries on *Peri hermeneias*. In Meiser’s edition, the first commentary is only 195 pages while the second commentary is 502 pages, more than double the length of the first. Writing two commentaries on the same work was not unusual for him. He also wrote two commentaries on Porphyry’s *Isagoge*, but the first commentary is three-fifths the length of the second commentary.(3) The striking difference in length between the two commentaries on *Peri hermeneias* reflects his careful planning of the role of each commentary: the first one to present basic lines of Aristotle’s thought, the second one to provide much more detailed explanations.(4) In the second commentary, he often introduces past discussions of Greek commentators and notions that he does not mention in the first commentary. The fact that he purposely wrote two commentaries should be seriously taken into account in considering the apparent inconsistencies and contradictions between them.

This work is primarily devoted to the second commentary. I include the first commentary principally in the following two cases: First, I point out where his explanation significantly differs from that of the second commentary. His account in the second commentary can be mostly regarded as a development

of the first, but the first commentary sometimes has explanations incompatible with those in the second commentary.(5) Boethius seems to make contradictory statements rather deliberately, intending to present simple interpretations in the first commentary, knowing that they are not the best.(6) Second, I refer to the first commentary when it illuminates or enhances his explanations in the latter.

I sometimes look at Boethius' other works, mainly logical ones, in relation to the main questions surrounding the second commentary.

Where the texts contribute to our understanding, I discuss them in the relevant sections. Otherwise, I refer to them in the footnotes. For my interpretations of the commentaries, I have relied very little on his treatises on theology, liberal arts, and his renowned masterpiece, The *Consolation of Philosophy*. It is important to consider why the same individual wrote all these works in different disciplines. I would not deny that these independent treatises could illuminate his logical works. In fact, I believe they do, and I will argue so in the concluding chapter.

I find, however, that these independent treatises have many differences from his logical works. For an accurate interpretation of his logical works we should be very careful in relying on these treatises.(7)" (pp. 1-2)

(3) In Brandt's edition of Boethius' commentaries on Isagoge, the second commentary is 214 pages while the first commentary is 130 pages. Boethius does not allude to a second commentary in the first.

(4) In *PH1* 31.6-32.3; In *PH2* 186.2-9; 250.20-251.4; 294.5-8. For the dates of composition of these commentaries, see Chart 2, p. XIX.

(5) His distinction between simple and composite propositions, which I discuss in Chapter 5, is an example of this.

(6) Sten Ebbesen (*The Aristotelian Commentator* (2009): 49) points this out with textual evidence: In PH1 132.3 sqq. and In

PH2 276.8 sqq.

(7) Scholars have pointed out this danger. Antony Lloyd (*The Anatomy of Neoplatonism* (1990): 2, n.2) cautions against cross-referencing Boethius' different works. Ebbesen says, "one should be cautious in assuming consistency between the doctrines of the Aristotle commentaries and that of *Consolation of Philosophy*" ("Review of J. Magee's *Boethius on Signification and Mind*." *Vivarium* 29, 1991, p. 153). Vincent Spade (*Boethius against Universals: Arguments in the Second Commentary on Porphyry*, 1996) criticizes Peter King's use of Boethius' *De trinitate* for understanding his second commentary on *Isagoge*.

33. Tarán, Leonardo. 1978. *Anonymous' Commentary on Aristotle's De Interpretatione (Codex Parisinus Graecus 2064)*. Meisenheim am Glan: A. Hain.

34. Teixidor, Javier. 1996. "L'introduction au *De interpretatione* chez Proba et Paul le Perse." In *Symposium Syriacum VII. Uppsala University, Department of Asian and African Languages, 11-14 August 1996*, edited by Lavenant, René, 293–301. Roma: Pontificio Istituto Orientale.

    Repris comme Chapitre V dans: J. Teixidor, *Aristote en syriaque: Paul le Perse, logicien du VIe siècle*, Paris: Éditions CNRS 2003, pp. 99-121.

35. Tessier, Andrea. 1979. *Il testo di Aristotele e le traduzioni armene*. Padova: Antenore.

    Indice: Premessa 9; Abbreviazioni bibliografiche 11; Sigle 13; Note alla traduzione armena del « De Interpretatione » 15; La traduzione armena del « De Mundo » pseudo-aristotelico 39-122.

    "L'obiettivo circoscritto di questa ricerca è lo studio dell'uso delle traduzioni in armeno classico di Aristotele in apparato ad edizioni critiche dell'originale greco: sono state prese in esame rispettivamente l'edizione del *De Mundo* pseudo-aristotelico di W.L. Lorimer (1932) e quella del *De Interpretatione* di L. Minio-Paluello (1949), mentre non si è studiata in questo senso

quella delle *Categoriae*, dello stesso M.-P., che compare nel medesimo volume oxoniense.

Sono confluite in questo booklet schede di lettura già pubblicate a parte, e precisamente: A. T., *Aristotele, De Interpretatione: alcune note marginali alla versione armena,* BIFG [Bollettino dell'Istituto di Filologia Greca] 2 (1975), 183-90."

36. Todd, Robert B. 1976. "Alexander of Aphrodisias on *De Interpretatione* 16a 26-29." *Hermes* no. 104:140–146.

37. Van den Berg, Robert M. 2008. *Proclus' Commentary on the Cratylus in Context. Ancient Theories of Language and Naming*. Brill: Leiden.

    Chapter One. *Plato's Cratylus And Aristotle's De Interpretatione: Setting The Scene*, pp. 1-29.

38. ———. 2016. "Smoothing over the differences : Proclus and Ammonius on Plato's «Cratylus» and Aristotle's «De interpretatione»." In *Aristotle Re-Interpreted: New Findings on Seven Hundred Years of the Ancient Commentators*, edited by Sorabji, Richard, 353–365. New York: Bloomsbury Academic.

39. Verbeke, Gérard. 1991. "Interprétation et langage dans la tradition aristotélicienne." In *Historia philosophiae Medii Aevi. Studien zur Geschichte der Philosophie des Mittelalters*, edited by Mojsisch, Burkhard and Pluta, Olaf, 1029–1045. Amsterdam: R. Grüner.

    "A la lumière des analyses qui précèdent, qu'en est-il maintenant du titre *peri hermeneias*? Ce titre correspond-il au contenu de l'ouvrage?

    La question posée ne vise pas directement l'authenticité Aristotélicienne de la formule: il est vrai cependant, qu'un titre qui ne traduirait pas bien le contenu du traité, aurait peu de chances d'avoir été rédigé par le Stagirite. Par contre, il est probable que l'ouvrage ait reçu un certain titre de la part de son auteur et si le titre traditionnel correspond au contenu de l'écrit, il peut très bien remonter à l'auteur lui-même. Quoi qu'il

en soit de la question d'authenticité, nous croyons pouvoir conclure que le titre donné recouvre bien le contenu du traité, dont le sujet principal est l'énonciation catégorique et ses composants. En se basant sur les analyses de Boèce et d'Ammonius, on peut dire que tous ces éléments correspondent à l'idée d'interprétation telle qu'elle est expliquée dans le traité:

1. L'énonciation y est conçue comme l'interprétation d'un contenu de pensée. Toutefois si le langage se rapporte directement à un objet pensé, il se réfère indirectement au réel: il en résulte que le discours énonciatif est aussi une interprétation de la réalité. Il l'est à un double niveau: le contenu particulier de chaque énonciation se rapporte à un sujet déterminé du monde et en exprime certaines caractéristiques; on peut donc le considérer comme un acte d'interprétation. Par ailleurs, il y a la structure même du jugement, qui, elle aussi, est une interprétation à un niveau plus fondamental de la physionomie du réel.

2. Les noms et les verbes constituent à leur tour un acte d'interprétation. Selon Aristote, la signification des mots est conventionnelle: elle est le résultat de la vie en communauté, où les hommes sont amenés à se mettre d'accord sur des notions fondamentales de la vie morale et sociale. Ammonius croit que le sens des mots n'est pas purement artificiel, mais qu'il est adapté à la nature des choses. Quoi qu'il en soit, le fait d'appliquer au réel des noms et des verbes est un acte d'interprétation. Exprimer le réel dans les catégories du langage implique toujours un acte interprétatif.

La doctrine aristotélicienne sur la nature du langage justifie donc le titre de *peri hermeneias.".*

40. Viano, Cristina. 2009. "Aristote contre !es astrologues. Olympiodore sur le *De interpretatione*, chap. 9." In *Interpréter le De Interpretatione*, edited by Husson, Suzanne, 69–88. Paris: Vrin.

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History of Logic

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History of Logic

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History of Medieval Logic: A General Overview

Introduction

"The role of logic in the Middle Ages.

Regarding the role of logic within the framework of arts and sciences during the Middle Ages, we have to distinguish two related aspects, one institutional and the other scientific. As to the first aspect, we have to remember that the medieval educational system was based on the seven liberal arts, which were divided into the *trivium*, i.e., three arts of language, and the *quadrivium*, i.e., four mathematical arts. The so-called trivial arts were grammar, rhetoric, and logic, and during a period of several centuries virtually every educated person, at least every university graduate, received a training in these matters, especially in logic. Students in the medieval faculty of arts probably spent more time studying logic than any other discipline. This first -- institutional -- aspect concerning the role of logic is explained by the second -- scientific -- aspect. The trivial disciplines provided techniques of analysis and a technical vocabulary that permeate philosophical, scientific and theological writings. Logic, as mentioned before, was referred to and was generally regarded as the art of arts and the science of sciences. The increasing cultural dominance of the universities with their obligatory *disputationes* and their hierarchy of examinations on the one hand and the outstanding status of logic on the other were corresponding features of the educational world of the 13th century.

The core of the logic curriculum from the 12th century onwards was provided by the logical works of Aristotle. These represented the

material for the study of types of predication, the analysis of simple propositions or statements (2) and their relations of inference and equivalence, the analysis of modal propositions, of the structure and the types of the syllogism, dialectical topics, fallacies and scientific reasoning as based on the demonstrative syllogism. Medieval logicians, however, realized that there were other, non-Aristotelian, approaches to logical subjects, questions and methods that could be investigated. The new approaches primarily included works on the signification and the supposition of terms -- a distinction showing some similarity to the modern distinction between meaning and reference. The theory of signification deals with the capability of descriptive terms to function as signs, i.e., their property of being meaningful. The theory of supposition was concerned with the types of reference that terms in their function as subject and predicate obtain in the context of different propositions. Another emphasis was put on consequences or valid inference forms. These innovations were by no means regarded as an alternative to tradition, but supplemented the Aristotelian *logica antiqua* under the heading of *logica moderna* or *logica modernorum*.

The medieval logicians themselves did not classify their discipline as a *scientia formalis* -- to my knowledge the expression was not used in the Middle Ages -- but as a *scientia sermocinali*s, i.e., a science of argumentative speech, which was the overarching framework of the trivial arts. The *scientia sermocinalis* itself is one of three types into which science was divided, e.g., by Peter of Spain in his well-known [Lambertus Marie de Rijk (ed.), Petrus Hispanus: *Tractatus* called afterwards *Summule logicales*, Van Gorcum 1972, p. 29, 14-16]. The differences (*differentiae*) of science, as Peter states, are *naturale, morale*, and *sermocinale*, a division which resembles the Stoic division into natural philosophy, ethics, and logic.(3) William of Sherwood, another important logician of the 13th century, offers the same scientific differences, but -- in contrast to Peter of Spain -- as the result of a twofold division:(4) Since there are two sources (*principia*) of things, nature and the soul, there will accordingly also be two kinds (*genera*) of things. The things whose source or principle is nature are the concern of natural science. The others, whose source or principle is the soul, are again divided into two types. Since according to Sherwood the soul is created without virtues or

knowledge, it performs certain operations by means of which it attains to the virtues, and these are the concern of ethics or *scientia moralis*. The soul performs different operations by means of which it attains to knowledge, and these are the concern of the science of argumentative speech or *scientia sermocinali*s. At this point we meet the same threefold division of science that occurs in Peter of Spain. It is worth mentioning that the first division regarding the nature of things is metaphysical while the second division regarding the different sorts of things whose source is the soul is epistemological. The sciences whose principle is the human soul are understood as concerning basic human activities or operations, and the specific differences among them are obtained from the goals of these activities, namely virtues on the one hand and science on the other.

The term "scientia sermocinalis" which stands for the subtle analysis of ordinary language came into use in the late 12th or early 13th century. The designation of logic as a *scientia sermocinalis* was commonly accepted during the 13th century, but it was not the only one. The term "logica" as derived from the Greek "logos" can mean both "sermo" and "ratio". Accordingly, logic was regarded either as a *scientia sermocinalis* or as a *scientia rationalis*. The medieval authors offer considerations supporting both titles. While logicians like William of Sherwood and Peter of Spain stressed the feature of logic as a linguistic science as mentioned above, other authors in the 13th century like Robert Kilwardy and St. Bonaventure called it linguistic and rational alike. In the 14th century the notion of logic as a rational science became predominant. An important reason lies in the fact that logic was about second intentions, which were higher-level concepts like "genus", "species", "predicate", etc. We make use of second intentions to classify our concepts or first intentions of things in the world. Second intentions reveal both universals and logical structures and were regarded as mental constructs or rational objects reached through abstraction, which means reflection on general features and relations of things and on actual pieces of discourse."

Notes

(2) In medieval logic "propositio" and "enuntiatio" both stand for a sentence signifying something true or false and are mostly used as

interchangeable terms. However, using the term "propositio" we have to avoid the modern understanding of proposition, or content, as what is asserted or what is expressed by a sentence.

(3) The *scientiae morale*s and *naturales* as the counterpart to the *scientiae sermocinales* were sometimes brought together under the integrating concept of *scientiae reales*; cf. [Jakob Hans Josef Schneider, *Scientia sermocinalis / realis,* in: Joachim Ritter and Karlfried Gründer (eds.) Historische Wörterbuch der Philosophie 8, Wissenschaftliche Buchgesellaschaft Darmstadt 1992, col. 1508].

(4) Cf. [William of Sherwood, *Introductiones in logicam,* in: J. Reginald O'Donnell, The *Syncategoremata* of William of Sherwood, Medieval Studies 3 (1941), p. 46-93, p. 2, 1-12].

From: Christoph Kann, "Medieval Logic as a Formal Science", in: Benedikt Löwe, Volker Peckhaus, and Thomas Räsch (eds.), *Foundations of the Formal Sciences IV. The History of the Concept of the Formal Sciences*, London: College Publications 2006, pp. 103-123.

"The specific contribution of mediaeval logicians.

The new elements which the mediaeval logicians have added to the logical theories which had been handed down to them via Boethius, are found embodied in a number of treatises which mainly discourse upon the field of semantics.(5) To define the exact place of these new elements in mediaeval logic from the twelfth to the fifteenth century, we must recall to mind the mediaeval terminology: *logica vetus*, *logica nova*, *logica antiqua*, and *logica moderna*.

(a) *Logica vetus*. It is a matter of common knowledge, that up to and including the first few decades of the twelfth century the Latin West knew from Aristotle's *Organon* only the*Categories* and *De Interpretatione*. These two works formed, together with the I*sagoge* of Porphyrius, Boethius' commentaries on these three writings as well as his logical monographs, the works of the *ars vetus* or l*ogica vetus*. From c. 1200 the work *De Sex Principiis*, attributed to Gilbert de la Porrée, also belonged to this group.

(b) *Logica nova*. This comprised Aristotle's two *Analytics*, *Topic*s and *Sophistici Elenchi*.

(c) *Logica antiqua* (or *antiquorum*). This name is the generic term for the a*rs vetus* and *ars nova* together.

(d) *Logica moderna* (or *modernorum*). This term is the pendant of the preceding and comprises those elements in mediaeval logic which cannot be simply traced back to the writings of the *logica antiquorum*." (pp. 14-15)

Notes

(5) The treatise *De Consequentiis* can be said to be nearer to the logic of propositions.

From: L. M. de Rjik, *Logica Modernorum. A Contribution to the History of Early Terminist Logic*, Assen: Van Gorcum 1962, Vol. I *On the Twelfth Century Theories of Fallacy*.

"It was argued in Trentman [5] that, in spite of the important and obvious differences of opinion that divided them, the medieval logicians were in general agreement on the nature of their task and the way to carry it out. For them logic was analytic and, one might say, reconstructionistic. This character of their discipline was well expressed by St. Anselm in a passage Henry has used to good advantage: *Non tantum debemus inhaerere improprietati verborum veritatem tegenti quantum inhiare proprietati veritatis sub multimodo genere locutionum latenti* (*). (*De casu diaboli*; cf. Henry [4, 6].) Truth lies hidden under the surface structure of everyday speech. The job of the logician is to bring out in a systematic way what lies thus hidden. What is hidden is logical form; we might say that it is the form of thought, and Ockham identifies it with the structure of mental language (Trentman [7]). But we could also say that it is the form of the world; hence, describing it means stating the most general truths about reality. Ockham's mental language is also intended to satisfy this requirement in that it is supposed to be a kind of ideal language directly picturing the world. But logicians sceptical of "Mental" also held firmly to this point of view (Trentman [8]) ; thus a study of logic taught men to speak truly (*vere loqui*). Nor did the dispute about whether logic is *scientia sermocinalis* or a *scientia rationalis* (cf. Kretzmann [9, 10]) really touch this point of fundamental agreement. Medieval logic, therefore, was not formalistic in the sense of a study of uninterpreted calculi. It studied

very general truths about reality, reflected in the form of thought and expressed in language. It proceeded by systematic reconstruction, but the "system" that emerged thereby must be viewed as an interpreted system. Of course, contrary to what people sometimes seem to believe, by no means all twentieth-century logicians have been formalists. Indeed, the points of view of Frege and Russell were not unlike that of the medievals, and such otherwise disparate recent logicians as Lesniewski and Bergmann have maintained essentially the same view of logic as an interpreted system.

To say that medieval logic was systematic is not, of course, to say that it was constructed like a modern quasi-axiomatic system. There are no axioms and theorems, no formation rules and the like. Medieval logics were generally presented in the form of lists of rules of inference, often with little or no apparent heed for economy. This does not mean, however, that the logicians were unaware of logical relations between rules. Indeed, in some cases they showed a very perceptive appreciation of the ways in which proofs are constructed and the ways in which some rules may be derived from others (Boh [11]). The medieval logicians, unfortunately, lacked a good notation; indeed, they lacked any notation. Even quotation marks would have helped, as some of the complications with material supposition show. But, although they experimented a bit with something like indicators of quotation, and they commonly used letters for abbreviation, on the whole, they had to make do with ordinary or (as Henry has often reminded us) rather extraordinary Latin. None of them, however, was an "ordinary language" philosopher. Contrary to what John of Salisbury had urged, they did not take the idioms of any ordinary language as an arbiter of logical rectitude. No problems are solved simply by citing ordinary usage. Yet, as Boh [11] points out, it was the "formal aspects of ordinary discourse", that is, the syntax of ordinary language, that provided the material for logical analysis. To this material they brought the tools of their trade. They aimed at reconstructions of puzzling syntactical constructions that would perspicuously reveal the logical forms they concealed. The logicians' business, then, was with the perplexities of ordinary language syntax; on them he used his tools of reconstruction; and the arbiter of his success was an ideal syntax, a syntax reflecting the general form of reality.

The theory of supposition was one of the great preoccupations of the later medieval logicians. It was, in fact, at the heart of the studies of *proprietates terminorum* which so characterized their work and led to their being called "terminists". Owing to the important work of de Rijk [12], its origins are no longer veiled in impenetrable obscurity; but, whatever its origins, it has for some time been a subject of much fascination for modern scholars and logicians, although, like so many medieval theories, it seems to aim one stone at too many birds; it has to do equally with matters that we should prefer to distinguish as semantic and syntactic. In any case, there has been considerable recent discussion about whether or not a part of it, in particular the theory of personal supposition, constitutes a kind of analogue to modern quantification theory. This debate is interesting, not only in its own right, but also in exemplifying some of the problems involved in attempted comparisons between modern and medieval logical theories."

Notes

(*) [We should not let ourselves be hindered by the improprieties of words which cover up the truth; rather we should seek after the propriety of the truth which is hidden under diverse manners of speaking.]

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Trentman, J. A. [7] Ockham on Mental. *Mind*. 72 (1970): 586-590.

Trentman, J. A. [8] Vincent Ferrer on the Logician as Artifex Intellectualis. *Franciscan Studies*. 25 (1965): 322-337.

From: John A. Trentman, *Logic* in: Guttorm Fløistad and Raymond Klibansky (eds.), *Contemporary Philosophy. A New Survey. Vol. 6/2.*, Dordrecht: Kluwer 1990. pp. 805-819.

(to be continued...)

Latin Logicians before Eleventh Century

Cicero (106 BC 43 BC)

Lucius Apuleius of Madaura (c. 123/125 - 180)

Marius Victorinus (4th century)

Martianus Capella (5th century)

Anicius Manlius Severinus Boethius (c. 480 - 524 or 525)

Byzantine Logicians (from 6th to 12th century)

Alcuin of York (c. 735 - 804)

John Scottus Eriugena (c. 815 - 877)

Logicians of the Eleventh Century

Abbo of Fleury (c. 945 - 1004)

Anselm of Canterbury (1033 - 1109)

Islamic Logicians

Al Kindi (c. 801 - 873)

Al-Farabi (c. 872 - 950/951)

Avicenna (Ibn Sina) (c. 980 - 1037)

Averroes (Ibn Rushd) (1126 - 1198)

Logic and Grammar in Twelfth Century

The anonymous *Glosulae super Priscianum* (written between 1080 and 1150)

Roscelin (c. 1050 - c. 1125)

William of Champeaux (c. 1070 - 1122)

Garlandus Computista [Gerlandus of Besançon] (early 12th century)

Peter Abelard (1079 - 1142)

Adam Parvipontanus (or Adam of Balsham) (? - 1181)

Gilbert of Poitiers (after 1085 - 1154)

John of Salisbury (c. 1120 - 1180)

Logic and Grammar in Thirteenth Century

William of Sherwood (or Shyyreswood) (1200/5 - 1266/71)

Albert the Great (1200 - 1280)

Peter of Spain (d. 1277)

Robert Kilwardby 1215? - 1279)

Roger Bacon (1215 - 1294)

Henry of Ghent (c. 1217 - 1293)

Ramón Llull (c. 1233 - 1316)

Boethius of Dacia (fl. 1260-1270)

William Heytesbury (? - d. 1272/3)

Simon of Faversham (c. 1260 - 1306)

John Duns Scotus (c. 1266 - 1308)

Radulphus Brito (c. 1270 - 1320)

Logic and Grammar in Fourteenth Century

Pseudo-Scotus (14th century)

Thomas of Erfurt (first quarter of the 14th century)
Walter Burley (c. 1275 - 1344)
Peter Aureoli (c. 1280 - 1322)
Siger of Courtrai (c. 1283 - 1341)
William of Ockham (c. 1287 - 1347)
Robert Holkot (c. 1290 - 1349)
Thomas Bradwardine (c. 1290 - 1349)
John Buridan (c. 1300 - after 1358)
Gregory of Rimini (c. 1300 - 1358)
Nicholas of Autrecourt (c. 1300 - after 1358)
Albert of Saxony (c. 1316 - 1390)
John Wyclif (c. 1330 - 1384)
Marsilius of Inghen (c. 1340 - 1396)
Peter of Mantua (? - d. 1400)
Richard Billingham (fl. 1350 - 1360)
Vincent Ferrer (c. 1350 - 1420/1)
Peter of Ailly (c. 1350 - 1420)
Paul of Venice (c. 1369 - 1429)
Paul of Pergola (1380 - 1455)

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History of Logic

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Contents: Laurent Cesalli, Parwana Emamzadah, Frédéric Goubier: Presentation 7; Laurent Cesalli: Mentalism without Psychologism: Abelard's *Dicta* as Objective, Mental Entities 17; Ana MarÍa Mora-Márquez: The Dialectical Construction of a Notion of Truth in Some 13th-Century Masters of Arts 39; Danya Maslov: Francis of Meyronnes on the Ontological Status of the «First Complex Principle» 57; Claude Panaccio: Ockham's Commitment to Merely Possible Beings 81; Ernesto Perini-Santos: Wodeham against Chatton: The Second Part of the Way towards *Complexe significabilia* 99; Joël Biard: John Buridan and Natural Supposition: From the Semantics of Names to Atemporal Propositions 123; Graziana Ciola: The Void and the Chimera: Marsilius of Inghen on *Imaginabilia* 141; Magali Roques: Vincent Ferrer on Natural Supposition 161-177.

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   "1. The Intellectual Role and Context of Logic

   Our aim is to deal with medieval logic from the time when it first had full resources for systematic creative contributions onward. Even before that stage there had been logical research and important logicians. The most original of them, Abelard, achieved highly significant results despite having only a very fragmentary knowledge of ancient logic. However, we shall concentrate on the era when the ancient heritage was available and medieval logic was able to add something substantial to it, even to surpass it in some respects.

   A characterization such as this cannot be adequately expressed with years or by conventional period denominations; we hope though that the grounds for drawing boundaries will become clearer during the course of our story." (p. 11)

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    "Semantics in the Middle Ages is not precisely defined discipline, but it seems to be rather the complex of the reflections on the concept of the lingustic sign, its functions and classifications. Semantic reflection mainly emerged out from the ancient ideas concerning the problems of language and grammar.

    Let us make a suggestion, that the theory of properties of terms was the basis of the medieval semantics. Among the various properties, signification (*significatio*) was the most important property of terms, which were distinguished by the medievals. Thus, in this article, I would like to examine the basic semantic problems considered by the medieval authors, but mainly, I shall focus on the concept of signification. It seems, that solutions of semantic problems, which were offered by scholars, lead to the division of the medieval semantics tradition into the

two traditions, namely *via antiqua* and *via moderna* semantics. So, I would like to point out these main directions of the development of the semantic in the Middle Ages." (pp. 55-56)

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15. ———. 1962. "The Tradition of the Logical Topics: Aristotle to Ockham." *Journal of the History of Ideas* no. 23:307-323.
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    Supplementary Volume 17: *Aristotle And His Medieval Interpreters*.

    "In many fields within the history of medieval philosophy, the comparison of the Latin and Arabic Aristotelian commentary traditions must be concerned in large measure with the influence of Arabic authors, especially Avicenna and Averroes, upon their Latin successors. In the case of the commentary tradition on the Peri hermeneias, however, the question of influence plays little or no part in such comparative considerations. Yet the absence of a direct influence of Arabic philosophers upon their Latin counterparts does have its own peculiar advantages, since it provides an opportunity to explore the effects upon Aristotelian exegesis of the different linguistic backgrounds of Arabic and Latin authors. This is especially evident in the discussions in *Peri hermeneias* commentaries devoted to the relationship between logic and language, and to

the question of the differences between a logical and a grammatical analysis of linguistic phenomena. While both Arabic and Latin exegetes inherited, directly or indirectly, some of the same materials of the late Greek commentary tradition, and of course, some of the same issues inherent in Aristotle"s own text, Arabic and Latin authors filtered that same philosophical material through very different linguistic traditions, each with its own indigenous grammatical and linguistic theories. Given these circumstances, the very linguistic gulf separating the Latin and Arabic authors, which in many areas of philosophy remains merely incidental, becomes essential to the philosophical issues posed by certain parts of Aristotle"s *Peri hermeneias*." (p. 25, a note omitted)

17. Bochenski, Joseph. 1961. *A History of Formal Logic*. Notre Dame: Indiana University Press.

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    Part III: *The Scholastic Variety of Logic*, pp. 148-251.

18. Boehner, Philotheus. 1952. *Medieval Logic: An Outline of Its Development from 1250 to c.1400*. Manchester: Manchester University Press.

    "For those who have more than a passing acquaintance with modern logic, it is an accepted fact that this logic has made tremendous strides forward. It is likewise a fact-and one which current research continues to confirm-that these new developments have deviated far less from the logic of the 13th and 14th centuries than from that of our neoscholastic textbooks. This present study in the elements and systems of scholastic logic should make this evident.

    And while, in the space of this relatively short work, it is impossible to do full justice to the subject of scholastic logic, the several samples and selections we have made should make it clear that it is far easier to compare modern logic with that of the scholastics than with that of the neoscholastics.

For, in the latter case, there is often no basis for comparison.

Among the elements shared in varying degrees by genuinely scholastic logic and modern logic, there is one in particular that brings them in close proximity and facilitates a comparison. It is the character of formality, conserved in a much purer form in scholastic logic than in its neo-scholastic counterpart. The real reason why certain neo-scholastics are averse to the "formalism" of modern logic is to be found precisely in the non-scholastic elements of their neo-scholastic logic." (*Introduction,* pp. XIII-XIV, a note omitted)

(...)

"By *scholastic logic* we refer to the logic taught during the 13th, 14th and 15th centuries in the Latin Occident, which has come down to us in various compendia, commentaries and other writings. Only a small fraction of this logic is accessible in modern editions. The bulk still remains hidden in old editions, incunabula and manuscripts. For the sake of convenience, we have begun with the 13th century, though this does not imply that the logic of the 12th-century scholastics was of no importance. We have also excluded the work of Ramond Lull, since we have to confess we are not sufficiently familiar with his peculiar logic to

deal with it adequately, though we suspect that it is much better than the usual evaluation by historians would lead us to believe." (*Introduction,* pp. XIV_XV)

19. Boh, Ivan. 1977. "The "conditionatim"-clause: one of the problems of existential import in the history of logic." *Notre Dame Journal of Formal Logic* no. 18:459-466.

"An attempt is made to provide a "missing link" in the history of the problem of existential import of standard categorical propositions by examining the late-medieval compilation "Parvulus logice" and finding there a promising direction toward modern interpretation. The anonymous author realizes that an existential assumption must be made for affirmative propositions to secure the validity of A I, but curiously he adds the assumption conditionally rather than conjunctively and this

not only for "A" but also for "I" propositions. he latter insistence leads to unacceptable consequences, even if one accepts the medieval maxim that negative propositions have no existential import; but dropping the "conditionatim"-clause requirement for "I" propositions and insisting on it for "A" propositions only would yield precisely the "modern" Square."

20. ———. 1984. "Epistemic and Alethic Iteration in Later Medieval Logic." *Philosophia Naturalis* no. 24:492-506.

21. ———. 1993. *Epistemic Logic in the Later Middle Ages*. New York: Routledge.

"Epilogue: A summary and an assessment of medieval achievements in epistemic logic

Given the data presented in the ten chapters, there should be no doubt that the medievals discerned accurately the special character of problems of a epistemic/doxastic nature. We have encountered very

early in our investigation: (i) an open admission of non-standard modes by Anselm, and later on by Burley and Ockham; (ii) two distinctly diverse characterizations of consequence-relation, one in terms of

alethic modal conditions, the other in terms of understandings, signification, conceptual involution, and *illatio* - beginning with Garland and Abelard, continuing through the ages, and ending (?) with the predominance of the epistemic as opposed to alethic characterization; (iii) a search for firm, demonstrative knowledge of necessary propositions by Grosseteste, but leading to a distinction of various senses of scire and eventually leading to a search of necessary and sufficient conditions for knowing contingent propositions by the authors of de scire et dubitare literature, such as Kilvington and Heytesbury; (iv) a search - especially among the early theologians such as Anselm, Albert the Great, Thomas Aquinas, etc. - for the proper conceptual relationship of knowing, believing, having conviction, having faith, and truth; (v) a discovery of de dicto and de re constructions (e.g. necessity of consequence and necessity of the consequent), eventually including those

constructions caused by verbs signifying acts of mind and will; (vi) discovery of special, Gettier-like problems and epistemic paradoxes; (vii) a growing awareness of the pragmatic dimension of language involving a reference to an epistemic subject; (viii) a growing recognition that some inferences depend for their validity or acceptability on epistemic/doxastic functors, even though propositional and quantificational or syllogistic principles are, of course, in full force; (ix) an attempt in the later fourteenth century (e.g. Strode, Peter of Mantua) to systematize the most general principles of epistemic logic and to co-ordinate them with alethic and obligational principles, and of course with the principles of propositional logic; (x) a practice quite common in Burley, based on the distinction between the principal and the derived rules of consequence, to prove certain rules by appealing to other, more basic rules, and now extended (e.g. by Strode and Frachantian) to rules ofa epistemic/doxastic sort (...)" (pp. 127-128)

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Abstract: "The notion of 'symbol' in Eriugena's writing is far from clear. It has an ambiguous semantic connection with other terms such as 'signification', 'figure', 'allegory', 'veil', 'agalma', 'form', 'shadow', 'mystery' and so on. This paper aims to explore into the origins of such a semantic ambiguity, already present in the texts of the pseudo-Dionysian corpus which Eriugena translated and commented upon. In the probable Neoplatonic sources of this corpus, the Greek term *symbolon* shares some aspects of its meaning with other words inherited from the ancient tradition, such as *synthēma*, *eikōn, homoiotēs*. Some of them, such as *eikōn* and *homoiotē*s, belong to the field of images and are associated with linguistic semantics in the Neoplatonic commentaries not only to Plato but also to Aristotle's logical works. Among the late ancient Neoplatonists, particular attention is paid to Proclus and to his use of the term agalma. In fact, the textual history of this word seems to be a privileged perspective from which to reconstruct

the Neoplatonic semantic blending of symbol and image, as well as the main role played by linguistic issues in this conflation."

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27. Broadie, Alexander. 1993. *Introduction to Medieval Logic*. Oxford: Clarendon Press.

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"In a comprehensive guide it would be necessary to deal with the logic, and therefore with the logicians, of many centuries, perhaps starting with Abelard (1079-1142); perhaps even, and with good reason, starting with Boethius (c. 480-524). For despite the fact that Boethius belonged to the late Roman Empire rather than to the Middle Ages his writings, which include not only the *Consolation of Philosophy* but also translations of most of the logical works by Aristotle and commentaries on a number of books, are, for logicians no less than for philosophers, a crucial bridge between the ancient world and the medieval.

However, this Introduction is not intended as a survey of ten centuries. I have chosen instead to attend mainly to the period from the mid-thirteenth century to the earlier part of the fifteenth. For the purposes of an Introduction a different period could no doubt have been chosen, but the period just mentioned is one of intense activity by men with as strong a claim as any to being included among the greatest of the medieval logicians. Certainly that period yielded an extraordinarily rich harvest. The logicians upon whom I shall be drawing most heavily are Peter of Spain, Walter Burley, William Ockham, John Buridan, Albert of Saxony, and Paul of Venice. But my net will be cast sufficiently wide to take in the writings of earlier logicians and also of later ones, even considerably later ones. For in the decades before the Reformation important discoveries were being made in logic by men who were very much part of the medieval logical world." *(ntroduction*, pp. 4-5, notes omitted)

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    Abstract: "Discrete supposition occurs whenever a discrete term, such as 'Socrates', is the subject of a given proposition. I propose to examine this apparently simple notion. I shall draw

attention to the incongruity, within a general theory of the semantic variation of terms in a propositional context, of the notion of discrete supposition, in which a term usually has a single semantic correlate. The incongruity comes to the fore In those treatises that attempt to describe discrete supposition as a sort of personal supposition, although the same term cannot be in simple supposition in another propositional context, because it has no significate distinct from its suppositum. This shows a fundamental link between common signification, simple supposition and predicability, three notions that rely on the existence of a significate distinct and Independent from the suppositum of the term. The connection is to be seen especially in William of Sherwood's *Introductiones*, the only author of a terminist *Summa* who recognizes the existence of simple supposition for discrete terms."

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    Abstract: "The rediscovery of Aristotle's works on syllogisms in the Latin world, especially the *Sophistici Elenchi* and then the *Prior Analytics,* gave rise to sophisticated views on the nature of syllogistic form and syllogistic matter in the thirteenth century. It led to debates on the ontology of the syllogism as studied in the *Prior Analytics,* i.e. the syllogism made of letters and the four logical constants a/e/i/o, with deep consequences on the definition of logic as a universal method for all sciences and as a science itself."

    See alsdo the *Erratum*, in *Logica Universalis* 9 (2015), p. 279.

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    Abstract: "This paper seeks to address the problem of the cultural impact of logic in Latin and Hebrew contexts by offering a social and spatialized history of logic during the 13th century. This approach is liable to put an end to the idea that medieval Latin logical culture was a monolithic reality, targeted by the umbrella term of "Latin scholasticism". The pluralization

of Latin educational cultures is explored in terms of history of disciplines, places of knowledge, periods, institutions, self-representation, social value, educational impact and practitioners. The first part of this paper shows how the diffusion of Aristotelian cultures was quite limited in Christian Europe before the beginning of the 13th century, and remained so untill the end of the 13th cent. The second part specifically turns to the history of logic. A first section offers an overview of the first developments of Hebrew logic. The next one describes the weaknesses of the teaching of logic in Latin southern Europe. The third section highlights some original features of the teaching of the *Tractatus*. The last section shows how the development of Dominican 'schools of logic' in southern provinces contributed to a first 'meridionalization' of the Aristotelian logical culture. The conclusion suggests possible revisions of some aspects of the standard narrative about the history of Latin-Hebrew interactions in the field of logic."

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    Abstract: "In this article, after some thoughts on medieval logic and teaching, we present Thomas Murner's text, *Logica*

memorativa, showing some of his mnemonic strategies for the student to learn logic quickly. Murner offers a type of “flash cards” that illustrate much of the teaching of logic at the beginning of the sixteenth century. The first impression is visual, because the cards do not contain words that illustrate their content. Murner’s exposition rests on analogies between logic themes that are explained and the visual images presented."

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    Abstract: "Walter Burley (1275-c.1344) and John Wyclif (1328-1384) follow two clearly stated doctrinal options: on the one hand, they are realists and, on the other, they defend a correspondence theory of truth that involves specifi c correlates for true propositions, in short: truth-makers. Both characteristics are interdependent: such a conception of truth requires a certain kind of ontology. Th is study shows that a) in their explanation of what it means for a proposition to be true, Burley and Wyclif both develop what we could call a theory of intentionality in order to explain the relation that must obtain between the human mind and the truth-makers, and b) that their explanations reach back to Augustine, more precisely to his theory of ocular vision as exposed in the *De trinitate* IX as well as to his conception of ideas found in the *Quaestio de ideis*."

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40. ———. 2010. "What is Medieval Logic After All? Towards a Scientific Use of Natural Language." *Bulletin de philosophie médiévale* no. 52:49-53.

41. ———. 2010. "From Natural Thinking to Scientific Reasoning: Concepts of *logica naturalis* and *logica artificialis* in Late-

Medieval and Early-Modern Thought." *Bulletin de philosophie médiévale* no. 52:81-116.

42. Courternay, William J. 1987. "The Early Stages in the Introduction of Oxford Logic into Italy." In *Gilbert de Poitiers et ses contemporains. Aux origines de la Logica Modernorum*, edited by Jolivet, Jean and de Libera, Alain, 13-32. Napoli: Bibliopolis.

43. Cross, Richard, and Paasch, J. T., eds. 2021. *The Routledge Companion to Medieval Philosophy*. New York: Routledge.

    Contents: Part I: Language and Logic 3; 1. Nathaniel E. Bulthuis: Propositions 5; 2. Allan Bäck: Qualification 19; 3. Sara L. Uckelman: Kinds of Argument 31; 4. Spencer C. Johnston: Modal Logic 43; 5. J.T. Paasch: Logic Games 57-76.

44. De Freitas, Antonio. 2002. "Dark Age (But Not Obscure) Logic. A Brief Excursion." *Boletín de la Asociación Matemàtica Venezolana* no. 9:5-14.

    "1 Introduction

    The 20th century has witnessed a vertiginous development of logic: a discipline that traditionally belonged to the domain of philosophy, but whose recent development is due to the use of mathematics as its meta-language. Considered as one of the greatest of Greek gifts to humanity, logic is now essential as the foundational model for Computer Science. Some scholars assimilate Mathematics and Logic, some think of Logic as part of Mathematics, others include it in Philosophy, and so on.

    When we were planning this special volume of the Boletín de la Asociación Matemàtica Venezolana, an article on Mediaeval Logic seemed to be appropriate.

    This paper is an outline of that field. We follow tradition in starting this history with Aristotle, although pre-Aristotelian logic is of considerable interest, if somewhat controversial. Following Aristotle, we take a brief excursion through Roman and Early Mediaeval logic. We stop in the 13th century AD because of the influence of the work of this period on the 20th century. The natural continuation of Mediaeval Logic occurred

in the 1960's when logicians started to base new developments on translated Mediaeval texts. Two further articles dedicated to History of logic will be needed to trace these developments.

This paper, then, is an outline of Mediaeval Logic, its origins and its future."

45. de Rijk, Lambertus Marie, and Braakhuis, Henk A.G., eds. 1987. *Logos and Pragma. Essays on the Philosophy of Language in Honour of Professor Gabriel Nuchelmans*. Nijmegen: Ingenium Publishers.

    Contents: Introduction VI; List of Professor Nuchelmans' publications 1950 - 1987 XI; W.E. Abraham: The Strategy of Plato's Philosophy of Language 1; L.M. de Rijk: The Anatomy of the Proposition: Logos and Pragma in Plato and Aristotle 27; N. Kretzmann: Boethius and the Truth about Tomorrow's Sea Battle 63; H.A.G. Braakhuis: The Views of Peter of Spain on Propositional Composition 99; E.P. Bos: The Theory of the Proposition According to John Duns Scotus' Two Commentaries on Aristotle's *Perihermeneias* 121; E. Stump: Consequences in Ockham's *Summa Logicae* and Their Relation to Syllogism, Topics and Insolubles 141;

    K.H. Tachau: Wodeham, Crathorn and Holcot: the Development of the *Complexe significabile* 161; E.J. Ashworth: Jacobus Naveros (fl. ca. 1533) on the Question: 'Do Spoken Words Signify Concepts or Things?' 189;

    E.M. Barth: Contradictions and Symmetry Rage in the Logical Interregnum. An Essay in Empirical Logic 215; E. Morscher: Propositions and All That: Ontological and Epistemological Reflections 241; M.F. Fresco: Ober das Verhiiltnis von Sprache, Denken undWelt. Ontologische Fragen unter besondere Beriicksichtigung der Philosophic von J A. der Mouw 259; Bibliography 281; Index of Passages Quoted or Referred to 299; Index of Names 311; Index of Concepts and Terms 317-334.

46. Dumitriu, Anton. 1977. *History of Logic. Volume II*. Tunbridge Wells: Abacus Press.

    Contents: Foreword V;

Part IV: Scholastic logic

Chapter XIV: Scholasticism 3; Chapter XV: The formation of the Scholastic logic 11; Chapter XVI: The place of logic among the other sciences 50; Chapter XVII: The problem of universals 62; Chapter XVIII: Scholastic terminology 100; Chapter XIX: Parva logicalia 124; Chapter XX: The properties of terms 130; Chapter XXI: Syncategoremata 142; Chapter XXII: The theory of consequences 151; Chapter XXIII: Insolubilia 162; Chapter XXIV: General conclusion on Scholastic logic 173;

Part V: Renaissance logic

Chapter XXV: The Renaissance 183; Chapter XXVI: Renaissance Aristotelianism 189; Chapter XXVII: The logic of Humanism 220;

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"Foreword

The first volume of this book showed the development of the two great logical systems of Aristotle and Chrysippus. In this volume we look at the third great system of logic, that of the Scholastics. They studied the teachings of the Greeks, of the Arab and Jewish commentators, and from them evolved a *logica perennis* based on a single, well-founded philosophical doctrine. We shall see the crystallization of Scholastic logic into a well defined system, the contributions of the Scholastic logicians and the subsequent decline of the philosophical and logical doctrines to mere didactics.

At the dawn of the Renaissance the opponents of Scholastic logic were searching for new logical systems. But the Renaissance failed to achieve a unitary doctrine which could provide an adequate critique of the old logic as well as an independent, valid, logical system. The Renaissance produced new ideas and trends which though interesting failed to make any major contribution to logic comparable to other great conceptions such as Scholasticism.

Both periods have been studied in the past, but not with special reference to the logic of the period. The historian has very great

problems in his attempt to sort and classify the enormous amount of material available. In order to deal with this material synthetically and avoid repetition we have adopted a synchronous and diachronous approach.

47. Ebbesen, Sten. 1979. "The Dead Man Is Alive." *Synthese* no. 40:43-70.

48. ———. 1981. *Commentators and Commentaries on Aristotle's Sophistici Elenchi. A Study of Post-Aristotelian Ancient and Medieval Writings on Fallacies*. Leiden: Brill.

    Vol. I: The Greek Tradition; Vol. 2: Greek Texts and Fragments of the Latin Translation of "Alexander's" Commentary; Vol. 3: Appendices, Danish Summary, Indices.

49. ———. 1982. "Ancient Scholastic Logic as the Source of Medieval Scholastic Logic." In *The Cambridge History of Later Medieval Philosophy from the Rediscovery of Aristotle to the Disintegration of Scholasticism 1100-1600*, edited by Kretzmann, Norman, Jenny, Anthony P. and Pinborg, Jan, 101-127. Cambridge: Cambridge University Press.

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51. ———. 1992. "Western and Byzantine Approaches to Logic." *Cahiers de l'Institut du Moyen-Âge Grec et Latin* no. 62:167-178.

52. ———. 1992. "What Must on Have an Opinion About." *Vivarium* no. 30:62-79.

53. ———. 1993. "The theory of *loci* in Antiquity and the Middle Ages." In *Argumentationstheorie. Scholastische Forschungen zu den logischen und semantischen Regeln korrekten Folgerns*, edited by Jacobi, Klaus, 15-40. Leiden: Brill.

54. ———. 1996. "Greek and Latin Medieval Logic." *Cahiers de l'Institut du Moyen-Âge Grec et Latin* no. 66:67-95.

55. ———. 1998. "Logic — Philosophy of Language and a Whetstone for the Philosopher's Linguistic Tools." In *Was ist Philosophie im Mittelalter? / Qu'est-ce que la philosophie au Moyen Age? / What is Philosophy in the Middle Ages?*, edited by Aertsen, Jan A. and Speer, Andreas, 38-47. Berlin: Walter de Gruyter.

    "Introduction

    To me it is an article of faith that medieval logic is interesting to people of our times, but since some people disagree and even sneer at „logische Quisquillen" I shall try to buttress my faith with reasons. I choose to interpret ‚medieval' as „medieval Latin", for it is hard to make statements that are valid for both the Latin and the Greek tradition, and I know too little about the Arabic and Hebrew material.

    I will argue that medieval logic is interesting

    1. — because it combines a strong activity on the theoretical level with application in scholarly argumentation.

    2. — because understanding the logic is a presupposition for understanding any medieval theoretical writings at all. So anyone who thinks that medieval philosophy or theology is interesting had better take an interest in logic.

    3. — because it is under-explored and so provides surprises for the explorer.

    4. — because it deals with many problems that are easily identifiable with problems of present-day-concern, but often views things from different angles or in different contexts.

    5. — because it deals so thoroughly with ambiguity." (p. 38)

56. ———. 2001. "The way fallacies were treated in scholastic Logic." *Cahiers de l'Institut du Moyen-Âge Grec et Latin* no. 55:107-134.

57. ———. 2002. "Greek-Latin Philosophical Interaction." In *Byzantine Philosophy and Its Ancient Sources*, edited by

Ieradakonou, Katerina, 15-30. Oxford: Clarendon Press.

Reprinted as Chapter 2 in: *Collected Essays of Sten Ebbesen Volume 1: Greek-Latin Philosophical Interaction,* Aldershot: Ashgate, pp. 7-20.

58. ———. 2007. "The Traditions of Ancient Logic-cum-Grammar in the Middle Ages—What's the Problem?" In *The Many Roots of Medieval Logic: The Aristotelian and the Non-Aristotelian Traditions*, edited by Marenbon, John, 136-152. Leiden: Brill.

Abstract: "Clashes between bits of non-homogeneous theories inherited from antiquity were an important factor in the formation of medieval theories in logic and grammar, but the traditional categories of Aristotelianism, Stoicism and Neoplatonism are not quite adequate to describe the situation. Neoplatonism is almost irrelevant in logic and grammar, while there might be reasons to introduce a new category, LAS = Late Ancient Standard, with two branches: (1) logical LAS = Aristotle + Boethius, and (2) grammatical LAS = Stoics &c. → Apollonius → Priscian."

59. ———. 2008. *Greek-Latin Philosophical Interaction*. Aldershot: Ashgate.

Collected Essays of Sten Ebbesen Volume 1.

Contents: Preface and Acknowldgements VII; The Greek under the Latin and the Latin under the Greek 1; Greek-Latin philosophical interaction 7; The odyssey of semantics from the Stoa to Buridan 21; The chimera's diary – edited by Sten Ebbesen 35; Where were the stoics in the late Middle Ages?; Theories of language in the Hellenistic age and in the 12th and 13th centuries 59; Late-ancient ancestors of Medieval philosophical commentaries 79; Boethius on Aristotle 107; Boethius on the metaphysics of words 115; Western and Byzantine approaches to logic 129; Greek and Latin medieval logic 137; Philoponus, 'Alexander' and the origins of medieval logic 157; Analysing syllogisms or anonymous Aurelianensis III – the (presumably) earliest extant Latin commentary on the Prior analytics, and its Greek model 171; Fragments of 'Alexander's' commentaries on Analytica Posteriora and

Sophistici Elenchi 187; Bibliography 203; Index of Manuscripts 221; Index of Names 223.

60. ———. 2009. *Topics in Latin Philosophy from the 12th-14th Centuries*. Aldershot: Ashgate.

    Collected Essays of Sten Ebbesen Volume 2.

    Contents: Foreword VII; Early supposition theory (12th–13th centuries) 1; The present King of France wears hypothetical shoes with categorical laces 15; OXYNAT: a theory about the origin of British logic 31; The semantics of the Trinity according to Stephen Langton and Andrew Sunesen 43; What must one have an opinion about 69; Porretaneans on propositions 85; Albert (the Great?)'s companion to the *Organon* 95; Concrete accidental terms: late 13th-century debates about problems relating to such terms as 'album' 109; Boethius of Dacia: science is a serious game 153; The man who loved every. Boethius of Dacia on logic and metaphysics 163; Radulphus Brito. The last of the great arts masters. Or: philosophy and freedom 179; Radulphus Brito on the Metaphysics 197; Proof and its limits according to Buridan *Summulae* 8 209; Bibliography 221; Index of Manuscripts 235; Index of Names 237.

61. ———. 2018. "Modi significandi in logic and grammar." In *Modern Views of Medieval Logic*, edited by Kann, Christoph, Löewe, Benedikt, Rode, Christian and Uckelman, Sara L. Leuven: Peeters.

62. Ebbesen, Sten, and Friedman, Russell, eds. 1999. *Medieval Analyses in Language and Cognition*. Copenhagen: Royal Danish Academy of Sciences and Letters.

    Contents: List of Abbreviations 6; Sten Ebbesen: Opening Speech: The Copenhagen School of Medieval Philosophy 7;

    I. Modism, Sophismata, and Consequences

    C.H. Kneepkens: *Significatio generalis* and *significatio specialis*. Notes on Nicholas of Paris' Contribution to Early Thirteenth-Century Linguistic Thought 17; Irène Rosier-Catach: Modisme, pré-modisme, proto-modisme: vers une

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IV. The Buridanian Tradition

Gyula Klima: Buridan's Logic and the Ontology of Modes 473; Christoph Flüeler: From Oral Lecture to Written Commentaries: John Buridan's Commentaries on Aristotle's *Metaphysics* 497; E.P. Bos: Thuo of Viborg and Marsilius of Inghen 523; Niels Jørgen Green-Pedersen: Nicholas Drukken de Dacia in Paris c. 1340 541-549.

63. Eco, Umberto. 1984. "Signification and Denotation from Boethius to Ockham." *Franciscan Studies* no. 44:1-29.

64. ———. 1989. "Denotation." In *On the Medieval Theory of Signs*, edited by Eco, Umberto and Marmo, Costantino, 43-77. Philadelphia: Benjamins.

    Translated in Italian as Appendix 1 to: U. Eco, *Kant e l'ornitorinco,* Milano: Bompiani 1997.

65. Edwards, Sandra. 1977. "Some medieval views on identity." *The New Scholasticism* no. 51:62-74.

    "The purpose of the article is to examine and reconstruct two contrasting medieval views of identity and non-identity. First the relativist positions of Aquinas and Scotus are examined and an attempt is made to reconstruct them to accommodate relativization to Leibniz's law via different levels of discernibility and indiscernibility. Next the absolutist position of Ockham is examined along with his reasons for rejecting relativization. An attempt is made to show how he could handle the problems of his predecessors through the doctrine of supposition of terms rather than relativization. Ockham's view is briefly compared with some twentieth century absolutist positions."

66. Fink, Jakob Leth, Hansen, Heine, and Mora-Marquez, Ana María eds. 2013. *Logic and Language in the Middle Ages: A Volume in Honour of Sten Ebbesen*. Leiden: Brill.

    Contents: List of Contributors XI; Preface XIII-XIV; Sten Ebbesen: Introduction 1;

    1. John Magee: Preliminary Observations on the Textual Tradition of Boethius' First *Peri Hermeneias* Commentary 13; 2. Yukio Iwakuma: Alberic of Paris on Mont Ste Geneviève

against Peter Abelard 27; 3.John Marenbon: Gilbert of Poitiers's Contextual Theory of Meaning and the Hermeneutics of Secrecy 49; 4. Christopher J. Martin: Instantiae and the Parisian Schools 65; 5. Jakob L. Fink: Tempting Moves: Anonymus Cantabrigiensis on Peirastic Dialectic 85; 6. Luisa Valente: Philosophers and Other Kinds of Human Beings according to Peter Abelard and John of Salisbury 105; 7. Katerina Ierodiakonou: A Logical Joust in Nikephoros Blemmydes' Autobiography 125; 8. Heine Hansen: Strange Finds, or Nicholas of Paris on Relations 139; 9. Alessandro D. Conti: Robert Kilwardby and Albert the Great on *Praedicamenta* and *Praedicabilia* 155; 10. Paul Thom: *Culuerbinus somnians* 171; 11. Christina Thomsen Thörnqvist: The 'Anonymus Aurelianensis III' and Robert Kilwardby on the *Prior Analytics* 185; 12. Mary Sirridge and Karin Margareta Fredborg: *Demonstratio ad oculum* and *Demonstratio ad intellectum*: Pronouns in Ps.-Jordan and Robert Kilwardby 199; 13. C. H. Kneepkens: A Note on *articulatio* and University Grammar 221; 14. Fabrizio Amerini:: Explanation and Definition in Thomas Aquinas' Commentary on Aristotle's *Metaphysics* 239; 15. E. Jennifer Ashworth: Aquinas, Scotus and Others on Naming, Knowing, and the Origin of Language 257; 16. Simo Knuuttila:: Concrete Accidental Terms 273; 17. Paloma Pérez-Ilzarbe:: *Socrates desinit esse non desinendo esse*: Limit-decision problems in Peter of Auvergne 287; 18. Laurent Cesalli, Alain de Libera and Frédéric Goubier: Does Loving Every Mean Loving Every Every, Even Non-existent Ones? Distribution and Universals in the *Opus puerorum* 305; 19. Silvia Donati: *Apparentia* and *modi essendi* in Radulphus Brito's Doctrine of the Concepts: The Concept of Being 337; 20. Ana María Mora-Márquez: Radulphus Brito on Common Names, Concepts and Things 357; 21. Costantino Marmo: Radulphus Brito on Relations in his Questions on the

Sentences 373; 22. Calvin G. Normore: Buridanian Possibilities 389; 23. Egbert P. Bos: Marsilius of Inghen on the Principle of Non-Contradiction 403; 24. Roberto Lambertini:: Logic, Language and Medieval Political Thought 419; Bibliography

433; Complete Bibliography of Sten Ebbesen 455; Index of Names 469; Index of Manuscripts 475-477.

67. Floistad, Guttorm, ed. 1990. *Contemporary Philosophy. Vol. 6.1: Philosophy and Science in the Middle Ages*. Dordrecht: Kluwer.

    See the Sections: *Language, Logic and Science*: Jan Pinborg: Grammar 779; Irène Rosier: Grammaire 783; John A. Trentman: Logic 805; Christopher J. Martin: Research in early Medieval Logic 821; Miche Lemoine: La lexicographie 829-835.

68. Fredborg, Karin Margareta. 2006. "Rhetoric and Dialectic." In *The Rhetoric of Cicero in its Medieval and Early Renaissance Commentary Tradition*, edited by Cox, Virginia and Ward, John O., 165-192. Leiden: Brill.

69. Gabbay, Dov, and Woods, John, eds. 2008. *Mediaeval and Renaissance Logic*. Amsterdam: Elsevier.

    Handbook of the History of Logic: vol. 2.

    Contents: Dov M. Gabbay and John Woods: Preface VII; List of Contributors IX; John Marenbon: Logic before 1100: the Latin tradition 1; John Marenbon: Logic at the Turn of the Twelfth Century 65; Ian Wilks: Peter Abelard and his contemporaries 83; Terence Parsons: The development of Supposition Theory in the later 12th through 14th centuries 157; Henrik Lagerlund: The assimilation of Aristotelian and Arabic logic up to the later thirteenth century 281; Ria van der Lecq: Logic and theories of meaning in the late 13th and early 14th century including the Modistae 347; Gyula Klima: The nominalist semantic of Ockham and Buridan: a 'rational reconstruction' 389; Catarina Dutilh Novaes: Logic in the 14th century after Ockham 433; Simo Knuuttila: Medieval modal theories and modal logic 505; Mikko Yrjönsuuri: Treatments of the paradoxes of self-reference 579; E. Jennifer Ashworth: Developments in the fifteenth and sixteenth centuries 609; Peter Dvorák: Relational logic of Juan Caramuel 645; Russell Wahl: Port-Royal: the stirrings of modernity 667; index 701-715.

70. Gazziero, Leone. 2012. "The Latin “Third Man”. A Survey and Edition of Texts from the XIIIth Century." *Cahiers de l’Institut*

du Moyen Age Grec et Latin no. 81:11-93.

71. ———. 2016. ""Utrum figura dictionis sit fallacia in dictione. et quod non videtur". A Taxonomic Puzzle or how Medieval Logicians Came to Account for an Odd Question by an Impossible Answer." In *Formal Approaches and Natural Language in Medieval Logic*, edited by de Libera, Alain, Cesalli, Laurent and Goubier, Frédéric, 239-267. Barcelona - Roma: Fédération Internationale des Instituts d'Etudes Médiévales.

72. Geach, Peter Thomas. 1962. *Reference and Generality: An Examination of Some Medieval and Modern Theories*. Ithaca: Cornell University Press.

    Second emended editon 1968; third revised and expanded edition 1980.

    "The extension I am giving to the' term "medieval logic" is practically the same as that which Moody gives it in his *Truth and Consequence in Mediaeval Logic*; namely, the logic taught in the Arts faculties at Oxford and Paris, which flourished particularly in the thirteenth and fourteenth centuries. I shall also cite the writings of Aquinas, both as evidence for the doctrine of the contemporary formal logicians (*sophistae*) and also because, though Aquinas was not a logician *ex professo* and never wrote a *Summa logicae*, his views on the philosophy of logic are often of the highest value.

    A principle that I have repeatedly used to eliminate false theories of reference is the principle that the reference of an expression E must be specifiable in some way that does not involve first determining whether the proposition in which E occurs is true. The first explicit statement of this principle that I have found is in Buridan's *Sophismata* (c. vi, sophisma v); the principle might suitably be called Buridan's Law." (p. 10)

73. ———. 1968. *A History of the Corruptions of Logic: An Inaugural Lecture*. Leeds: Leeds University Press.

    Delivered before the University of Leeds on 22 January 1968; reprinted in: *Logic Matters*, Oxford: Basil Blackwell, 1972, chapter 1.5 pp. 44-61.

74. Germann, Nadja, ed. 2021. *The Origin and Nature of Language and Logic: Perspectives in Medieval Islamic, Jewish, and Christian Thought*. Turnhout: Brepols.

Contents: Nadja Germann and Steven Harvey: Introduction VII-XIII;

1. The Origina nd Nature of Human Language

Pierre Larcher: « Et Allah apprit à Adam tous les noms… » (*Cor*., 2, 31) : L'Origine du langage dans la pensée islamique 3; Warren Zev Harvey: Three Medieval Jewish Philosophers on the Hebrew Language 29; Aviram Ravitsky: Maimonides' Linguistic Thought and Its Greek, Islamic, and Jewish Background 45; Beata Sheyhatovitch: The Notion of *Waḍʿ* in *Sharḥ al-Kāfiya* by Raḍī al-Dīn al-Astarābādhī 63; Josef Stern: Profayt Duran's *Ma'aseh Efod*: The Philosophical Grammar of a Converso 97;

2. Non-human and non-verbal communication

Ziad Bou Akl: Dieu comme locuteur : le *bayān* et son report dans les *uṣūl al-fiqh* 149; Luis Xavier López Farjeat: The 'Language' of Non-Human Animals in al-Fārābī and Avicenna 173; Thérèse-Anne Druart: What Does Music Have To Do With Language, Logic, and Rulership? Al-Fārābī's Answer 193;

3. The Nature, Kinds, and Limits of Logic

Laurent Cesalli: *De quibus est logica* ? La position de Gauthier Burley dans le débat médiéval 213; Fouad Ben Ahmed: Ibn Ṭumlūs on Dialectical Reasoning: The Extent of His Reliance on al-Fārābī and Averroes 245; Catherine Köning-Pralong: Roger Bacon. Rhétorique et sens littéral 277; Peter S. Eardley: Rhetoric and the Epistemic Status of Theology in the Late-Thirteenth Century 297; Yehuda Halper: Abraham Bibago on the Logic of Divine Science: *Metaphysics* α and the Legend of the Pardes 323;

4. The Significance of Language for Logic

Pasquale Porro: Keeping Language under Control: Late-Antique and Medieval Interpretations of the First Chapter of

Aristotle's *Categories* 349; Margaret Cameron: The Constraints of Nature(s): Abelard on Modality, Understanding and Linguistic Meaning 369; Charles H. Manekin: Logic, Linguistic Custom, and the Quantification of the Predicate in Gersonides 387;

Index of Manuscripts 409; Index of Names 411-422.

75. Goubier, Frédéric, and Pouscoulous, Nausicaa. 2011. "*Virtus sermonis* and the semantics-pragmatics distinction." *Vivarium* no. 49:214-239.

    Abstract: "Late medieval theories of language and contemporary philosophy of language have been compared on numerous occasions. Here, we would like to compare two debates: that between the nature of *virtus sermonis*, on the medieval side—focusing on a statute published in 1340 by the Faculty of Arts of the University of Paris and its opponents—and, on the contemporary side, the on-going discussion on the semantics-pragmatics distinction and how the truth-value of an utterance should be established. Both the statute and Gricean pragmatics insist on the importance of taking into account the speaker's intention and the context in establishing the signification of an utterance.

    Yet, upon closer examination, a more convincing parallel might be drawn between the statute's position and current theories in truth-conditional pragmatics. Focusing on a few aspects of the statute that seem to find a counterpart within contemporary pragmatics, we try to show how the issues they give rise to converge, but also diverge."

76. Goubier, Frédéric, and Rosier-Catach, Irène. 2020. "The *Trivium* in the 12th Century." In *A Companion to Twelfth-Century Schools*, edited by Giraud, Cédric, 141-179. Leiden: Brill.

    "2.2 Dialectics

    2.2.1 Major Hypotheses

    In the domain of logic, the leading figure in 12th-century historiography has long been Pierre Abelard. A revolutionary

thinker, he was able to draw from the materials of the *logica vetus* a logic, a semantic, a psychology, and a metaphysics of a sophistication that commands admiration. He also illustrates the importance of the interactions between grammar and dialectics, as well as the osmosis between theological issues and developments in logic. However, the first half of the century had other major figures, the great masters who gave birth to the "schools" mentioned above. As recent works have brought to light the importance of these schools, they have called into question another historiographical tendency that made this century a preparation for the next, a

moment of progressive and at times awkward elaboration of the "logic of the moderns" *(logica modernorum*), a masterpiece of formal university semantics that appeared at the turn of the 13th century. The 12th century was, more than any other, a "linguist" century, in which the language arts developed in a symbiotic manner, permeated philosophical reflection, equipped the theological issues, which in turn enriched them with new perspectives, and honed the theoretical instruments. Grammarians, logicians, theologians, the authors of the 12th century and their schools offered a unique moment of reflection on language with its own personality and consistency." (pp. 154-155)

77. Gracia, Jorge J. E. 1975. "Propositions as premises of syllogisms in medieval logic." *Notre Dame Journal of Formal Logic* no. 16:545-547.

78. Green-Pedersen, Niels Jørgen. 1984. *The Tradition of the Topics in the Middle Ages. The Commentaries on Aristotle's and Boethius' 'Topics'*. Münich: Philosophia Verlag.

79. ———. 1987. "The Topics in Medieval Logic." *Argumentation* no. 1:407-417.

    Abstract: "The topics is a theory of argumentation based upon topoi or in Latin loci. The medieval logicians used works by Aristotle and Boethius as their sources for this doctrine, but they developed it in a rather original way. The topics became a higher-level analysis of arguments which are non-valid from a purely formal point of view, but where it is none the less

legitimate to infer the conclusion from the premiss(es). In this connection the topics give rise to a number of discussions about the form and the matter of arguments. Further the topic contribute to the elaboration of the important doctrine of the second intentions, i.e. higher-level concepts of the particular things. In some respects the topics may be said to form a link between formal and informal logic. The topics vanished as a part of logic at the end of the Middle Ages, perhaps because the medieval logicians never got rid of Boethius' claim to have compiled a complete list of the loci, which was an unlucky one. The topics does not have an exact parallel in modern formal logic, but some reflections on non-formal argumentation by recent authors contain certain resemblances to it."

80. Grellard, Christophe. 2007. "Scepticism, Demonstration and the Infinite Regress Argument (Nicholas of Autrecourt and John Buridan)." In *The Many Roots of Medieval Logic: The Aristotelian and the Non-Aristotelian Traditions*, edited by Marenbon, John, 328-342. Leiden: Brill.

    Abstract: "The aim of this paper is to examine the medieval posterity of the Aristotelian and Pyrrhonian treatments of the infinite regress argument. We show that there are some possible Pyrrhonian elements in Autrecourt’s epistemology when he argues that the truth of our principles is merely hypothetical. By contrast, Buridan’s criticisms of Autrecourt rely heavily on Aristotelian material. Both exemplify a use of scepticism."

81. Grondeux, Anne. 2007. "*Res* Meaning a Thing Thought: The Influence of the *Ars donati*." In *The Many Roots of Medieval Logic: The Aristotelian and the Non-Aristotelian Traditions*, edited by Marenbon, John, 189-202. Leiden: Brill.

    Abstract: "During the fourth century C.E. Donatus borrowed from the Greek tradition the idea of replacing *res corporalis* with *res* in the definition of the noun, because of the usual equivalence between *pragma* and *res*. This change had important consequences, such as a new distinction between *corpus* and *res*, as well as a new meaning proposed for the word *res*. This new meaning happened to be questioned by later

commentators, because masters of grammar seemed to reject the Donatian distinction between *corpus* and *res,* and consider that *corpus* is rather included inside *res,* before being later accepted by Sedulius and

Remigius, perhaps under the influence of the common expression *res verbi*. However, the word remained poly-semic in spite of Donatus' attempt, as can be seen in the *Glosulae in Priscianum* (s. XII)."

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    Contents: Preface IX-X; References and Abbreviations XI-XIII; Part I: Introduction. §1 Medieval philosophy and medieval logic 1; §2 Medieval logic and modern logic 2; §3 Preliminary survey 4; Part II: Ontology. §1 Names 16; §2 Functors and quantification: informal exposition 18; §3 Punctuation 32; §4 Definitions 35; §5 Axiom and deductions 38; Part III: Applications. §1 *Suppositio* and modern logic 47; §2 Anselmian regresses 56; §3 Existence and inclusion 67; §4 Negation and non-being 73; §5 Ockham and the formal distinction 88; §6 Being, essence and existence 95; §7 The ontological argument 101; §8 Abelard on increase 118; Index -131-133.

    "§ 2. Medieval logic and modern logic. At this point the question may well be raised as to the extent to which contemporary studies of medieval logic are capable of fulfilling the sort of promise outlined above. Medieval logic was a philosophical logic, closely geared to philosophical themes. What then could a purely formalist logic, interested purely in combinations of uninterpreted notation, have in common with medieval logic? Again, assuming that this first difficulty may be obviated by the use of a non-formalist type of modern logic, the fact still remains that both in logic and metaphysics the medievals used a highly systematised Latin, extremely rich and daring in its proliferation of forms of speech belonging to recondite semantical categories. How then is it possible for a

philosophical formal logic of the current sort in this respect to rival and exceed (as it must) the medieval artificialised language? Finally, the medievals were blithely uninhibited by any of the dark and knotty controversies which have arisen as a result of our contemporary entanglement of the notion of existence with the device central to modern formal logic, namely the device of quantification (cf. II §2). How then can modern logic, caught as it is in this entanglement, recapture the untrammelled approach to existence enjoyed by its medieval predecessors?

(...)

At the present juncture, therefore, in the light of these remarks and others which will be cited in III §1, it would appear that explanations in ordinary language, with only rare and occasional help from the language of formal logic in comparatively uninteresting contexts, is the most that can be expected of the history of medieval logic. Under these circumstances the promise of the sort of definitive conclusions which formal logical analysis would provide concerning the sense and validity of medieval logical and philosophical theses seems to be impossible of fulfillment.

Fortunately it happens that there exists a system of modern formal logic; unfamiliar to many logicians and philosophers, and sometimes misunderstood by others, which allows the investigator to overcome all of the difficulties stated above, and from the standpoint of which many of the further difficulties which may still be raised can be satisfactorily resolved. This logic is that of the Polish logician S. Lesniewski (1886-1939), a partial account of which may be found in Part II below. This logic is anti-formalist, in that its theorems are interpreted truths, and not mere syntactically-permissible combinations of uninterpreted marks (cf. II §0.00). It has the capacity for the introduction of indefinitely many new parts of speech (semantical categories) and hence can adapt itself to the required degree of exactitude for the purpose of analysing medieval logic, as Part III will demonstrate. It employs an interpretation of the quantifiers which allows dissociation of

the latter from its usually necessary entanglement with the notion of existence (II §2.23, II §2.25), and so is in a position to come to more exact terms with medieval discourse on this topic.

It follows that the purpose of the present work is three-fold. After the preliminary consideration of the field which is contained in this introduction, a practical account of one of the central theories of Lesniewski, namely his *Ontology,* will be presented in Part II. Thus armed, we will be in a position to expose in detail in Part III some examples of the way in which Ontology may be used in the analysis of medieval themes.

Now this may all sound to be a formidable undertaking for those readers who are no logicians, and they may feel tempted to remain at the level of analyses and explanations conducted in everyday language, with perhaps a few elementary terms or scraps of notation from current logic or linguistics thrown in. Indeed, there may be some who in spite of their own logical competence are as yet unconvinced of the value of making a text intelligible in the light of a fully systematised language, and who would protest that if intelligibility cannot be offered by explanation in terms of comparatively ordinary language, then so much the worse for the medievals who insist on being unintelligible in this way. To such objection three types of reply are possible. First, efforts have been made in Part II to give an explanation of Lesniewski's Ontology, with which we are to be mainly concerned, of so elementary a nature as to be easily grasped by all who have only the slightest acquaintance with the logic of propositions and the notion of quantification. Secondly, as has already been contended above, the highly systematised technical logical Latin of the medievals involved the introduction of new parts of speech which stand outside the elucidatory capacities of ordinary language. Thirdly, even if ordinary language is itself artificialised somewhat in the medieval sort of style, there are limits to its intelligibility unless the analysis is carried forward into a fully systematic language such as that of Ontology. Partly in support of this contention an effort will now be made to give a preliminary appreciation and survey of the nature of themes which are to be touched upon in

Part III. In the course of this effort ordinary language will be strained to the uttermost in order to come to terms with the way in which the scholastics modified such language for technical purposes. Even this straining will, in the end, be found wanting; this will convey concretely the necessity of going yet further, to the fully artificial language outlined in Part II." pp. 2-4

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86. ———. 1984. *That Most Subtle Question (Quaestio Subtilissima): The Metaphysical Bearing of Medieval and Contemporary Linguistic Disciplines*. Manchester: Manchester University Press.

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88. Jacobi, Klaus. 1983. "Statements about Events Modal and Tense Analysis in Medieval Logic." *Vivarium* no. 21:85-107.

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    Abstract: "This essay proposes and defends a general thesis concerning the nature offallacies of reasoning. These in distinctive ways are all said to be deductively invalid. More importantly, the most accurate, complete and charitable reconstructions of these species and specimens of the informal fallacies are instructive with respect to the individual character of each distinct informal fallacy. Reconstructions of the fallacies as deductive invalidities are possible in every case, if deductivism is true, which means that in every case they should be formalizable in an expressively comprehensive formal symbolic deductive logic. The general thesis is illustrated by a detailed examination of Walter Burleigh's paradox in his c. 1323 work, *De Puritate Artis Logicae Tractatus Longior*

(*Longer Treatise on the Purity of Logic*), as a challenge to the deductive validity of hypothetical syllogism.

The paradox has the form, 'If I call you a swine, then I call you an animal; if I call you an animal, then I speak truly; therefore, if I call you a swine, then I speak truly'. Several solutions to the problem are considered, and the inference is exposed as an instance of the common deductive fallacy of equivocation."

90. Johnston, Spencer C. 2021. "Connexive Principles After a 'Classical' Turn in Medieval Logic." *History and Philosophy of Logic* no. 43:251-263.

Abstract: "The aim of this paper is to look at the arguments advanced by three Parisian arts masters about how to understand *Prior Analytics* II 4 and the more general discussion that medieval authors situate this in, revolving around the validity of various rules of inference. In particular, this paper argues that all three arts masters read Aristotle's remarks as committing him to a weak form of connexive principles where the antecedent needs to be either true or at least formally possible; this is known in the contemporary literature as a weak connexive thesis."

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History of Logic

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Reduplication 111; 7. Stephen Read: Bradwardine and Epistemic Paradox 125; 8. Greg Restall: Truth-Tellers in Bradwardine's Theory of Truth 143; 9. Elia Zardini: The Role of Utterances in Bradwardine's Theory of Truth 155; 10. Calvin Normore, Terence Parsons: Billingham and Buridan on the Foundations of Syllogistic Reasoning 195; 11.Peter Øhrstrøm: Richard of Lavenham's Analysis of the Future Contingency Problem Represented in Terms of Modern Tempo-Modal Logic 219; 12. Thomas M. Ward: Logic and Ontological Commitment: Vincent Ferrer's Theory of Natural Supposition 233; 13. Petr Dvořák: Divine Predetermination in Alvarez: Infallibility and Necessity 245-263.

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    Abstract: "This paper analyses the import of three claims extracted from Geach's works concerning (i) theories of predication and the reference of common terms, (ii) the notions of being or existence, and (iii) the

    force/content distinction and theories of valid inference, respectively. The paper highlights the theoretical and historical errors involved in these claims as well as their enormous influence and inspiration in the field of the philosophical study of medieval logic and metaphysics."

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    "When the medievals spoke of a propositio they were speaking not of a propositional content but of a propositional sign, written or spoken or mental. I shall use the word `proposition' in this paper in order to speak of written or spoken propositional signs-type-sentences or token-sentences in the indicative mood. Mental propositional signs I shall call mental propositions. I shall simplify the topic by considering only completely general, nonindexical propositions, those whose meaning and truth value remain the same regardless of who utters them or the circumstances of their utterance.

    I am taking it for granted that a complete theory of linguistic meaning must include accounts of what signs stand for and of what signs convey-broadly speaking, a theory of reference and a

theory of sense. I believe that medieval logicians produced a theory of reference and a theory of sense for propositions, but in two separate developments, without recognizing that the theories were complementary. One of these was terminism, the semantic theory characteristic of terminist logic. Briefly, terminism is an elaborate analysis of the ways in which all the words making up the proposition affect one another's reference or logical status. The other development consists in a family of semantic, logical, epistemological, and ontological doctrines centering around the notion of the significatum, or enuntiabile, or dictum of the proposition. I shall speak of this development, and especially of its semantic component, as dictism.

In this paper I want to give some idea of the nature of these two developments and to suggest that we can piece together the most complete theory of propositional meaning medieval logic has to offer if we take terminism as a theory of propositional reference and dictism as a theory of propositional sense. I shall begin by considering terminism from that point of view." (pp. 767-768)

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"The ten contributors to this volume hope to honor Jan Pinborg's memory by presenting studies and texts relevant to his own scholarly interests in medieval philosophy, particularly in logic and semantic theory. Though not every one of the ten studied or worked with Jan Pinborg, all of us learned a great deal from his writings. One or two of the contributors, having studied with a student of Jan's, can lay claim to being his academic grandchildren; but those of us who were born before Jan are also deeply in his debt. The ten contributions are arranged approximately in the chronological order of their subject matter.

L. M. de Rijk, Professor of Philosophy at the University of Leiden, ranging over Boethius's Aristotelian commentaries and theological treatises with his well-respected authority, finds new material for Boethius's semantic theory in his metaphysics and theology and, in the process, sheds light on Boethius's difficult and historically important conception of being.

Eleonore Stump, Professor of Philosophy at Virginia Polytechnic Institute and State University, well-known for her own work on Boethius, here describes a critical development in the history of the dialectical Topics and shows how it can be used to help explain the new direction taken by the terminist logicians of the first half of the thirteenth century.

Gabriel Nuchelmans, Professor Emeritus of Philosophy at the University of Leiden and author of an important series of volumes on the development of theories regarding propositions, analyzes the medieval distinction between doing something linguistically and merely talking about it, bringing out the remarkable power and range of medieval logicians' applications of the distinction.

The fourth, fifth, and sixth contributions form a connected series, all focusing on semantic issues associated with the treatment of concrete accidental terms (such as 'white') by medieval logicians, and all stemming from a seminar conducted at the University of Copenhagen. The first of these three pieces is by Robert Andrews, a PhD candidate at Cornell University who studied for a year at the Copenhagen Institute; he focuses on problems of denomination - the sort of relationship that obtains between 'literacy' and 'literate' - and presents an edition of a relevant text by Peter of Auvergne. The centerpiece of this set of three contributions is the one contributed by the professor who conducted the seminar, Sten Ebbesen, whose three-volume study of Greek and Latin commentaries on Aristotle's *Sophistici elenchi* is truly monumental. Here he considers the elaborate medieval analysis of the way in which a concrete accidental term manages to have a conceptually unitary meaning despite both signifying a quality and indicating that the quality has a bearer. He concludes his contribution with an edition of Peter of Auvergne's sophisma *Album potest esse nigrum*. Reinhard Hülsen, a PhD candidate of the Philosophisches Institut of the University of Hamburg, who also studied at Copenhagen with Ebbesen, is the third of this trio of contributors. He uses the medieval treatment of concrete accidental terms to illuminate the notoriously perplexing Aristotelian fallacy of "figure of speech".

Paul Vincent Spade, Professor of Philosophy at Indiana University, editor or translator of several medieval logical treatises and author of many valuable articles, focuses on a peculiar logical doctrine attached to the medieval semantic theory of *suppositio* in order to explain certain philosophical and historical developments in the latter half of the thirteenth century.

Norman Kretzmann, Susan Linn Sage Professor of Philosophy at Cornell University and principal editor of *The Cambridge History of Later Medieval Philosophy,* presents a critical analysis of one of Richard Kilvington's sophismata in order to illustrate the achievements of later medieval epistemic logic. He

provides an edition and translation of Kilvington's Sophisma 45.

Alfonso Maierù, Professor of Philosophy at the University of Rome, to whom all students of medieval logic are grateful for his *Terminologia logica,* here carries on his study of medieval attempts to develop a logical account of the intricacies of the divine Trinity, primarily by presenting an edition and study of an anonymous treatise of this sort from the late fourteenth century.

Lange Olaf Nielsen, a Danish theologian and church historian who studied at the Copenhagen Institute with Jan Pinborg and who is doing important work on the connections between philosophy and theology in the later Middle Ages, here extends his study chronologically into the seventeenth century with a remarkably rich paper on the hitherto neglected atomist Sebastian Basso." (from the Introduction, pp. X-XII)

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    Abstract: "One of the main controversies of the Logic Schools of the 12th century centered on the question: What follows from the impossible? In this paper arguments for two diametrically opposed positions are examined. The author of the 'Avranches Text' who probably belonged to the school of the Parvipontani defended the view that from an impossible proposition everything follows ('Ex impossibili quodlibet'). In particular he developed a proof to show that by means of so-called 'disjunctive syllogism' any arbitrary proposition B can be logically derived from a pair of contradictory propositions *A* and Not-*A*. The author of the *Ars Meliduna* instead argued that *nothing* follows from an impossible proposition ('ex falso nihil sequitur'). This view is supported by various counterexamples which aimed to show that the admission of impossible premises would give rise to inconsistent conclusions. Upon closer analysis these inconsistencies do not, however, have the formal structure of a real contradiction like *A* and Not-*A*, but rather the structure of two rivalling *conditionals* like 'If *B* then *A*' and 'If *B* then Not-*A*'. Hence these counterexamples rather have to be considered as refutations of the basic principles of 'connexive logic'."

33. Manekin, Charles H. 1996. "Some Aspects of the Assertoric Syllogism in Medieval Hebrew Logic." *History and Philosophy of Logic* no. 17:49-71.

    Abstract: "This paper introduces the reader to the medieval Hebrew tradition of logic by considering its treatment of Aristotelian syllogistic. Starting in the thirteenth century

European Jews translated Arabic and Latin texts into Hebrew and produced commentaries and original compendia. Because they stood culturally and geographically at the cross-roads of two great traditions they were influenced by both. This is clearly seen in the development of syllogistic theory, where the Latin tradition ultimately replaces, though never entirely, its Arabic counterpart. Specific attention is devoted to the debate about the so-called Galenian fourth figure.

In medieval Hebrew logic one finds both defenders and detractors of the figure, the former appearing towards the beginning of the period in question. With the ascendancy of scholastic logic the fourth figure virtually disappears from Hebrew texts."

34. ———. 1999. "Scholastic Logic and the Jews." *Bulletin de Philosophie Médiévale* no. 43:123-147.

35. ———. 2011. "Logic in Medieval Jewish Culture." In *Science in Medieval Jewish Cultures*, edited by Freudenthal, Gad, 113-135. Cambridge: Cambridge University Press.

" “Logic,” to paraphrase the medievals, is an ambiguous term. Broadly speaking, it refers to the study, construction, and appraisal of argument, and in this sense it is similar to “reasoning.” More specifically, “logic” refers to a body of doctrines stemming from the Greek logical tradition, and, even more specifically, to those doctrines found in the nine books of the medieval *Organon* (Porphyry’s *Isagoge*; and Aristotle’s *Categories, De interpretatione, Prior Analytics, Posterior Analytics, Topics, Sophistical Refutations, Rhetoric*, and *Poetics*).

A comprehensive survey of the place of logic in medieval Jewish intellectual life, in the broad sense of the term, would require nothing less than an analysis of the varieties of reasoning in the various disciplines studied by Jews, nonphilosophical as well as philosophical.

Even the less ambitious task of tracing the influence of the Greek logic on medieval Jewish philosophy would call for a survey of the entire literature, because what philosophical work

could be excluded? The present essay has more modest aims: first and foremost, to present a comprehensive survey of Jewish writings on logic in the Middle Ages; then, to make some general observations about the study of logic among medieval Jews; and, as an afterword, to sketch how some Jewish intellectuals applied the doctrines of logic to the fields of biblical exegesis and rabbinic jurisprudence."

36. Marenbon, John, ed. 2007. *The Many Roots of Medieval Logic: The Aristotelian and the Non-Aristotelian Traditions*. Leiden: Brill.

    Special Offprint of Vivarium 45, 2-3 (2007).

    Acts of the 15th European Symposium on Medieval Logic and Semantics, Cambridge, 2004.

    Also published in *Vivarium*, 45, 2007.

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IV. Aristotle, Augustine and Stoicism

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Bibliography 244-262.

37. ———. 2007. *Medieval Philosophy: An historical and philosophical introduction*. New York: Routledge.

38. ———, ed. 2012. *The Oxford Handbook of Medieval Philosophy*. New York: Oxford University Press.

    Part II: Issues in Medieval Philoosphy. Logic and Philosophy of Language; 12. Paul Thom: Logical Form 271; 13. Christopher J. Martin: Logical Consequence 289; 14. Simo Knuuttila: Modality 312; 15. Margaret Cameron: Meaning: Foundational and Semantic Theories 342; 16. Martin Lenz: Mental Language 363-382.

39. ———. 2021. "Towards a Social History of Medieval Logic." *Studia graeco-arabica* no. 11:183-194.

Abstract: "This paper explains how a social history of medieval logic might be written. After contrasting it with the Standard Approach, centred on great logicians, problems and debates, it suggests a series of questions which social historians of logic might ask: when, where, by whom, how and why was logic studied in the Middle Ages? There follows a discussion of pathways to the social history of medieval logic: enhanced doxology, institutional history, logic in relation to other disciplines and cultural comparison. Finally, an objection is considered: logic is discovered, not invented, and so social explanations are inappropriate for its history. The objection is rejected because, whether logic is discovered or invented, historians of it must explain how individual logicians came to think and write as they did, and such explanations include social factors among others."

40. Martin, Christopher J. 1990. "Research in Early Medieval Logic." In *Contemporary Philosophy: A New Survey. Vol. 6/2*, edited by Fløistad, Guttorm and Klibansky, Raymond, 821-828. Dordrecht: Kluwer.

41. ———. 1999. *Theories of Inference and Entailment in the Middle Ages*.

    Unpublished Ph.D. thesis, available at ProQuest Dissertation Express, ref. n. 9948627.

42. ———. 2006. "Medieval (European) Logic." In *Encyclopedia of Philosophy. Second Edition*, edited by Borchert, Donald M., 421-437. New York: Thomson Gale.

    The first edition of the *Encyclopedia of Philosophy*, edited by Paul Edwards, was published in 1967.

    The editor of the article *Logic, history of* in the first edition was Arthur Norman Prior.

    With an *Addendum* by Tony Street, p. 421.

43. ———. 2009. "The Logical Textbooks and their Influence." In *The Cambridge Companion to Boethius*, edited by Marenbon, John, 56-84. Cambridge: Cambridge University Press.

44. Meier-Oeser, Stephan. 1999. "The meaning of 'significatio' in Scholastic logic." In *Signs and Signification. Vol. II*, edited by Gill, Harjeet Singh and Manetti, Giovanni, 89-107. New Delhi: Bahri Publications.

45. Meixner, Uwe. 1998. "Negative Theology, *Coincidentia Oppositorum*, and Boolean Algebra." *History of Philosophy & Logical Analysis* no. 1:75-89.

    Abstract: "In Plato's *Parmenides* we find on the one hand that the One is denied every property , and on the other hand that the One is attributed every property. In the course of the history of Platonism, these assertions - probably meant by Plato as ontological statements of an entirely formal nature - were repeatedly made the starting points of metaphysical speculations. In the Mystical Theology of the Pseudo-Dionysius they became principles of Christian mysticism and negative theology. I shall show that the two assertions can each be interpreted within the ontological framework of ancient and medieval logic in such a manner that it becomes true, and I shall make plausible that they were understood, with regard to their logical core, by pagan and Christian Platonic metaphysicians just as is indicated by that interpretation. The mentioned ontological framework is basically the Boolean algebra of first-order properties. The main points of the interpretation are on the one hand the identification of the One with the maximal element of the algebra of properties, and on the other hand two alternative intuitively prominent mereological definitions of ontic predication."

46. Michael, Emily. 1979. " Some considerations in medieval tense logic." *Notre Dame Journal of Formal Logic* no. 20:794-800.

47. Miriam, Joseph Sister. 2002. *The Trivium. The Liberal Arts of Logic, Grammar, and Rhetoric. Understanding the Nature and Function of Language*. Philadelphia: Paul Dry Books.

    New edition edited by Marguerite McGlinn (First edition 1937, second 1940, third 1948).

48. Moody, Ernest. 1953. *Truth and Consequence in Mediaeval Logic*. Amsterdam: North-Holland.

Reprint Westport: Greenwood Press, 1976.

"Aim and scope of the present study

The purpose of our present study is to investigate two basic branches of logical analysis which were developed by the logicians of the 13th and 14th centuries, and which appear to be of more than antiquarian interest in relation to contemporary research in the field of logic. These two branches of logical theory were known, in the mediaeval terminology, as the theory of Supposition and the theory of Consequence. In contemporary language we would describe them as the theory of truth-conditions and the theory of inference-conditions or of deduction: those logicians who differentiate between syntactical and semantical inquiries and systems would consider that these two theories belong to semantics.

The mediaeval development of these two theories took place within the context of mediaeval formal logic and found its expression in the terminology of that logic. The logic was substantially Aristotelian, with accretions from later Greek logic transmittted through Boethius; as such, it attempted to formulate the logical structure of ordinary language as used by the "scIentists" (and philosophers) of the mediaeval universities. Distinctive of such "natural" language is the fact that statements are made with verbs of present, past, or future time, in subjunctive as weIl as indicative mood, and with numerous syntactical constructions whose logical analysis is of extreme subtlety or complexity." (pp. 10-11, a note omitted)

49. ———. 1966. "The Medieval Contribution to Logic." *Studium Generale* no. 19:443-452.

    Reprinted in: E. A. Moody, *Studies in Medieval Philosophy, Science, and Logic. Collected Papers 1933-1969,* pp. 371-392.

50. ———. 1975. *Studies in Medieval Philosophy, Science, and Logic: Collected Papers 1933-1969*. Berkeley: University of California Press.

51. Mora-Marquez, Ana María. 2015. *The Thirteenth-Century Notion of Signification: The Discussions and their Origin and Development*. Leiden: Brill.

52. Mugnai, Massimo. 2010. "Logic and Mathematics in the Seventeenth Century." *History and Philosophy of Logic* no. 31:297-314.

53. Murdoch, John E. 1974. "Logic." In *A Source Book in Medieval Science*, edited by Grant, Edward, 77-89. Cambridge: Harvard University Press.

54. Nadler, Steven, and Rudavsky, T. M., eds. 2009. *The Cambridge History of Jewish Philosophy from Antiquity through theSeventeenth Century. Vol. 1*. Cambridge: Cambridge University Press.

    Section II. Logic and Language

    6. Charles H. Manekin: Propositions and Propositional Inference 167; 7. Norbert M. Samuelson: Reasoning and Demonstration 188; 8. Josef Stern: Meaning and Language 230-266.

55. Normore, Calvin G. 2008. "Validity Now and Then." *Canadian Journal of Philosophy* no. Supplementary Volume 34:19-30.

56. ———. 2015. "Ex impossibili quodlibet sequitur (Angel d'Ors)." *Vivarium* no. 53:353-371.

    Abstract: "While agreeing with Professor D'Ors' thesis that the notion of logical consequence cannot be exhaustively characterized (though not with his grounds for it), I depart from Professor d'Ors' conclusion that the very notion of good consequence is primitive and can only be identified with the (incompletable) set of acceptable rules of inference, and from his conviction that modal notions such as necessity and impossibility are equivocal and gain such clarity as they have by their interaction with rules

    of inference. Inspired by this picture, Professor d'Ors undertook an examination of a number of medieval attempts to analyze the notion of consequence and tried to show how certain developments in the medieval history of logic made sense in the light of

debate over such analyses. This paper examines a small fragment of Professor d'Ors programme and its relation to some aspects of Jean Buridan's account of the consequence relation."

Reference

Angel d'Ors, 'Ex impossibili quodlibet sequitur (Jean Buridan)', in *Argumentationstheorie: Scholastische Forschungen zu den logischen und semantischen Regeln korrecten Folgerns*, ed. K. Jacobi (Leiden, 1993), 195-212.

57. Novaes, Catarina Dutilh. 2007. *Formalizing Medieval Logical Theories: Suppositio, Consequentiae and Obligationes*. New York: Springer.

Contents: Introduction 1; Part 1: Supposition Theory: Algorithmic Hermeneutics 7; Part 2: Buridan's Notion of *Consequentia* 79; Part 3: *Obligationes* as Logical Games 145; Part 4: The Philosophy of Formalization 215; Conclusion 293; References 301; Index of Names and Topics 311-314.

"This book presents novel formalizations of three of the most important medieval logical theories: supposition, consequence and obligations. In an additional fourth part, an in-depth analysis of the concept of formalization is presented - a crucial concept in the current logical panorama, which as such receives surprisingly little attention.

Although formalizations of medieval logical theories have been proposed earlier in the literature, the formalizations presented here are all based on innovative vantage points: supposition theories as algorithmic hermeneutics, theories of consequence analyzed with tools borrowed from model-theory and two-dimensional semantics, and obligations as logical games. For this reason, this is perhaps the first time that these medieval logical theories are made fully accessible to the modern philosopher and logician who wishes to obtain a better grasp of them, but who has always been held back by the lack of appropriate 'translations' into modern terms.

Moreover, the book offers a reflection on the very nature of logic, a reflection that is prompted by the comparisons between

medieval and modern logic, their similarities and dissimilarities. It is thus a contribution not only to the history of logic, but also to the philosophy of logic, the philosophy of language and semantics.

The analysis of medieval logic is also relevant for the modern philosopher and logician in that, being the unifying methodology used across all disciplines at that time, logic really provided unity to science. It thus presents a unified model of scientific investigation, where logic plays the aggregating role."

58. ———. 2012. "Lessons in Philosophy of Logic from Medieval *Obligationes*." In *New Waves in Philosophical Logic*, edited by Restall, Greg and Russell, Guillian, 142-168. New York: Palgrave Macmillan.

59. ———. 2012. "Form and Matter in Later Latin Medieval Logic: The Cases of *Suppositio* and *Consequentia*." *Journal of the History of Philosophy* no. 50:339-364.

60. Novaes, Catarina Dutilh, and Read, Stephen, eds. 2016. *The Cambridge Companion to Medieval Logic*. Cambridge: Cambridge University Press.

    Contents: List of Contributors IX-XII; Catarina Dutilh Novaes and Stephen Read: Introduction 1;

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    1. Julie Brumberg-Chaumont: The Legacy of Ancient Logic in the Middle Ages 19; 2. Ahmad Hasnawi and Wilfrid Hodges: Arabic Logic up to Avicenna 45; 3. Khaled El-Rouayheb: Arabic Logic after Avicenna 67; 4. Ian Wilks: Latin Logic up to 1200 94; 5. Sara L. Uckelman and Henrik Lagerlund: Logic in the Latin Thirteenth Century 119; 6. Stephen Read: Logic in the Latin West in the Fourteenth Century 142; 7. E. Jennifer Ashworth: The Post-Medieval Period 166;

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265; 12. Paul Thom: The Syllogism and its Transformations 290; 13. Gyula Klima: Consequence 316; 14. Riccardo Strobino and Paul Thom: The Logic of Modality 342; 15. Catarina Dutilh Novaes and Sara L. Uckelman: Obligationes 370; Bibliography: 396; Index 437-450.

61. Novak, Joseph. 1980. "Some recent work on the assertoric syllogistic." *Notre Dame Journal of Formal Logic* no. 21:229-242.

62. Nuchelmans, Gabriel. 1973. *Theories of Proposition: Ancient and Medieval Conceptions of the Bearers of Truth and Falsity*. Amsterdam: North-Holland.

    Contents: Preface V; 1. Introduction 1; 2. Plato 13; 3. Aristotle 23; 4. The Stoic *lekton* 45; 5. The Stoic *axioma* 75; 6. Later developments in Greek antiquity 89; 7. The transition to the Latin West 105; 8. Boethius and the beginning of the Middle Ages 123; 9. Abelard 139; 10. The doctrine of the *dictum* in the century after Abelard 165; 11. Preliminaries to the fourteenth century debate 177; 12. The *complexum* theory of Ockham and Holkot 195; 13. Some reist opponents of Ockham and Holkot 209; 14. The theory of the *complexe significabile* 227; 15. The oppositions against the theory of the *complexe significabile* 243; 16. The significate of a true *propositio* 273; Selective bibliography 281; Indices 289-309.

    "This book is intended as the first part of a history of those problems and theories in the domain of philosophical semantics which nowadays are commonly referred to as problems and theories about the nature and the status of propositions. [*]

    Although the conceptual apparatus and the terminology by means of which questions concerning propositions were asked and answered have considerably varied from period to period, the main types of disputes and solutions have remained remarkably constant. One of the aims of this study is precisely to trace the vicissitudes of the vocabulary in which this refractory topic was treated in the remote past. As is evident from the Bibliography, many parts of the field have been explored by predecessors. Guided by their results, I have tried

to fill in more details and to design a provisional map of the area as a whole." (from the Preface)

[*] The two other volumes are: *Late-Scholastic and Humanist Theories of the Proposition* (1980) and *Judgment and Proposition. From Descartes to Kant* (1983).

63. ———. 1980. *Late-Scholastic and Humanist Theories of the Proposition*. Amsterdam: North-Holland.

Contents: Part One: Late-Scholastic theories of the proposition. 1. Introduction 3; 2. Different kinds of propositions and their ways of signifying 9; 3. The tie between the principal parts of a proposition 27; 4. The adequate signification and the adequate significate of a proposition 45; 5. Disguised propositions 74; 6. Judgment 90; 7. The object of judgment 103; 8. Propositions as bearer of truth-values 114; Part Two: Humanist theories of proposition. 9. Introduction 143; 10. The first attempt at reorientation 146; 11. The Melanchtonian treatment of a theme 159; 12. Peter Ramus 168; 13. The diffusion of Ramist terminology 180; 14. Eclectics 189; Epilogue 204; Bibliography 209; Indices 224-237.

"After publishing, more than six years ago, my *Theories of the Proposition. Ancient and Medieval Conceptions of the Bearers of Truth and Falsity*, I initially intended to cover the remaining phases of the history of the semantics of declarative sentences in one volume. As the material proved more abundant and unwieldy than I had anticipated, I decided to limit the next instalment to the period between 1450 and 1650. Accordingly, the present book treats the theories of the proposition put forward by late-scholastic and humanist philosophers. It will be followed, in the not too distant future, I hope, by a third volume which will continue the account until the first decades of the nineteenth century.

In making my way through the intricate mass of sources, which are often works that are completely forgotten and extremely hard to obtain, I was greatly assisted by Professor Ashworth's pioneering book on *Language and Logic in the Post-Medieval Period*. Moreover, when I had practically finished my manuscript, she was kind enough to send me the draft of an

article entitled 'Theories of the Proposition: Some Early Sixteenth Century Discussions'. As this article is based on a corpus of texts which is slightly different from mine, it enabled me to check some of my results against the findings of a very competent collaborator in this lonely field of research. I can only advise the reader to do the same when the article will have been published (in Franciscan Studies [38, 1978 pp. 81-121])."

64. ———. 1982. "The Semantics of Propositions." In *The Cambridge History of Later Medieval Philosophy from the Rediscovery of Aristotle to the Disintegration of Scholasticism 1100-1600*, edited by Kretzmann, Norman, Jenny, Anthony P. and Pinborg, Jan, 197-212. Cambridge: Cambridge University Press.

    Reprinted as Chapter II in: G. Nuchelmans, *Studies on the History of Logic and Semantics, 12th-17th Centuries,* Aldershot: Variorum, 1996.

65. ———. 1992. *Secundum/Tertium Adiacens. Vicissitudes of a Logical Distinction*. Amsterdam: Koninklijke Nederlandse Akademie van Wetenschappen.

    Contents: 1. The origin of the distinction in Aristotle's *De interpretatione* 7; 2. Boethius' treatment of the pertinent Aristotelian passages 10; 3. Continuations of the Aristotelian-Boethian line 14; 4. The emergence of *secundum adiacens* 19; 5. Fourteenth-century developments 23; 6. The issue of existential import 29; 7. The three-part analysis of categorical propositions 31; 8. The two-part analysis of categorical propositions 35; 9. The decline of the distinction 41; 10. Propositions called *de primo adiacente* 45; 11 . Another type of proposition called *de primo adiacente* 50-56.

66. ———. 1996. *Studies on the History of Logic and Semantics, 12th-17th Centuries*. Aldershot: Ashgate.

    Edited by Egbert P. Bos.

67. Oesterle, J.A. 1944. "Another Approach to the Problem of Meaning." *The Thomist* no. 7:233-263.

68. Øhrstrøm, Peter. 1982. "'Temporalis' in Medieval Logic." *Franciscan Studies* no. 42:166-179.

69. Parsons, Terence. 2006. "The Doctrine of Distribution." *History and Philosophy of Logic* no. 27:59-74.

    "Peter Geach describes the 'doctrine of distribution' as the view that a term is distributed if it refers to everything that it denotes, and undistributed if it refers to only some of the things that it denotes. He argues that the notion, so explained, is incoherent. He claims that the doctrine of distribution originates from a degenerate use of the notion of 'distributive supposition' in medieval supposition theory sometime in the 16th century. This paper proposes instead that the doctrine of distribution occurs at least as early as the 12th century, and that it originates from a study of Aristotle's notion of a term's being 'taken universally', and not from the much later theory of distributive supposition. A detailed version of the doctrine found in the Port Royal Logic is articulated, and compared with a slightly different modern version. Finally, Geach's arguments for the incoherence of the doctrine are discussed and rejected."

    "1. Introduction

    This paper is about the 'doctrine of distribution' as described and criticized by Peter Geach. My goal is to provide an alternative to Geach's account of the history of the doctrine and to defend the doctrine against his claims that it is incoherent. This paper discusses:

    (1) what the 'doctrine of distribution' is;

    (2) some of Peter Geach's criticisms of the doctrine;

    (3) Geach's story of the history of the doctrine;

    (4) an alternative account of the history of the doctrine;

    (5) the version of the doctrine as it occurs in the Port Royal Logic;

    (6) a defence of the coherence of the doctrine."

70. ———. 2013. "The Expressive Power of Medieval Logic." *Vivarium* no. 51:511-521.

71. ———. 2013. "The Power of Medieval Logic." In *Later Medieval Metaphysics: Ontology, Language, and Logic* edited by Bolyard, Charles and Keele, Rondo, 188-205. New York: Fordham University Press.

72. ———. 2014. *Articulating Medieval Logic*. New York: Oxford University Press.

73. Pasnau, Robert, ed. 2010. *The Cambridge History of Medieval Philosophy*. Cambridge: Cambridge University Press.

    Part II. II Logic and language

    10. Christopher J. Martin: The development of logic in the Twelfth century 129; 11. E. Jennifer Ashworth: Terminist logic 146; 12. Gyula Klima: Nominalist semantics 159; 13. Stephen Read: Inferences 173; 14. Paul Vincent Spade: Sophismata 185; 15. Irène Rosier-Catach: Grammar 196-216.

74. Pérez-Ilzarbe, Paloma. 2011. "Disputation and Logic in the Medieval Treatises *De Modo Opponendi et Respondendi*." *Vivarium* no. 49:127-149.

    Abstract: "In 1980 L. M. de Rijk edited some texts connected with medieval disputation (*Die mittelaterlichen Traktate De modo opponendi et respondendi*), towards which he showed a strikingly contemptuous attitude. The reason for his contempt was that the treatises did not fit the obligationes and sophismata tradition. In this article I focus on the original version, the *Thesaurus Philosophorum*, to highlight the distinction of this family of treatises with respect to the "modern" tradition. First, I study the features of the disputation that can be recognised through the collection of fallacious arguments contained in the *Thesaurus*. Second, I briefly examine the contents of the treatise and their arrangement, showing that they are closely related to the kind of disputation in question.

    I hope to support the idea that neither the technique of disputation nor the contents and their arrangement deserve a

straightforward rejection."

75. Pérez-Ilzarbe, Paloma, and Cerezo, María, eds. 2015. *History of Logic and Semantics: Studies on the Aristotelian and Terminist Traditions*. Leiden: Brill.

    Originally published as Volume 53, No. 2-4 (2015) of Brill's journal *Vivarium*.

    Contents: María Cerezo: In Memoriam VII; Complete Bibliography of Angel d'Ors XI; Paloma Pérez-Ilzarbe, María Cerezo: Introduction 1; Allan Bäck: How the Fallacy of Accident Got Its Name (and Lost It) 4; José Miguel Gambra: To Be in a Subject and Accident 32; María Cerezo: Anselm of Canterbury's Theory of Meaning: Analysis of Some Semantic Distinctions in *De Grammatico* 56; Luisa Valente: *Aliquid amplius audire desiderat*: Desire in Abelard's Theory of Incomplete and Non-Assertive Complete Sentences 82; Joke Spruyt: The *Introductiones Montanae maiores*: A Student's Guide to Logic 109; Angel d'Ors: *Tu scis an de mentiente sit falsum Sortem esse illum*: On the Syncategorem 'an' 128; C.H. Kneepkens: The Collection of Grammatical Sophismata in MS London, BL, Burney 330: An Exploratory Study 152; Mikko Yrjönsuuri: Obligations and Conditionals 179; Sten Ebbesen: *Si tantum pater est non tantum pater est*: An English Sophisma from the Late Thirteenth Century 192; Calvin G. Normore: *Ex impossibili quodlibet sequitur* (Angel d'Ors) 209; E. Jennifer Ashworth: Richard Billingham and the Oxford Obligationes Texts: Restrictions on *positio* 227; Stephen Read: Richard Kilvington and the Theory of Obligations 246; Paloma Pérez-Ilzarbe: The Signification of the Copula in Fernando de Enzinas' Syncategoremata 260; Bibliography 279; Index of Concepts 297; Index of Manuscripts 301; Index of Names 302-304.

76. Pinborg, Jan. 1975. "A Note on Some Theoretical Concepts of Logic and Grammar." *Revue Internationale de Philosophie* no. 21:286-296.

77. ———. 1976. "Some Problems of Semantic Representations in Medieval Logic." In *History of Linguistic Thought and*

Contemporary Linguistics, edited by Parret, Herman, 254-278. Berlin: Walter de Gruyter.

"One main subject of medieval logic was the problem of semantic representations of natural languages. If it is true that linguistic theory must account for both the form and meaning of language, then medieval logic or some parts of it belongs to the history of linguistics; and it might perhaps even contribute to linguistics as such. E. A. Moody (*The Medieval Contribution to Logic*, 1966) has argued that the interest and value of medieval logic is not merely historical; it is also attached to "its attempt to formulate the semantical presuppositions of ordinary language ... What medieval logic has to contribute, to the further development and enrichment of modern logic, is this semantical bridge between the abstract, axiomatically derived, formal system of modern mathematical logic, and the concrete, empirically oriented forms in which natural languages exhibit the rational structure of experience on its phenomenological level"." (p. 254)

78. ———. 1979. "The English contribution to logic before Ockham." *Synthese* no. 40:19-42.

79. ———. 1984. *Medieval Semantics: Selected Studies on Medieval Logic and Grammar*. London: Variorum Reprints.

    Edited by Sten Ebbesen.

80. ———. 1990. "Grammar." In *Contemporary Philosophy: A New Survey. Vol. 6/2*, edited by Fløistad, Guttorm and Klibansky, Raymond, 789-782. Dordrecht: Kluwer.

81. Rahman, Shahid, Tulenheimo, Tero, and Genot, Emmanuel, eds. 2008. *Unity, Truth and the Liar: The Modern Relevance of Medieval Solutions to the Liar Paradox*. Dordrecht: Springer.

    Contents: Preface V; Acknowledgments XIX; Contributing Authors XXIII;

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82. Read, Stephen. 2010. "Inferences." In *The Cambridge History of Medieval Philosophy. Vol I*, edited by Pasnau, Robert and Dyke, Christina van, 173-184. Cambridge: Cambridge University Press.

83. ———. 2010. "Field's Paradox and Its Medieval Solution." *History and Philosophy of Logic* no. 31:161-176.

Abstract: "Hartry Field's revised logic for the theory of truth in his new book, *Saving Truth from Paradox*, seeking to preserve Tarski's T-scheme, does not admit a full theory of negation. In response, Crispin Wright proposed that the negation of a proposition is the proposition saying that some proposition inconsistent with the first is true. For this to work, we have to show that this proposition is entailed by any proposition incompatible with the first, that is, that it is the weakest

proposition incompatible with the proposition whose negation it should be. To show that his proposal gave a full intuitionist theory of negation, Wright appealed to two principles, about incompatibility and entailment, and using them Field formulated a paradox of validity (or more precisely, of inconsistency).

The medieval mathematician, theologian and logician, Thomas Bradwardine, writing in the fourteenth century, proposed a solution to the paradoxes of truth which does not require any revision of logic. The key principle behind Bradwardine's solution is a pluralist doctrine of meaning, or signification, that propositions can mean more than they explicitly say. In particular, he proposed that signification is closed under entailment. In light of this, Bradwardine revised the truth-rules, in particular, refining the T-scheme, so that a proposition is true only if everything that it signifies obtains. Thereby, he was able to show that any proposition which signifies that it itself is false, also signifies that it is true, and consequently is false and not true. I show that Bradwardine's solution is also able to deal with Field's paradox and others of a similar nature. Hence Field's logical revisions are unnecessary to save truth from paradox."

84. ———. 2012. "The medieval theory of consequence." *Synthese* no. 187:899-912.

Abstract: "The recovery of Aristotle's logic during the twelfth century was a great stimulus to medieval thinkers. Among their own theories developed to explain Aristotle's theories of valid and invalid reasoning was a theory of consequence, of what arguments were valid, and why. By the fourteenth century, two main lines of thought had developed, one at Oxford, the other at Paris. Both schools distinguished formal from material consequence, but in very different ways. In Buridan and his followers in Paris, formal consequence was that preserved under uniform substitution. In Oxford, in contrast, formal consequence included analytic consequences such as 'If it's a man, then it's an animal'. Aristotle's notion of syllogistic consequence was subsumed under the treatment of formal consequence. Buridan developed a general theory embracing

the assertoric syllogism, the modal syllogism and syllogisms with oblique terms. The result was a thoroughly systematic and extensive treatment of logical theory and logical consequence which repays investigation."

85. ———. 2013. *Obligations, Sophisms and Insolubles*. Moscow: Higher School of Economics.

86. Riejen, Jeroen van. 1993. "Somer Medieval analyses of the Logic of "Qua"." In *Argumentationstheorie. Scholastische Forschungen zu den logischen und semantischen Regeln korrekten Folgerns*, edited by Jacobi, Klaus, 465-482. Leiden: Brill.

87. Roberts, Louise Nisbet. 1960. "A Chimera is a Chimera: A Medieval Tautology." *Journal of the History of Ideas* no. 21:273-278.

88. Rohbacher, Berhard. 2015. " Jewish law and medieval logic: wy eating horse meat is a punishable offense." *Journal of Law and Religion* no. 30:295-319.

    Abstract: "This article presents a case study of the in□uence of Muslim and Christian logicians on medieval Jewish law. The case in question is why it is a punishable offense for Jews to eat mammals that do not have either sign of purity—that is, neither have split hooves nor chew their cud—and the article examines the answers given by three medieval Jewish sages: Rashi, Maimonides, and Naḥmanides. The Written Law of the Torah explicitly allows the consumption of mammals, such as cattle, with both signs of purity. It also explicitly prohibits the eating of mammals, such as camels or pigs, with one sign but not the other. It does not, however, appear to explicitly prohibit the consumption of mammals, such as horses, with neither sign. Using a fortiori logic, Rashi derives a punishable prohibition against eating horses from the prohibition against eating camels and pigs. Maimonides ascribes this prohibition to the Oral Law of the Talmud. Naḥmanides, by contrast, attributes it directly to the Written Law without relying on either a fortiori logic or the Oral Law. This article argues that this solution was available to Naḥmanides because he adopted inclusive

disjunction from Christian logicians, but it was not available to Maimonides because he adopted exclusive disjunction from Muslim logicians. The choice between inclusive and exclusive disjunction is shown to continue to be of importance in modern American law."

89. Rosier-Catach, Irène. 2007. "Priscian on Divine Ideas and Mental Conceptions: The Discussions in the *Glosulae in Priscianum*, the *Notae Dunelmenses*, William of Champeaux and Abelard." In *The Many Roots of Medieval Logic: The Aristotelian and the Non-Aristotelian Traditions*, edited by Marenbon, John, 219-237. Leiden: Brill.

    Abstract: "Priscian's *Institutiones Grammaticae*, which rely on Stoic and Neoplatonic sources, constituted an important, although quite neglected, link in the chain of transmission of ancient philosophy in the Middle Ages. There is, in particular, a passage where Priscian discusses the vexed claim that common names can be proper names of the universal species and where he talks about the ideas existing in the divine mind. At the beginning of the 12th century, the anonymous *Glosulae super Priscianum* and the *Notae Dunelmenses*, which heavily quote William of Champeaux (as master G.), interpret the passage in the context of a growing interest in the problem of universals, raising semantic as well as ontological questions, and introducing a Platonic view on universals in the discussions on the signification of the noun. Moreover, this same passage will be used by Abelard to elaborate one of his opinions about the signification of universal or common names—that they signify "mental conceptions"."

90. Salamucha, Jan. 2003. "The Appearance of Antinomial Problems within Medieval Logic." In *Knowldge and Faith*, edited by Swietorzecka, Kordula and Jadacki, Jacek Juliusz, 169-210. Amsterdam: Rodopi.

    Original edition in Polish: *Przegląd Filozoficzny* 40 (1937) (1) 68-89; (3). 320-343.

91. ———. 2003. "From the History of Medieval Nominalism." In *Knowldge and Faith*, edited by Swietorzecka, Kordula and Jadacki, Jacek Juliusz, 139-167. Amsterdam: Rodopi.

Original edition in Polish: in Tadeusz Czezowski (ed).}, *Charisteria*, Warsaw (1960), pp. 207-238.

92. Schupp, Franz. 1988. *Logical Problems of the Medieval Theory of Consequences: With the Edition of the Liber consequentiarum*. Napoli: Bibliopolis.

93. Simmons, Keith. 1987. "On a medieval solution to the Liar Paradox." *History and Philosophy of Logic* no. 8:121-140.

94. Spade, Paul Vincent. 1979. "Recent Research on Medieval Logic." *Synthese* no. 40:3-18.

    Reprinted as Chapter I in: P. V. Spade, *Lies, Language and Logic in the Late Middle Ages* (1988).

    "In this paper I shall survey some of the main areas of recent research on the logic of the Middle Ages. A large and flourishing body of scholars is now actively at work in this field; interest in the topic is no longer by any means confined to a relatively small group of specialists. Perhaps the most characteristic feature of this recent research is the symbiotic relationship between pure historical and textual scholarship of the highest quality - the edition of texts, the identification of authors and their sources, the establishment of their interrelations - and the critically exegetical work of scholars familiar with the results and techniques of modern logic and analytic philosophy. This fruitful relationship has begun to make the immense field of medieval logic accessible not only to specialized medievalists but also to the philosophical profession at large.

    Although it is impossible to date the beginning of this collaboration with any precision, it had taken hold firmly by about 1960. At that time, thanks to the work of Bochenski, Boehner and Moody, among others, medieval logic had been established as a rich and sophisticated field worthy of serious study. But this claim was not established without resistance. For many years, students of medieval philosophy had concentrated mainly on issues in metaphysics and epistemology. There were perhaps several reasons for this - the sociology of the revival of medieval studies in Europe and

America, the preeminence of Thomas Aquinas until recently in the intellectual life of the Catholic Church, and so on. Whatever the reasons, historians of medieval philosophy tended to focus on the great metaphysical and epistemological questions, and largely overlooked medieval work in other areas of philosophy.

(...)

I cannot of course do justice to all the facets of recent research in the field. I shall mention only a few points, and hope thereby to convey some idea of its extent. For the most part, although not exclusively, I shall confine myself to work done since 1960. My discussion will be organized in two parts. The first part will be a general review of some of the major trends and results in the area. Space does not permit extended critical and evaluative comments, although I will insert remarks on particular points here and there, and suggest areas where future research might profitably be directed. The second part will be a selective bibliographical essay designed to inform the interested layman of a few central studies and translations, and of where he may go to find out more." (pp. 3-4)

95. ———. 1988. *Lies, Language and Logic in the Late Middle Ages*. London: Variorum Reprints.

Contents: Preface IX-X; I. Recent Research on Medieval Logic 3-18; INSOLUBILIA. II. The Origins of the Mediaeval *Insolubilia*-Literature 292-309; III. Ockham on Self-Reference 298-300; IV. *Insolubilia* and Bradwardine's Theory of Signification 115-134; V. William Heytesbury's Position on "Insolubles": One Possible Source 114-120; VI. John Buridan on the Liar: A Study and reconstruction 579-590; VII. Roger Swyneshed's *Insolubilia*: 177-220; VIII. Roger Swyneshed's Theory of *Insolubilia*. A Study of Some Preliminary Semantic Notions 105-113; OCKHAM'S SEMANTICS. IX. Ockham's Rule of Supposition: Two Conflicts in his Theory 63-73; X. Some Epistemological Implications of the Burley-Ockham Dispute 212-222; XI. Ockham's Distinction between Absolute and Connotative Terms 55-76; XII. Priority of Analysis and the Predicates of "O"-Form Sentences 263-270; XIII. Synonymy and Equivocation in Ockham's Mental Language 9-22; XIV.

Ockham on Terms of First and Second Imposition and Intention, with remarks on the Liar Paradox 47-55; XV. Les modalités aléthiques selon Ockham 29-34; THE *OBLIGATIONES* LITERATURE. XVI. Roger Swyneshed's *Obligationes*: Edition and Comments 243-285; XVII. Three theories of *Obligationes*: Burley, Kilvington, and Swyneshed on Counterfactual Reasoning 1-32; Addenda et Corrigenda 1-6; Index 1-6.

"The seventeen papers reproduced in this collection were all originally published between 1973 and 1983. They are devoted to topics in mediaeval logic and semantic theory. Within that general area, my work has been concentrated in three main subfields, represented here by the three main divisions of this volume: (1) The mediaeval treatments of antinomies such as the "Liar" paradox (papers II-VIII); (2) mediaeval semantic theory, particularly the logical doctrine of "supposition" and the theory of the relation between language and thought (papers IX-XV); and (3) the peculiar genre of disputation known as *"obligationes"* (papers XVI-XVII). Paper I is a general overview of research in the field, and may serve as an introduction to the volume as a whole.

The three main parts of this collection correspond to the three chapters I contributed to *The Cambridge History of Later Medieval Philosophy,* Norman Kretzmann, ed., (Cambridge: Cambridge University Press, 1982): Chs. 9 (pp. 188-96), 12 (pp. 246-53), and 13B (pp. 335-41). I refer the reader to those chapters for further information on the topics covered in the present volume.

With the exception of the first two, all the papers collected here deal exclusively with the first half of the fourteenth century. Except for papers I-II and VI, they are all focussed on Oxford University. If there is one name that dominates these pages, it is that of William of Ockham. All the papers in the second part of the collection (IX-XV) are studies of Ockham, as is paper III. The results of these studies are often negative; they find fault with this or that aspect of Ockham's theory. Nevertheless, I hasten to add that I have never thought of my task as one of

"debunking" Ockham. On the contrary, I find Ockham an extraordinarily appealing thinker, one with whom I am in considerable philosophical sympathy. I hope that, through the papers reproduced here, the reader will perhaps come to appreciate the depth and richness of this part of Ockham's thought, and of mediaeval logic and semantic theory more generally." (From the Preface)

96. ———. 1988. "The Logic of the Categorical: the Medieval Theory of Descent and Ascent." In *Meaning and Inference in Medieval Philosophy. Studies in Memory of Jan Pinborg*, edited by Kretzmann, Norman, 187-224. Dordrecht: Kluwer.

97. ———. 1996. *Thoughts, Words and Things: An Introduction to Late Mediaeval Logic and Semantic Theory*.

    Available on the Internet at the site "Mediaeval Logic and Philosophy".

98. ———. 1998. "Late Medieval Logic." In *Routledge History of Philosophy. Volume III: Medieval Philosophy*, edited by Marenbon, John, 402-425. New York: Routledge.

99. ———. 2010. "Sophismata." In *The Cambridge History of Medieval Philosophy. Vol I*, edited by Pasnau, Robert and Dyke, Christina van, 185-195. Cambridge: Cambridge University Press.

100. Strobach, Niko. 2017. "Indivisible Temporal Boundaries from Aristophanes until Today." *Vivarium* no. 55:9-21.

101. Stump, Eleonore. 1989. *Dialectic and Its Place in the Development of Medieval Logic*. Ithaca: Cornell University Press.

    Contents: Acknowledgments IX; Introduction 1; 1. Dialectic and Aristotle's *Topics* 11; 2. Dialectic and Boethius's *De topicis differentiis* 31; 3. Between Aristotle and Boethius 57; 4. Topics and Hypothetical Syllogisms in Garlandus Compotista 67; 5. Abelard on the Topics 89; 6. Logic in the Early Twelfth Century 111; 7. Terminist Logicians on the Topics 135; 8. Consequences and the Decline of Aristotelianism in Formal Logic 157; 9. William of Sherwood's *Treatise on Obligations* 177; 10. Walter

Burley on Obligations 195; 11. Roger Swyneshed's Theory of Obligations 215; 12. Topics, Consequences, and Obligations in Ockham's *Summa logicae* 251; Index 271-274.

102. Styazkhin, N. I. 1969. *History of Mathematical Logic from Leibniz to Peano*. Cambridge: The M.I.T. Press.

    Chapter One. *The Development of Mathematical Logic During the Middle Ages in Europe* 1-55.

103. Sullivan, Mark. 1970. "What Was True or False in the *Old Logic*?" *Journal of Philosophy* no. 67:788-800.

104. Tarlazzi, Caterina. 2017. "Individuals as Universals: Audacious Views in Early Twelfth-Century Realism." *Journal of the History of Philosophy* no. 55:557-581.

    Abstract: "This article investigates a twelfth-century realist view on universals, the *individuum*-theory. The *individuum*-theory is criticized by Peter Abelard and Joscelin of Soissons, and endorsed by '*Quoniam de generali*' as well as by the unpublished *Isagoge* commentary found in MS Paris, BnF, lat. 3237, which is here taken into account for the first time. The *individuum*-theory blurs traditional distinctions between nominalism and realism by claiming that the universal is the individual thing itself. In this paper, I present the main strategies for such a claim; namely, putting forward identity "by indifference," distinguishing *status* and *attentiones*, and neutralizing opposite predicates. I argue that these strategies have parallels in Abelard's own views. The *individuum*-theory's paradoxical realism seems to defend universal *res* after criticisms were advanced against more traditional material essence realism, and it seems to have been using some of the nominalists' tools (particularly Abelardian tools) in its endeavor."

105. Thom, Paul. 1977. "Termini Obliqui and the Logic of Relations." *Archiv für Geschichte der Philosophie* no. 59:143-155.

106. ———. 2003. *Medieval Modal Systems: Problems and Concepts*. Aldershot: Ashgate.

"The major medieval systems of modal logic were developed during a period flanked by Pierre Abelard in the twelfth century and Jean Buridan in the fourteenth. Little of great significance pre-dates Abelard or post-dates Buridan; and these two Frenchmen are major figures indeed. In between their work lies that of the well-known Avicenna, Averröes and Ockham, as well as that of the comparatively unknown Robert Kilwardby in the thirteenth century and Richard Campsall in the early fourteenth. The work of these seven thinkers in the field of modal syllogistic will be my focus in this book.

These thinkers were motivated by two forces. First of all, there are the interpretive puzzles posed by Aristotle's modal logic as expounded in the *Prior Analytics* and *De Interpretatione*. These two texts appear not always to be in accord with one another, and the modal syllogistic as presented in the *Prior Analytics* not only lacks a semantic foundation but appears to be internally inconsistent. All this is grist to the mill of the interpreting mind. Then there is the inherent fascination of modal logic as a field of theoretical enquiry. An uneasy relationship exists between the desire to interpret Aristotle and the desire to theorize modality. The latter, of course, is a philosophical desire, autonomous but also intimately connected with broader metaphysical and theological ways of thinking. The former force is, at first sight, a philological rather than a philosophical one. But in reality matters are not so simple, since the philosophical interpretation of any text - let alone one that increasingly carried such authority as that of Aristotle -is always partially governed by philosophical rather than philological imperatives.

There are two key theoretical questions stirring the minds of medieval modal logicians. The first question concerns the doctrine that I shall call actualism. According to this doctrine, modal propositions are about the actual things that ordinary non-modal propositions are about. Contrasted with actualism is the view that modal propositions are about what *possibly* falls under the subject-terms of the corresponding non-modal propositions. This doctrine I will call ampliationism. The leading actualists in the medieval period are Abelard, Ockham,

and to a certain extent Campsall; the ampliationists are Avicenna and Buridan. A second question concerns the extent to which essentialist notions are assumed in the modal theories of our seven thinkers. All seven make use of the notion of an essential property. In addition, Averroes, Kilwardby and Campsall make use of the notion of a kind, i.e. a class whose members necessarily share their essential properties. (Preface, XI-XII)

107. Thomas, Ivo. 2006. "Interregnum (Between Medieval and Modern)." In *Encyclopedia of Philosophy. Second Edition*, edited by Borchert, Donald M., 437-440. New York: Thomson Gale.

    The first edition of the *Encyclopedia of Philosophy*, edited by Paul Edwards, was published in 1967.

    The editor of the article *Logic, history of* in the first edition was Arthur Norman Prior.

    With an *Addendum* by Tony Street, p. 421.

108. Trentman, John A. 1966. "Lesniewski's *Ontology* and Some Medieval Logicians." *Notre Dame Journal of Formal Logic* no. 7:361-364.

109. ———. 1968. "Extraordinary Language and Medieval Logic." *Dialogue* no. 7:286-291.

110. ———. 1976. "On interpretation, Leśniewski's ontology, and the study of medieval logic." *Journal of the History of Philosophy* no. 14:217-222.

111. ———. 1990. "Logic." In *Contemporary Philosophy: A New Survey. Vol. 6/2*, edited by Fløistad, Guttorm and Klibansky, Raymond, 805-819. Dordrecht: Kluwer.

    "Rather than attempt a necessarily over-sketchy account of the diversity of this material, I would refer the reader to what is already only a sample, the studies, texts and translations listed in the bibliography. The rest of this survey will be taken up with a brief account of the point of view of medieval logicians, a consideration of the recent attempts to compare medieval supposition theory and modern quantification theory, and a

very short notice of the sort of contribution professional logicians have made to the study of medieval logic. I should like to think that some such selection might have pleased the medieval logicians themselves in that it emphasizes the consideration of their work, not as museum pieces, but as logic, which can be reasonably compared with contemporary contributions to the discipline. It must also be added that the subject of this article must, unfortunately, be limited to the logic of the Latin West." (p. 806)

112. Turner, William. 1907. "Mnemonic Verses in a Ninth Century MS.: A Contribution to the History of Logic." *The Philosophical Review* no. 16:519-526.

113. Uckelman, Sara L. 2009. *Modalities in Medieval Logic*. Amsterdam: Faculteit der Natuurwetenschappen, Wiskunde en Informatica.

114. ———. 2012. "Arthur Prior and Medieval Logic." *Synthese* no. 188:349-366.

115. ———. 2013. "A Quantified Temporal Logic for Ampliation and Restriction." *Vivarium* no. 51:485-510.

116. Uckelman, Sara L., Maat, Jaap, and Rybalko, Katherina. 2018. "The art of doubting in *obligationes parisienses*." In *Modern Views of Medieval Logic*, edited by Kann, Christoph, Löewe, Benedikt, Rode, Christian and Uckelman, Sara L. Leuven: Peeters.

117. Valente, Luisa. 2007. "Names That Can Be Said of Everything: Porphyrian Tradition and 'Transcendental' Terms in Twelfth-Century Logic." In *The Many Roots of Medieval Logic: The Aristotelian and the Non-Aristotelian Traditions*, edited by Marenbon, John, 298-310. Leiden: Brill.

    Abstract: "In an article published in 2003 [*], Klaus Jacobi—using texts partially edited in De Rijk's *Logica Modernorum*—demonstrated that twelfth-century logic contains a tradition of reflecting about some of the transcendental names (*nomina transcendentia*). In addition to reinforcing Jacobi's thesis with other texts, this contribution aims to demonstrate two points: 1) That twelfth-century logical reflection about transcendental

terms has its origin in the *logica vetus*, and especially in a passage from Porphyry Isagoge and in Boethius's commentary on it. In spite of the loss of the major part of the Aristotelian corpus, the twelfth-century masters in logic still received some Aristotelian theses concerning the notions of one and being via Porphyry and Boethius; on the basis of such theses, they were able to elaborate a sort of proto-theory of the transcendentals as trans-categorical terms. 2) Th at this theory is centred on the idea that there exists a particular group of names which have the property that they can be said of everything; this group includes "being", "one", "thing" and "something" (*ens, unum, res, aliquid*).

Twelfth-century masters in logic try to question the (originally Aristotelian) thesis that these terms are equivocal, although they do not deny it completely."

[*] Jacobi, K. (2003) 'Nomina transcendentia. Untersuchungen von Logikern des 12. Jahrhunderts über transkategoriale Terme' in Pickavé (2003) 23–36.

Pickavé, M. (ed) (2003) *Die Logik des Transzendentalen*, Berlin and New York.

118. Verboon, Annemieke Rosalinde. 2014. "The Medieval Tree of Porphyry: An Organic Structure of Logic." In *The Tree: Symbol, Allegory, and Mnemonic Device in Medieval Art and Thought*, edited by Salnius, Pippa and Worm, Andrea, 95-116. Turnhout: Brepols.

119. Vineis, Edoardo, and Maierù, Alfonso. 1994. "Medieval Linguistics." In *History of Linguistics. Volume II*, edited by Lepschy, Giulio C. London: Longman.

English translation of: E. Vineis, A. Maierù (eds.), *La linguistica medievale*, Vol. II of: Giulio C. Lepschy (ed.), *Storia della linguistica*, Bologna: Il Mulino, 1990.

120. Weinberg, Julius. 1965. *Abstraction, Relation, and Induction: Three Essays in the History of Thought*. Madison: University of Wisconsin Press.

121. Yrjönsuuri, Mikko. 1993. "Aristotle's *Topics* and Medieval Obligational Disputations." *Synthese*:59-82.

122. ———. 2001. *Medieval Formal Logic: Obligations, Insolubles and Consequences*. Dordrecht: Kluwer.

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123. ———. 2008. "Treatments of the Paradoxes of Self-reference." In *Handbook of the History of Logic, Vol. 2: Mediaeval and Renaissance Logic*, edited by Gabbay, Dov and Woods, John, 579-608. Amsterdam: Elsevier

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History of Logic

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"This collection of fifteen papers from an international symposium held at Oxford in 1983 traces the emergence and development of a distinctive British tradition in logic and semantics from the twelfth to the fourteenth century.

In a programmatic study of origins Sten Ebbesen indicates that the terminist logic, which had emerged in France in the twelfth century, maintained its vitality in Oxford at a time when it was eclipsed by modist theory in Paris, then returned to the Continent with Ockham. For the thirteenth century, P. Osmund Lewry explores the characteristic preoccupation of some neglected Cornish masters with problems of extensionality, questions of existence and tense; Alain de Libera contrasts William of Sherwood's Oxford source, the *magister abstractionum,* with the Parisian *Abstractiones* of Hervaeus sophista; C.H. Kneepkens finds some links with the Parisian tradition in Roger Bacon's treatment of meaningfulness and grammaticality, and Georgette Sinkler relates Bacon's account of grammatical dependence to his reaction against Lambert of Auxerre; Alessandro D. Conti discovers a nominalist reading of the *Categories* in Thomas Sutton.

While D.P. Henry shows how the Lesniewskian Ontology may be applied to resolve the existential paradoxes of the Oxford masters and Boethius of Denmark, Francesco Bottin outlines the metalinguistic solution devised by the fourteenth-century Mertonians for paradoxes of truth and falsity. Ria van der Lecq presents William Heytesbury as continuing the Aristotelian theory of modality; Joël Biard reveals his innovatory influence with regard to the signification of imaginary objects. N.J. Green-Pedersen suggests that the fourteenth-century sophismatic exercises of Oxford were the matrix for the widely diffused handbooks of *consequentiae* E.J. Ashworth traces the diffusion of *obligationes* texts after Roger Swyneshed. Stephen Read elucidates the conflict between nominalists such fr. Hurley and Wyclif by reference to twentieth-century discussions and the positions of Russell and Frege. Graziella Federici Vescovini pursues the reflections of Heytesbury on the border of logic and physics in Messinus of Coderonco [= Mesino da Codronchi]. E.P. Bos detects John Hunteman's hand

behind Paul of Mantua's rejection of Parisian teaching on the ampliation and restriction of terms.

The collection includes many detailed descriptions of unedited works, and newly edited material from writings of Nicholas and Peter of Cornwall, Richard Clive, Robert Kilwardby, Thomas Sutton and William Heytesbury."

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detailed descriptions and editions of unedited works that will constitute a greatly appreciated resource in the study of medieval philosophy." (From the Preface)

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History of Logic

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Logic and Rhetoric in the Philosophical Works of Cicero

Introduction

This page is dedicated to the following aspects of the philosophy of Marcus Tullius Cicero:

The creation of the Latin philosophical vocabulary;

His testimony on Stoic logic;

His book *Topica,* who in the Middle Ages become one of the texts of the *Logica Vetus*.

Attention will also be given to the *De Inventione* and *De Oratore*, who exerted a great influence on medieval thinkers.

An overview of Cicero as philosopher

"Philosophy meant Greek. Rome had nothing to offer except a stern traditional moralism exemplified by Cato, which found the rigid Semitic ethic of the Stoics congenial, and a reaction away from this, which expressed itself in a loose Epicureanism, such as Epicurus himself and his sincere exponents would have utterly disowned. 'And so it is not Epicurus who has driven them to debauchery. They have already given themselves over to immorality, and now try to hide their debauchery in the lap of philosophy; they congregate in the place where they hope to hear the praise of pleasure' (1). The words date from the next century, but they are applicable to the age of Cicero. Cicero is at some pains to explain away the apparent Roman incapacity for philosophy. He suggests that there is no real inability : rather their energies have been diverted into other channels.

Be that as it may, philosophy meant Greek, and Greek philosophy of the age of Cicero was represented predominantly by four schools.

a) The oldest of these was the Academy. Under Plato this had been a training-ground for politicians, with a course designed to lift the mind from the relativities of our normal life to the eternal verities, and a pioneering interest in logical analysis. For seventy years after his death the heads of the Academy were dogmatists whose interests were predominantly ethical. Then in the mid-third century Arcesilas transformed the whole direction of Academic thought, by retaining the dialectic but abandoning the dogmatic, so that every question was treated as an open question, certainty was abjured and probability left as a guide. This was a polemic against Stoic claims of infallibility; it was affected by the scepticism of Pyrrho and the logical acumen of Diodorus, so that the satirist Timon described Arcesilas as a kind of Homeric chimaera 'Plato the head of him, Pyrrho the tail, in between Diodorus' Arcesilas' work was taken up in the next century by Carneades, unquestionably the greatest thinker between Aristotle and Plotinus, and suspension of judgment remained a tenet of the school, though there may have been some esoteric dogmatism. According to Cicero the Academics of his day were few in number (2).

b) The Peripatetics originated with Plato's pupil Aristotle. Of all the ancient schools the Peripatetics were the most insistent that theory should be grounded in fact, and they specialized in amassing large quantities of fact on which a critical judgment could be based. Their judgments were generally free from extremism and marked by a sturdy common sense. Their special contribution lay in scientific research.

c) Stoicism emerged at the beginning of the third century to meet the demand for education occasioned by limiting the period of military training and transferring it to Athens. The philosophy was designed to meet a mood of despair in an age of 'the failure of nerve'. Its religion was a pantheistic determinism; its chief virtue resignation. Its early exponents preached a rigid moralism in which virtue was the only good, vice the only evil, and all else matters of indifference, and which divided mankind into saints and stoners without any No

Man's Land between. Later this rigidity was modified, though the quest for perfect virtue was never abandoned.

d) Epicureanism met the same needs, opportunities and mood as Stoicism. Epicurus regarded the end of life as 'pleasure', not crudely interpreted but understood as freedom from disturbance. To this end we must be rid of fear and control desire. Fear is dispelled by understanding; hence the Epicureans adopted Democritus' atomic theory as the most reasonable account of the world, and this enabled them to dismiss the fear of death, death being the painless dissolution of our atomic structure. The greatest external adjunct to the tranquil life is friendship, and the emphasis upon friendship is one of the most attractive features of the school. Finally, gods exist, but they are remote and not to be feared, spending their time in philosophic conversation.

This picture must be modified by a general tendency to eclecticism. Among the Peripatetics this is open and unashamed, and the *De mundo* contains much that is Stoic, and*De virtutibus et vitii*s is an attempt to reconcile the Academy and the Peripatos. The Platonists had, at least publicly, given up their distinctive insight in the interests of scepticism, and turned increasingly towards the Stoics, and in the age of Cicero Antiochus of Ascalon, who had at first opposed the Stoics, later capitulated and, in R.D. Hicks' words, 'taught Stoic logic, Stoic physics and an ethical theory which was only not orthodox Stoicism because it was fatally wanting in the unity, coherence and consistency which even opponents admired in the Stoics'. But the Stoics also, as we have seen, shifted -- the attacks of Carneades could not be ignored -- and in the first century Posidonius abandoned the orthodox psychology and went back to Plato. Only the Epicureans never changed an atom, and the agreement of Lucretius and even Diogenes of Oenoanda with Epicurus is a tribute to the conservatism of the school.

It is not always realized how thoroughly Cicero was grounded in philosophy. He was born in the country near Arpinum, but from the age of ten Rome was his centre. His philosophical training began before he was sixteen when in conjunction with his friend Titus Pomponius Atticus he attended the lectures of the Epicurean Phaedrus, who was teaching in Rome at the time (3). Both students

were impressed. With Atticus it lasted a life-time; with Cicero the enthusiasm for the tenets of Epicurus soon wore off, but he continued to speak of Phaedrus with respect and to enjoy his friendship. Thereafter he had little official contact with the Epicureans, and publicly disavows acquaintance with their formless writings, but it is clear that he had read more than he makes out (4). Later legend associated him with Lucretius' poem; Jerome says that he amended it and Borgius quotes some alleged corrections. The indefatigable Merrill assures us that there is no phrase in Cicero which is assuredly borrowed from Lucretius. But we know from the letters that Cicero was familiar with the poem (5), and Lucretius may have read extracts to the distinguished *littérateur*.

After leaving Phaedrus, Cicero went to study dialectic with Diodotus the Stoic. This art, which Cicero calls 'abbreviated eloquence', was at the time the monopoly of the Stoics. Cicero absorbed, but was not attracted by, the general philosophy. But Diodotus became an inmate of Cicero's house until his death some thirty years later (6).

Then, in 88 Philo of Larissa, the head of the Academy came as a refugee to Rome. He was a versatile genius, attractive to Cicero not least for his mastery of the theory and practice of oratory. But these were troubled times politically. It seemed that a public career was closed, though he took further training from Molo, the Rhodian ambassador, who linked for him rhetoric and ethics. Meantime he threw himself whole-heartedly into the study of philosophy, and his commitment to the Academy lasted a lifetime (7). Later he likes to recollect his early enthusiasm for philosophy (8), but, even allowing for exaggeration, it is clear that he worked very hard. Throughout the years 88-1 the training continued, and his translations from Greek into Latin included Xenophon's *Oeconomicus* and Plato's *Protagoras*.

Even now he was not done. In 81 he made his first public speech; in the following year he made a public attack upon one of the minions of the dictator Sulla, and shortly afterwards we find him leaving Rome 'for the good of his health'. He spent six months in Athens. There were, it seems, no eminent Stoics or Peripatetics in the city at the time. The Epicureans were under the leadership of Zeno of Sidon, a man of mordant sarcasm but an unrivalled expositor, endowed

with more clarity than charity. Cicero's old friend Phaedrus was however there also, and Cicero accompanied Atticus to some of his lectures (9). He also made the acquaintance of the Stoicizing Academic Antiochus of Ascalon, for whom he conceived a great admiration, 'pre-eminent among contemporary philosophers in ability and scholarship' (10), 'a writer of extraordinary shrewdness' (11), 'the shrewdest and most cultured of the philosophers of my time' (12). In theory, however, he sided with the more orthodox Philo (13).

From the mainland of Greece Cicero went on to Rhodes to continue his study of rhetoric with Molo. Here he met Posidonius; they struck up a friendship, and through this contact Stoicism entered his thinking for the first time as a vital influence. Cicero calls him the greatest of the Stoics, a thorough investigator and the most celebrated of all contemporary philosophers, and says that he read his works more than those of any other philosophical writer. He certainly quotes them more often (14).

From his return to Rome in 77 Cicero was fully engaged in his public career, though he never forgot that he was a scholar and was proud, for example, that as an administrative officer in Sicily he had rescued the tomb of Archimedes from oblivion. But his formative period was over. It had been long and thorough; he had been trained in three of the principal schools, and had emerged with an Academic theory of knowledge, an immense admiration for Plato, and some inclination to the Stoics without their dogmatism. (pp. 99-103).

(...)

It is important to realize what Cicero was trying to do. He never claims originality, except in the last book *De officiis*. He admits that his works are derivative -- 'I merely provide words, and I've plenty of those'. He is however no slavish translator (15); he always brings a critical and interpretative faculty to bear, as he himself claims (16). His aim is the Introduction of philosophy to Rome. War and dictatorship alike limited the scope of public oratory. Philosophy was to Cicero only a second-best, but it was that, and with the decline of oratory he was prepared to give an impulse to Roman philosophy. They needed to be able to philosophize without resort to the Greeks, and to this end he sought to provide them with a kind of philosophic

encyclopaedia. He hoped to make every department of philosophy accessible in Latin; 'what greater or better service, could I offer my country than teaching and instructing the young' (17).

He chose as his form the dialogue, and his models Aristotle, and, occasionally, Heraclides Ponticus (18). This is especially marked in the *Tusculans* where the dialogue is a dialogue with a tendency to monologue, though we cannot help feeling that Cicero, who never suffered from an excess of modesty, is consciously or unconsciously casting himself for the role of Socrates. He is himself aware of this tendency (19). In general, as in *De finibus* or *De natura deorum*, he likes first to present and then criticize the tenets of each of the leading schools in the field under discussion. His presentation is generally fair, though an unconscious bias asserts itself in that he puts the Stoic case at much greater length than the Epicurean. His criticisms are sometimes self-contradictory, but never merely silly. The whole is a fascinating and, we must believe, generally reliable Introduction to the climate of Greek thought in the time of Cicero.

It is not needful here to essay any summary of these expositions, since, it is Cicero whom we are considering rather than his sources.

(...)

But we may properly ask whether we can see what Cicero regarded as the function of philosophy. Unfortunately the work in which he must have presented this systematically, *Hortensius*, is lost. However, we can recover something of its theme. We know, for example, that it was based on Aristotle's *Protrepticus*. This also is lost, but the work of Jaeger and others has enabled us to see something of its content. The book was addressed to a prince of Cyprus named Themison. It was written in Aristotle's Platonic period, and there is no doubt that its ultimate aim was practical. Themison says Jaeger 'is to help to realize the political philosophy of the Academy. He is to be a philosopher-king. But although the aim was practical it was not utilitarian, and Aristotle argued against the proposition that philosophy is to be judged by its immediate expediency; this, as Jaeger has shown, is a defence of the Academic training against Isocrates. On the contrary, we should not be too engrossed in mortal affairs; the life of pure contemplation offers something they can never offer; it accords with man's peculiar gifts and function; in the

isles of the blest there will be no place for the ethical virtues; our aim must be to devote ourselves to truth as the fulfilment of our true personalities.

Cicero followed this, but not slavishly. He used the dialogue form, as Aristotle probably did not. Our knowledge of Cicero's text is principally from Augustine, for whom it was a seminal work. A long and famous extract contains the passage which shows that in the legendary islands after death there will be no place for virtue where there is no room for vice nor even for eloquence where there are no law-courts, but contemplation alone belongs to the highest happiness. Similarly the final conclusion of *Hortensius* directed the reader away from frail mortality to eternity.

Cicero was however by no means always so divorced from practicality. The last book of the *Tusculans* begins with an eloquent panegyric of philosophy, including a summary of the course of Greek thought which omits all mention of the natural philosophers and praises Socrates for having first brought philosophy down from the sky (that is from astronomy and cosmology) and planted her in the town and in the home; to compel men to give thought to ethical principles and their general way of life (20). 'O philosophy' he cries 'life's supreme commander, tracking virtue to its lair and banishing vice, what would have happened to us, what could have happened to man's life at all without you? You brought towns into being. When men were separate from one another you summoned them to community, drew them together first in families, then in marriage, then in the use of a common language. You devised the rule of law; you were our schoolmistress in learning and behaviour. You are our refuge, our source of help. In the past we have given ourselves to you only with reservations; now we give ourselves utterly and completely' (21). Again in the second book we read 'Philosophy has to her credit the cure of souls, the removal of idle worries, redemption from lust and the banishment of fear' (22). So in a letter to Varro he speaks of his return to his books as to old friends whose advice he has neglected in his dubious political alliances. They have forgiven him, and with their help he hopes to face more steadfastly present and future distress (23). Cicero in these passages is writing without a model open before him; he is writing from the heart, and there is

adequate indication that he is really preoccupied with ethical and practical issues.

In fact when we examine the theme and contents of his surviving work this assertion is amply borne out. They all deal with problems of politics (as in the rather earlier *De Republica and De legibus*), religion or ethics. The *Tusculans*, a collection of five miscellaneous discourses, deals successively with the propositions 'I think death is an evil' 'I reckon pain the worst of all evils' 'I think the wise man is liable to present distress' 'I think the wise man cannot get rid of all mental disturbances'. 'I think that virtue is not sufficient to produce ultimate happiness'. These themes (all the propositions are confuted) show well enough the general tenour of his thought. In some moods he was doubtful whether philosophy had all the answers, and Lactantius quotes a letter he wrote to his son 'We ought to know what philosophy teaches, but we ought to live by our national traditions' (24).

He is not interested in the physical sciences, though in *De natura deorum* he followed with keen interest the beauties of the Stoic natural theology against the Academic Carneades. He recognized the Peripatetic virtues in the field of science, and corrected some of the extravagances of the Stoics by reference to Aristotle. His theory of knowledge is Academic. As an orator he was trained to see both sides of a case, as a historian of philosophy he saw the conflicts of philosophers, as a person he was inclined to charity and saw something unworthy in arrogant dogmatism. Opinion, he insists, is free, and each man is free to defend his own position.(25) Disagreement is legitimate and understandable, but not bitterness (26). After all, *quot homines, tot sententiae* (27) Not for him the pernicious autocracy of Pythagoras with *hipse dixit* (28) or the apron-strings of Chrysippus shackling the Stoic. The Academic, abjuring certainty, guided by probability roams free. Cicero anticipated Mill in his belief that freedom of discussion leads to intellectual progress. Sometimes, it must be admitted, he uses the doctrine as an excuse for mental laziness. He has the inconsistency which is the besetting sin of those who borrow eclectically from their predecessors. The view of divination in *De legibus* is radically different from the scepticism of *De divinatione*, and the attempted explanations of this are not really satisfactory. The last book of the

Tusculans and the fourth of *De finibus* are in flat contradiction with one another. Cicero is quite cheerful about such contradictions. 'At different times different views seem more probable' he comments (29); like Dr. Johnson, he refuses to be bound by his previous utterances. He lives, from day to day (30). He is not, however, always free from dogmatism. Indeed there is an amusing passage in the *Tusculans*. Cicero has in the very previous paragraph been commending suspension of judgment. His interlocutor puts the proposition, 'I think that virtue is not sufficient to produce ultimate happiness', and Cicero's demur is almost violent in its emphasis. This is generally true of his ethics which incline to the absolute and dogmatic position of the Stoics. One of Cicero's aims was to undermine Epicurean influence by a combination of Academci scepticism and Stoic ethics.

So far he might seem another of the hack-writers of philosophical text-books who diligently and meticulously perpetuate the errors of past generations. When we turn to his methodology however he appears much more modern.

In the first place he insists on definitions. So he writes to his son in *De officiis* 'Every systematic philosophical development of a subject must begin with a definition to provide a clear explanation of the subject under discussion' (7). Throughout this work his treatment is carefully analytical, as we may note in the discussion of the cardinal virtues. In *De finibus* the first substantial point which Cicero makes against Epicurus arises out of the latter's failure to define: he does not make clear what he means by 'pleasure' (32). Again in the fourth book of the *Tusculans*, where the theme is mental disturbance in general, Cicero points out that the Stoics have spent some time in classification and definition, a thorny subject which the Peripatetics by-pass. He will therefore start with the Stoics, and gives Zeno's definition of mental disturbance as an 'unnatural spiritual upheaval uncontrolled by philosophy'. It is easy to pick holes in the definition; the point is that a definition has been given; he himself suggests an alternative 'an excessively violent appetition' (33). He then takes up an analysis from the previous book (34) according to which the irrational emotions are four in number -- pleasure, which is reaction to a present good, desire, which is an outreaching to a future good, fear, which is an outreaching to a future evil, and distress, which is

reaction to a present evil. Finally he subdivides these four sections, differentiating in each between apparent synonyms in a passage which should be compulsory reading for developing the precise use of words in Latin Prose Composition. Nowell-Smith's *Ethics* (*) is described in its blurb as 'A study of the words and concepts that we use for answering practical questions, making decisions, advising, warning, and appraising conduct '. No doubt Nowell-Smith starts with very different presuppositions and with a superior logical equipment, but in essence he is doing no more than Cicero, and Cicero's insistence on definition and analysis ought to commend him to contemporary thought.

Secondly, Cicero insists on the method of dialectic. So in the *Tusculans*, 'I have always approved the Academic and Peripatetic practice of presenting every subject in the form of a debate, partly because it is the only way of reaching the most probable conclusion on any particular topic, partly because it is good rhetorical practice' (35). 'The sole object of our discussions' he says in the *Academica* 'is by arguing on both sides to draw out and give shape to some conclusion which may be either true or the nearest possible approximation to the truth' (36). It is significant that in adopting Aristotle's *Protrepticus*, which seems not to have been in dialogue form, for his *Horensius* he recast it as a dialogue. *De finibus* is here typical of his methods. The theme is the *summum bonum*. Book I presents the Epicurean view. Book II subjects this to a criticism which is overtly Academic, though its content include, a large admixture of Stoicism. Book III presents the Stoic case, and to Book IV this in turn is attacked, though more sympathetically, from an Academic standpoint. Book V presents a synthetic Academic-Peripatetic view. In *De divinatione* the Epicurean view is omitted as it was a flat negation. Book I presents the Stoic position, Book II the Academic assault upon it. The treatment in *De natura deorum* is closely similar. The Epicurean view is stated and criticized; then the Stoic view is stated and criticized. There is some disparity of space between these treatments. To some extent this reflects the greater importance that theology held for the Stoics; it also reflects a bias in Cicero. Wilamowitz once made a curiously wrong-headed remark that there were no real debates in Cicero. Cicero is not always

objective in his presentation, but the principles underlying it are remarkably Hegelian.

Thirdly, his concept of his function as a philosopher (though not of the function of philosophy itself) was plainly the examination and criticism of what philosophers have actually said. This, so far as it goes, is a modern approach. Some of the detailed criticisms have a modern ring about them also. The Epicureans argued for the existence of gods on the grounds of universality of belief. Cotta's question 'How do you know what all the nations of mankind believe?' (37) might almost have been asked by Ayer or Findlay, and the assertion is brought to the empirical test of actual atheism. In fact, Cicero is always quoting actual Roman experience to illustrate or to test his theme.

Fourthly, and most important, Cicero gave to Rome, and hence to modern Europe, her philosophical vocabulary, and so inescapably moulded our patterns of thought. This was his greatest achievement; Please called it an 'incomparable service'. Plutarch says of him (38): 'He made it his business further to compose and translate dialogues on philosophy, and to express in Latin the vocabulary of science and logic. It is said that he was the original or principal person to supply the Romans with words for *phantasia, synkatathesos, epoche, catalepsis*, as well as *atomon, ameres*, and *kenon* he produced familiar and acceptable terms by the use of transference of language and other devices'. We must remember that Lucretius, who was ten years younger than Cicero, but writing before him, spoke bitterly and repeatedly of the poverty of his native language (39). He found himself continually forced to use Greek formations, of which *homoeomereiae* is merely the most notorious. Some significant Epicurean concepts, such as that which Cicero terms the *intermundia*, the spaces between the universes, Lucretius does not express at all. Cicero refuses to allow that Greek is a richer tongue than Latin; in a long passage at the beginning of *De finibus* he asserts the contrary (40), a claim repeated in the *Tusculans* (41). His age is to see the birth of philosophy in Latin literature and he is to be the midwife (42). He tells Atticus not to be alarmed about the Latin language (43). In the *Academica*, one of the works in which he is forming his style, he examines some of the difficulties of translating technical terms and admits that he has to 'manufacture' words (44).

This he does with marked success. We in fact owe to Cicero the words quality, individual, vacuum, moral, property, induction, element, definition, difference, notion, comprehension, infinity, appetite, instance, science, image and species. It is interesting that in two instances we have adopted the original Greek as well, as a doublet with a different shade of meaning; we use 'atom' as well as 'individual', and 'ethical' as well as 'moral'. Some of these words were coined by Cicero. *Poiotes* was a curious invention of Plato (45). Cicero puts *qualitas* in the mouth of the encyclopedist Varro, who was working at the time on his treatise *De lingua Latina*. The whole passage is worth quoting (46).

'They called the product of force and matter body and what I may call quality. You will allow me, I am sure, to use unexampled words in dealing with unfamiliar topics. The Greeks do it, and they 've been handling these subjects for a good while now'. 'Of course we will' said Atticus, 'but if you want you can use Greek too if Latin lets you down'. 'Thank you, but I 'll do my best to talk Latin except with words like philosophy, rhetoric, physics and dialectic which are habitually used as Latin together with many others. I 've given the name qualities to the things the Greeks call *poiotetes*. That's a technical term of Greek philosophy like many others, and not in general use. As a matter of fact the logical analysts have their own vocabulary, quite different from that of the man in the street. In fact almost all the sciences do it; they either have to invent new words for new things or extend the usage of old ones. The Greeks have been engaged in these studies for centuries, and they still do it; we 're now trying to handle them for the first time, and may perhaps be excused'. 'Varro', I said, 'you 've already added to our factual knowledge; if in addition you add to our vocabulary you 'll certainly have done well by our country'.

Cicero there speaks of inventing some words and adapting others. Examples of such adaptation are his application of *definire* to words, the logical use of *differre*, which has previously meant to 'put off' or 'delay' the extension of *elementa* from Lucretius' atoms to Aristotle's *stoicheia*, the use of *imago* (a statue) for the mental images of Stoic psychology, and above all the extension of species from outward shape (in late Latin *virgo speciosa* means 'a pretty girl') to the Platonic form or universal (47).

There is no need to press the point further. But Cicero's linguistic preoccupations make one wish for a reassessment of his work and influence by one of our contemporary linguistic analysts." (pp. 104-111).

Notes

(1) Seneca, *Dial.* 7, 12, 4.

(2) *Nat. deor.* 1, 6; 1,11.

(3) *Fam.* 13,1.

(4) *ib.* 15, 16; 15, 19.

(5) Ad Q. fr. 2, 9, 4.

(6) *Brut.* 90, 309; *Att.* 2, 20, 6.

(7) *Brut.* 89, 306.

(8) *rep.* I, 4, 7; *Tusc.* 5, 2, 5; *Off.* 2, 1, 4; *Fat.* 1, 2.

(9) *Fin.* 1, 5, 16.

(10) *Ac.* 2, 2, 4.

(11) 2, 22, 69.

(12) 2, 35, 113.

(13) *Brut.* 91, 314 ff.

(14) *Hort.* fr. 18, *Div.* 1, 57, 130; *Tusc.* 2, 25, 61.

(15) *Off.* 2, 17, 60.

(16) *Fin.* 1, 2, 6.

(17) *Div.* 2, 2, 4.

(18) *Att.* 13, 19, 4; *Fam.* 1, 9, 23.

(19) *Att.* 13, 19, 4. *Fat.* 1.

(20) 5, 4, 11.

(21) 5, 2, 5.

(22) 2, 4, 11.

(23) *Fam*. 9, 1, 2.

(24) *Inst*. 3, 14, 17.

(25) *Tusc*. 4, 4, 7.

(26) *Fin*. 1, 8. 27.

(27) *Ib*. 1, 5, 15.

(28) *Nat. deor*. 1, 5, 10.

(29) *Ac*. 2, 38, 121.

(30) *tusc*. 3, 11, 33; cfr. 2, 2, 5.

(31) 1, 2, 7.

(32) 2, 5, 15.

(33) 4, 6, 11.

(34) 3, 11, 24.

(35) 2, 3, 9.

(36) 2, 3, 7.

(37) *Nat. deor*. 1, 23, 62.

(38) *Cic*. 881.

(39) I, 139; 1, 832; 3, 260.

(40) 1, 3, 10.

(41) 3, 5, 10.

(42) 2, 2, 5.

(43) *Att*. 12, 52, 3.

(44) 2, 6, 17.

(45) *Theatet*. 182 A.

(46) *Ac*. 1, 6, 24.

(47) *Ac*. 1, 8, 30.

(*) [Patrick-Horace Nowell-Smith, *Ethics*, London, Penguin Books, 1954]

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Cicero: the creator of the Latin philosophical vocabulary

"Philosophy, the genre in which Greek, in Rome as elsewhere, must be granted the position of the dominant language, poses a special problem for a study of the language choice in that literary expression in Antiquity was not necessarily resorted to by the philosophers. Many famous philosophers never wrote anything themselves, although their pupils may have spread their doctrines in written form using their names to do so. It is not always possible to discern the original language use behind this written form, and, in general, it may be difficult to compare the phenomenon of philosophy with such genres as, for instance, history, with which literary expression was indissolubly connected.

This problem already affects the very beginning of the philosophical tradition in Rome. We find eastern philosophers in second century Rome teaching and also writing philosophical treatises in Greek: Panaetius and Hecaton from Rhodes, Philon from Larissa and Boethus from Sidon. Many Romans were in contact with them, and listened to and spread their doctrines, probably in a Greek form and in the Greek language, although they did not use literature to do this. (p. 239)

(...)

Cicero considered himself a pioneer of Latin philosophy, and together with M. Terentius Varro and M. Junius Brutus he represents the only significant period of philosophical literature in Latin before late Antiquity. But these writers, too, had to defend their use of Latin, and their influence on contemporary society remained small.(1) As the works of Varro and Brutus are lost, we know only the apologies of Cicero, but interestingly, one of these occurs in a

conversation with Varro (*ac. post*. 1.4-8), while another is addressed to Brutus (*de fin*. 1.1-5).

The *editio posterior* of Cicero's *Academica*, written in 45 B.C., opens with a conversation between Cicero and Varro, in which the former begs Varro to write on philosophy in Latin. Varro's attitude is negative, and he uses two main arguments to support this:

nam cum philosophiam viderem diligentissime Graecis litteris explicatam, existimavi si qui de nostris eius studiis tenerentur, si essent Graecis studiis eruditi, Graeca potius quam nostra lecturos; sin a Graecorum artibus et disciplinis abhorrerent, ne haec quidem curaturos, quae sine eruditione Graeca intellegi non possunt; itaque ea nolui scribere, quae nec indocti intellegere possent nec docti legere curarent (*ac. post*. 1.4).

[As I have seen that philosophy has been very carefully expounded in Greek, I have come to the following view about people from our country who are seriously interested in it. If they have had the benefit of an education in Greek learning, they will read works in Greek rather than in our own language. But if they have taken against Greek arts or disciplines, they won't care for Latin works, either, since the latter can't be understood without knowledge from the Greeks. As a result I have been unwilling to write works that would neither be intelligible to the unlearned nor something the learned cared to read. (On *Academic Scepticism,* translated, with Introduction and notes, by Charles Brittain, Indianapolis, Hackett, 2006, p. 88)]

Varro goes on to tell us that there are philosophical works in Latin by Amafinius and Rabirius, but both their style (*vulgari sermone disputant*) and the way in which the doctrines are presented are below his own standard. (pp. 240-241)

(...)

This brings us to the best known and documented Roman translator, M. Tullius Cicero. We shall first look at what he translated -- in addition to the *Aratea* discussed above -- and then examine his opinions on the reasons for translating from Greek. The prose translations of Cicero can be divided into philosophical treatises and the speeches of Greek orators. Earliest in the former group in

Xenophon's *Oeconomicus*, translated when Cicero was little more than twenty (*de off*. 2.87). (p. 286)

(...)

Cicero himself promises in *de fin*. 1.7, to translate -- sometime in the future -- passages from Plato and Aristotle.(2) We have four fragments by Roman grammarians from a work of Cicero's called *Protagoras*, which seems to be a rather accurate translation of Plato's *Protagoras*.(3) In addition, we have in the manuscript tradition a large fragment from a translation of Plato's *Timaeus*, which is also mentioned and identified by Hieronymus as a translation (*in Esaiam* XII *prol*., *in Amos lib*. II, V, 3). But the MSS have preserved part of a preface, which seems to indicate that the translation was part of a dialogue; how Cicero himself indicated the translation, how it was incorporated into the dialogue and whether the treatise of Plato was translated completely, cannot be known. If we disregard the gaps in the manuscript tradition, the translation seems to be rather faithful.

Of Aristotle, nothing is known except *Topica*. This represents a very curious case: Cicero has promised to translate or at least explain(4) the *Topics* of Aristotle to Trebatius; he finds no time to do this before embarking on a voyage, in which, however, he has no books to refer to. But nevertheless he completes the task and sends the work, which he calls *Topica Aristotelea*, from Rhegium on July 28th, 44 B.C. to Trebatius (*ad fam*. 7.19). The problem is that the work has almost nothing to do with the *Topics* of Aristotle; evidently Cicero never read the work in question.(5) Thus, we can be certain that this work of Cicero had nothing to do with translation.

I have elsewhere discussed the discrepancy between the indication in the preface and the contents, and suggested that Cicero's doctrine as regards the topics was based on an otherwise unknown Pseudo-Aristotelian treatise, and that in this sense the indication of the preface was true; but clearly, Cicero was very free in his treatment of his theme and source.(6) (pp. 286-287)

If we can discern the reason why Cicero translated the speeches of Demosthenes and Aeschines, sufficient evidence for his philosophical translations can also be adduced, although this is

mainly connected with the treatises, whose dependence on Greek original is less clear (see also above, pp. 240-243). In addition to the above-mentioned educational aspect, the nationalistic idea seems to supply the principal motivation for translating into Latin.(7) An extreme case is *Tusc.* 2.6, where Cicero anticipates a time when all Greek philosophical literature will be translated or transferred into Latin and Greek libraries can close down.(8) This passage belongs to a powerful exhortation to transfer the achievements of Greek philosophy to Rome.(9) One could maintain that the pioneer work of Cicero in the field of Latin philosophy consisted entirely of the adapting or translating of Greek philosophical works into Latin. He compares in *de fin.* 1.4-5 his work to that of Roman dramatists, and considers that a good Roman ought to prefer Latinized philosophy in the same way as he prefers to read the dramas of Terence and Ennius.

The fact that Cicero considers the Greek libraries worthless when the bulk of Greek literature is adapted or translated into Latin, shows that, not unlike many other Romans, he emphasized the independence of the translation or adaptation from the original. Cicero also wished to make translations very free. He had not translated Demosthenes or Aeschines as an interpreter, but as an orator (*opt. gen.* 14; 23).(10) In *de fin.* 1.6, he emphasizes that only the contents of his philosophical works are derived from the Greeks, the form is his own; he does not want to be a mere translator.(11) Cicero distinguishes sharply between *interpretatio* and *imitatio*, an independent transferring, with an artistic purpose, of the ideas of the original.(12)

Consequently, it is clear that Cicero's translations are, or intend to be, creative and ambitious with definite artistic aims and a clear nationalistic coloring. One further question remains to be answered: does Cicero have in mind those Roman readers who are incapable of reading the Greek originals due to a defective knowledge of Greek, i.e. does the modern reason for translating apply in any way? The question is discussed in *ac. post.* 1.3-4, where Varro gives as one reason why he does not deal with philosophy in Latin, his opinion that those readers with a Greek education would prefer reading in Greek and those without such an education -- we can take this to mean, unable to read Greek -- would not be interested in philosophy

anyway (see also above, p. 240). Cicero duly protests, but everything points to the fact that in the sphere of which Cicero's literary activity formed a part the reader was generally considered bilingual and that translations were therefore not necessary. (pp. 288-289)

It is time to return to Cicero, whose views on Latinity and purism have already been discussed. We have seen in the previous section that as with Livius Andronicus and his successors, the general language choice of Cicero, i.e. the choice of Latin for philosophical and rhetorical literature, rested to a large extent on a nationalistic basis. Cicero's general attitude to the Latinizing of Greek words also closely resembled that of the early poets. Again, I would not see in this a negative attitude towards the Greek language so much as a perception of the necessity of creating an indigenous vocabulary for these branches of learning.

The nationalism of Cicero's attitude shows up clearly in that his discussion of the use of Greek words is mostly connected with passages comparing the lexical resources of Latin with those of Greek, or emphasizing the needs of Latin philosophical literature: q*uare bonitate potius nostrorum verborum utamur quam splendore Graecorum* (*or*. 164). This is also the starting point in *de fin*. 3.5: because the Latin vocabulary is richer than the Greek, *elaborandum est, ut hoc non in nostril solis artibus, red etiam in illorum ipsorum adsequamur*. When in this context Cicero accepts words like *philosophia* and *rhetorica*, because as *usu recepta* they have become Roman, he states that even these could easily be replaced by purely Latin terms. Central to the whole passage is the fact that all special languages use *verba inusitata*, either Greek or Latin, and as a branch of learning philosophy cannot take its vocabulary from the streets (3.4). The same idea is continued in *de fin*. 3.15: preferably one should translate Greek terms by Latin ones; if one Latin word is not enough, several may be used. But: *tamen puto concedi nobis oportere, ut Graeco verbo utamur, si quando minus occurret Latinum*.

The theory of establishing new Latin terms for hitherto unknown concepts is discussed by Cicero several times, and almost always in a defensive tone,(67) thus anticipating criticism. The alternatives at Cicero's disposal for the expressing of Greek terms in Latin are

classified, mainly on the basis of Cicero's own theories, by Hartung as follows:(13) (a) to use the Greek term as such; (b) to use a Greek loan word in a Latinized form and with Latin characters; (c) to use Latin words which were exact counterparts of the Greek terms and well-known in this sense (*verba propria et usitata*); (d) to use Latin words which are transferred from another area of meaning (*verba similitudine translata*); (e) to form new Latin words. As has been noted, Cicero does not entirely ignore methods (a) and (b), either in theory or, especially, in practice; but he clearly prefers even (e) to (a) and (b). This reveals the mentality of the pioneer of Latin literature; Cicero regards himself as the founder of the terminological tradition in Roman philosophy and rhetoric, and his view is that in so far as solutions have not already been made by adopting Greek terms into Latin, the preferable solution is contained in (c), (d) or (e).

None of this can by judged against a background of purism, since from the purist point of view, the use of *verba inusitata* is to be condemned independently of the Latin or Greek origin. Neither does Cicero's view reveal a negative attitude towards the Greek language. In addition to the nationalistic aspect discussed above, I think that a certain language theoretical view of Cicero is also applicable here, a view which emphasizes the significance of the origin of the persons, both ethnic and social, for the language which he uses. The clearest expression of this view, together with a special reference to Greek loan words, can be found in *de off*. 1.111:

ut enim sermone eo debemus uti, qui innatus est nobis, ne, ut quidam, Graeca verba inculcantes iure optimo rideamur, sic in actiones omnemque vitam nullam discrepantiam conferre debemus.

[For as we ought to employ our mother-tongue, lest, like certain people who are continually dragging in Greek words, we draw well-deserved ridicule upon ourselves, so we ought not to introduce anything foreign into our actions or our life in general. (English translation by Walter Miller, Cambridge:Harvard University Press, 1913)]

The above-mentioned passages, in which Cicero distinguishes several special languages within the Latin language, represent another expression of this view. And in a sense, we can relate to this the famous passage *Tusc*. 1.15, in which Cicero claims that he does not

use more Greek in Latin than Latin in Greek: *scis enim me Graece loqui in Latino sermone non plus solere quam in Graeca Latine*. This occurs in a passage which is concerned with the quotation of a verse of Epicharmus, a quotation which Cicero makes, as his normal practice is, in Latin translation.

In the comparison of Cicero's theoretical attitude with his practice of writing, his letters must be discussed as a special group. The Greek loan words in these occur approximately as often as in Cicero's other work, if only frequency and occurrence is taken into account; but the words are more often such which only rarely appear elsewhere and can hardly be considered *verba usitata*. The main difference, however, lies in the fact that in his letters Cicero is fond of inserting Greek phrases and words with Greek spellings,(14) a licence Cicero has allowed himself in his other work only in special cases.(15) This phenomenon certainly reflects the style used in the normal communication of the two correspondents in question; the number of Greek phrases depends not only on the theme of the letter, but also on the person to whom the letter is written; they are commonest by far in the letters to Atticus.(16) The interpretation of the phenomenon for our purposes is clear and agrees with other sources: on the one hand, the insertion of Greek phrases and words was obviously a favourite practice in civilized conversation and communication between Romans -- it even lent some kind of intimacy to the letters; (17) Greek had retained its position as the cultural language, and the attitude towards it, in this social class at least, was favourable. Sometimes Cicero and his correspondents even boast of their knowledge of Greek -- certain words are not found in the extant Greek literature -- , but at other times it is only deficiencies in the Latin which are rectified.(73) On the other hand, the rare occurrence of Greek quotations and words in Cicero's treatises and speeches was based on a deliberate avoidance of them. One could think that this avoidance or rather the stylistic ideal to which it belongs was due either to a negative attitude to the Greek language or to a nationalistic emphasis on Latinized literature; the first alternative being excluded on grounds given above, we might perhaps state a preference for the second one.

In the speeches very rare, slightly more common in the rhetorical and philosophical treatises, in which terms with Greek spellings also

occur: this is the general picture of Greek loan words in Cicero.(74) Greek sources are cited outside the letters in Latin translation.(75) Cicero's theoretical principles on the avoidance and inclusion of Greek loan words accord rather well with his practice; perhaps there are a few more Greek words than one would expect, but this is probably due to the fact that our conception of what a Greek loan word is and Cicero's conception may differ greatly." (pp. 309-310)

Notes

Notes are renumbered for clarity.

(1) See E. Norden, *Die römische literatur*, (6 ed.) Leipzig 1961, 55.

(2) *locos quidem quondam, si videbitur, transferam, et maxime ab its quos modo nominavi (sc. Plato et Aristoteles), cum inciderit ut id apte fieri possit*. [If I think fit, I will translate certain passages, particularly from those authors (Plato and Aristotle) I just mentioned, when it happens to be appropriate].

(3) K. Büchner, *RE* VII A, 1150.

(4) *ut tibi illa traderem* are the words used by Cicero in *top*. 1.2; in the following Trebatius is urged to acquire the contents from a teacher of oratory, and this rather refers to explaining, but then Cicero again speaks of the charmful and rich style which ought to have attracted philosophers to the work. Cassiodorus (*de art. ac discipl. lib. art*. 583 Garet) says: *Topica Aristotelis ... Cicero transtulit in Latinum*.

(5) However, B. Riposati has in his long monograph *Studi sui 'Topica' di Cicerone*, Ed. dell'Univ. Catt. del S. Cuore, Ser. Pubbl. 22, Milano 1947, attempted again to show that the principal themes and ideas of Cicero can be traced back to Aristotle.

(6) J. Kaimio, *Cicero's Topica: the Preface and Sources*, Ann. Univ. Turkuensis Ser. B Tom. 141, Turku 1976.

(7) See also A. Reiff, *Interpretatio, imitatio, aemulatio*, Diss. Köln, 1959, 25.

(8) *quodsi haec studia traducta erunt ad nostros, ne bibliothecis quidem Graecis egebimus, in quibus multitudo infinita librorum propter eorum est multitudinem, qui scripserunt*. [Besides, if these

studies are ever brought home to us, we shall not want even Greek libraries, in which there is an infinite number of books, by reason of the multitude of authors among them.]

(9) *Tusc.* 2.5: *quam ob rem hortor omnis, qui facere id possunt, ut humus quoque generic laudem iam languenti Graeciae eripiant et transferant in hanc urbem . . . philosophia nascatur Latinis quidem litteris ex his temporibus*. [and therefore I recommend all men who have abilities to follow my advice to snatch this art also from declining Greece, and to transport it to this city . . . Let philosophy, then, derive its birth in Latin language from this time.]

(10) Cf. *de fin.* 3.15: *nec tamen exprimi verbum e verbo necesse exit, at interpretes indiserti solent*. See Reiff, 40. Cf. *Hor. ars* p. 133-134:*nec verbo verbum curabis reddere fidus / interpres*, and Cicero *de off.* 1.6, 2.60.

(11) *quid, si nos non interpretum fungimur munere, sed tuemur ea, quae dicta tent ab iis, quos probamus, eisque nostrum indicium at nostrum scribendi ordinem adiungimus, quid habent, cur Graeca anteponant iis, quae et splendide dicta tint neque tint conversa de Graecis?* [What of it, if I do not perform the task of a translator, but preserve the views of those whom I consider sound while contributing my own judgement and order of composition? What reason does anyone have for preferring Greek to that which is written with brilliance and is not a translation from Greek? (Translation by Raphael Woolf, Cambridge: Cambridge University Press, 2001] See also the analysis of the passage by Reiff, 26-28.

(12) See Reiff, 22-51. For Cicero's technique in his philosophical translations, see R. Poncelet, *Cicéron, traducteur de Platon. L'expression de la pensée complexe en latin classique*, Diss. Paris 1953; Jones, 'Cicero as a Translator', *Bulletin of the Institute of Classical Studies*, 6, 1959, 26-28; H. Müller, *Ciceros Prosaübersetzungen. Beiträge zur Kenntnis der ciceronischen Sprache,*Diss. Marburg 1964.

(13) H.-J. Hartung, *Ciceros Methode bei der Übersetzung griechischer philosophischer Termini*, Diss. Hamburg 1970, 20-23; cf. also Poncelet's thesis; D. M. Jones, 'Cicero as a Translator', 26.

(14) See P. Oksala, *Die griechischen Lehnwörther in den Prosaschriften Ciceros*, Annales Academiae Scientiarum Fennicae, ser. B, 80.1, Helsinki 1953, 91-109, 153, especially the statistics in 104 and 153; R. B. Steele, 'The Greek in Cicero's Epistles', *American Journal of Philology*, 21/1900, 387-410.

(15) See Hartung, 20-21.

(16) Cf., however, also *ad fam*. 13.15, redolent with Greek quotations, and see R. B. Steele, 'The Greek in Cicero's Epistles', 309.

(17) J. M. Pabón, 'El Griego, lengua de la intimidad entre los romanos', *Emerita* 7/1939, 126-131, 127.

From: Jorma Kaimio, *The Romans and the Greek Language*, Helsinki, Societas Scientiarum Fennica, 1979.

Cicero's testimony on Stoic logic

The main texts of Cicero on Stoic logic can be found in:

Lucullus 91-98;

De fato 11-21

Topica 26-34, 47-49, 53-59.

(under construction)

Logic and rhetoric in Rome at the times of Cicero

Rhetoric was intensely practised in ancient Greece by a series of orators whose names are still well-known. It seems to have appeared in Sicily as a special science with its own laws, whence it was taken over to Greece by Gorgias. Later, rhetoric was greatly improved by the Sophists, both from the point of view of the art of adorned speech and of the art of persuading by argument.

The first great orator is Isocrates (born about 436 B.C.) who studied under Prodicus and Gorgias. Aristotle (...) established rhetoric as a branch of dialectics and codified its rules, and Demosthenes brought that art to perfection.

The disciples of Isocrates and those of Aristotle, respectively, formed two rhetorical schools: the first was concerned rather with polishing and improving the oratorical form and style, the second, as one should expect, was concerned with constructing the arsenal of the art of persuasion.

What is significant and testifies to the closer link between logic and rhetoric, and generally, between the latter and philosophy, is the fact that those who studied rhetoric most were the philosophers of the Peripatetic and Stoic schools.

Starting with the second century B.C. systematized treatises on rhetoric began to be written, such as that of Hermagoras of Temnos (about 120 B.C.).

As the general preoccupations acquired an ever growing practical character, especially under Roman rule (the Roman spirit being pre-eminently practical and formalistic), studies of rhetoric flourished in Greece, which explains why later, when logic reached Rome through the Greek rhetors, it was only a discipline to be learned in connection with rhetoric.

The conservative section of the Roman society was at first rather opposed to the Greek rhetoricians who, by their pro and contra arguments of the same thesis, shocked the Romans' commonsense. Thus, in 161 B.C. by a *senatus-consultus*, all the Greek rhetors were banished from the Eternal City. Afterwards, however, Latin rhetors appeared, who had studied in Greece, but neither were they favourably regarded by the authorities, and therefore were officially blamed by the Roman censors about the year 92 B. C. In Caesar's epoch, however, rhetoric became a free art, both in respect to learning and practising it. It came to be so highly valued, that emperor Vespasianus (7-79 A.D.) ordered public schools of rhetoric to be set up, with Greek and Latin masters, who were to be state stipendiaries.

On the other hand, we see logic, which for centuries had ranked first among the concerns of the Greek philosophers, come to Rome and be overshadowed by rhetoric, groping to acclimatize its terminology and devoid of any creative force.

We shall further examine these Latin orators and philosophers whose works bear witness to the way logic was introduced to Rome, to the way in which the logical terminology was established (no easy problem), and to the general conceptions of the Roman philosophers about logic. We shall briefly survey the most remarkable among them.

MARCUS TULLIUS CICERO (106-43 B.C.)

Dialectics was introduced by M. Terentius Varro (116-28 B.C.) through his encyclopedic work *De novem disciplinis* ("On the nine sciences").

Varro was a pupil of Antiochus of Ascalon. He wrote prolifically (he himself declared he would have written up to the age of 84 years, 490 books). Contemporary inquiries ascribe to him altogether 620 books (74 independent works). His writing which interests us especially is the above mentioned, *De novem disciplinis*, a synthesis of the whole science of his time. It is undoubtedly the origin of the seven liberal arts, which will be the basis of the Scholastic learning, and of which we will speak further. In this work, Varro, treated the following disciplines, divided into two groups:

(1) grammar, dialectics and rhetoric;

(2) geometry, arithmetic, astronomy, music, medecine and architecture.

Varro enjoyed a great prestige in his time, and a long time afterwards he was considered as an unquestionable authority in the "disciplines" he wrote about. For instance, Augustine named him *doctissimus Romanorum* ("the most learned Roman") in his work *De civitate Dei* (XIX, 22).

The fragments remaining from Varro were gathered, translated and published by F. Brunetti (Venice, 1874)(*). An interesting study on the logic aspects of the work of Varro was published by Lucien Gerschel: *Varron logicien I. Etude sur une séquence du De lingua latin*a

("Latomus", 1958, pp. 65-72).

The first one interested, however, in translating the Greek logical terminology into Latin is Marcus Tullius Cicero, the greatest Roman orator and one of the greatest in the world. His work is considerable. We shall only mention his writings dealing with logic or with the manner in which the Romans conceived it.

-- *De Inventione* ("On invention") is a treatise imitating *Rhetorica, ad M. Herennium*, a work ascribed to Q. Cornificius (tribune of the plebs in 69 B.C.).

-- *De Oratore* ("On the Orator") is a work in which Cicero displays the Ancients' concept of the value and means of the oratorical art; written in the form of a dialogue, the main roles are granted to two of the greatest orators of the previous generation, L. Crassus and M. Antonius.

-- *Brutus,* also written as a dialogue between Atticus and Brutus, represents a real history of Roman eloquence. He quotes over two hundred older orators but among his contemporaries, Cicero only mentions Caesar, Sulp. Rufus, and M. Marcellus.

-- *Orator* is a short writing, in which the author depicts the type of the ideal orator.

-- *Partitiones Oratoriae* ("The Oratorical divisions") is a manual written as questions and answers for his son's instruction.

-- *Topica* comprises a kind of commentary addressed to C. Trebatius, where Cicero reveals how the oratorical art can make use of the means offered by logic.

-- *De optime genere oratorum* ("On the best style of Orators") is an opusculum in which Cicero pleads for the Attic oratorical style (this booklet was written as a preface to the translation of the speeches made by Aeschines and Demosthenes in connection with the famous "Affair of the Crown").

Cicero's works, were published under the title *Opera Omni* by C. F. Miller and G. Friedrich in 15 vols. (Leipzig, beginning from 1878). A critical Latin edition, with Italian translation, published "Centro di Studi Ciceroniani" (Rome, beginning from 1964).

For the philosophical terminology of Cicero we have the writings of H. Merguet: *Lexikon zu den philosophischen Schriften Ciceros* (2 vols., 1905-1906), and *Lexikon zu den Reden des Ciceros* (4 vols., 1877-1884). Both were printed at Jena, and reproduced, after the original, at Hildesheim (1960-1962).

More information, concerning Cicero's philosophical terminology, can be found in A. Michel's *Rhétorique et philosophie chez Cicéron* (Paris, 1961).

Two things in Cicero's works are relevant to the history of logic, namely: the invention of a Latin terminology corresponding to the Greek one, and information on Stoic logic whence we become aware that the Romans practised those forms of logic. Cicero, like the other Roman rhetors and thinkers, made no original contribution.

Cicero's logical terminology is rather hesitating. Even the name of that discipline he rendered λογική, and sometimes by διαλεκτική, which he was unable to translate into Latin and he therefore kept generally the Greek terms in the Latin text. However, he sometimes translated those two Greek words by *ars disserendi* -- "the art of discussing" (De Oratore, II, 38) or *ars disceptatrix* -- "The art of deciding".

Here is an example of his use of the Greek term λογική -- logic, in a Latin text, namely in a fragment from *De finibus bonorum et malorum* ("On the Purpose of the Good and Bad Things", I, 7): *Jam in altera philosophiae parte, quae est quaerendi ac disserendi quae λογική dicitur, iste vester plane. . . inermis ac nudus est.* ("Also in the second part of philosophy, which deals with research and discourse, and is called λογική, that [master] of yours is unarmed and defenceless").

In *De Inventione* (XXVIII, 42) Cicero began to employ such Latin terms as: *adversum, contrarium, negans*, for ἀποφατικόν (negative), oppositum for ἐναντίον (opposite) and repugnans for ἀντπατικόν (repelling). For the idea of sentence, Varro and Aelius mentioned in their texts the Greek term ἄξίομα, which they would sometimes render by *proloquium*. Cicero's translation of "sentence" varies: *effatum, pronuntiatum, enunciatum* or *enuntiato*. (*De Inventione*, 1, 37). In the texts dealing with the classification of judgements

according to their quality, Cicero started from the verb *aio* -- I affirm, and *nego* -- I deny, and translated καταφατικόν (affirmative) by *aientia*, and ἄποφατικόν (negative) by *negantia*.

In *Topica*, meant to be a rendering of the treatise bearing the same title by Aristotle, Cicero introduced terms which definitely remained in logic such as: *definitio, genus, species (forma)* etc.

He hesitated in the translation of the word τόπος for which he used in turn the terms, *locus, sedes* and *nota*: *locum esse argumenti sedem -- locus is sedes* (the seat) of the argument.

As regards the Stoic dialectics, it dissatisfied Cicero "because it only gives the art of argumentation, not that of inventing -- *invenire*, too". However, he translated and explained at the same time, the terms of the hypothetical reasoning (*De Divinatione*, II, 53). Lemma -- λεμμα -- is translated by sumptio, πρόσληψις by assumptio, and ἐπιφορά by complexio. Concerning the reasoning, Cicero introduced the term *inductio* for ἔπαγογή and divided all arguments into two groups: induction; and deductive reasoning "as most of the Greeks do [who divide them] into παραδείγματα and ἔπιχειρήματα, interpreting παραδείγμα as oratorical induction (Quintilianus, *De Institutione Oratoria*, 11).

Although he was not too interested in the Stoics' modes of argumentation, Cicero enumerated the five undemonstrable Stoic arguments, from, which, he said "numerous others" can be derived (*Topica*, 54-57). He gives the following examples to this effect, which may represent the sixth and seventh arguments:

6) *Non et hoc et illud; hoc autem; non igitur illud.*

Not both this and that; but this; therefore not that.

7) *Non et hoc et illud; non autem hoc; illud igitur.*

Not both this and that; but not this; therefore that.

Related to Cicero's rhetorical logic, mention should be made of the Greek Epicurean Philodemus of Gadara (first century B.C.). He came to Rome, became acquainted with and then highly appreciated by Cicero, and Lucretius himself seems to have been among his disciples.

Several epigrams by him were known, but after the diggings at Herculanum no less than 36 philosophical books by the same writer were found. Unfortunately, they were in rather bad state and could be only partially deciphered.

M.E. Gros published the fragments referring the oratorical art separately, under the title *Philodemi rhetorica* (Paris, 1840).

In one of these newly found treatises, significantly entitled *On Signs and Significances* (**), Philodemus opposed the Stoic conception (called "dogmatic" at the time), set up an empirical theory of knowledge and examined the inductive methods of natural sciences." (pp. 273-276)

Notes

(*) [*Libri di M. Terenzio Varrone intorno alla lingua latina,* edited and translated in Italian by Pietro Canal (first edition 1846-1854), reprinted Venice: Giuseppe Antonelli, 1874, with the addition of the fragments with notes by Federico Brunetti. The *De novem disciplinis* is lost, but Friedrich Wilhelm Ritschl collected the extant fragments in: *De M. Terentii Varronis disciplinarum libris commentarius* (Bonn, 1845), reprinted in: F. Ritschl, *Opuscula philologica*, Vol. III, Leipzig 1877, 353-402. *Note added by R. Corazzon*]

(**) Philodemus, *On Methods of Inference. A Study in Ancient Empiricism*, edited, with translation and commentary, by Phillip Howard De Lacy and Estelle Allen De Lacy, Philadelphia, Pa., The American philological association 1941; new revised edition: Napoli: Bibliopolis, 1978. *Note added by R. Corazzon*]

From: Anton Dumitriu, *History of Logic*, Tunbridge Wells: Abacus Press 1977, Vol. I.

"For some centuries after Stoic logic had been formulated by Chrysippus we find discussion of the merits of his system and that of Aristotle, then a gradual fusion, or perhaps we should say confusion, which was completed at the end of classical antiquity in the work of Boethius. When the study of logic was resumed after the Dark Ages, the writings of Boethius were better known than those of Aristotle and his reputation as high. Some part of the Stoic contribution remained, therefore, in what we now call traditional logic, though

weakened later by a revival of interest in Aristotle, which led sometimes to a kind of Aristotelian purism. In this section we shall try to trace the transmission from Greek antiquity to the Middle Ages giving names and dates where these are likely to be useful. But we shall not attempt to treat even the famous philosophers of this long period in detail, since our purpose is only to give perspective to our view of antiquity and the Middle Ages.

During the last two centuries B.C. and the first century A.D. the philosophical schools in Athens existed side by side, competing for pupils with doctrines which followed more or less closely those of their founders; but the Stoics and the Epicureans were the most influential. Plato's Academy became presently a home of scepticism with Carneades as its most famous member, and Aristotle's influence was not very strong. If we may judge from the writings of Cicero, the Stoic school was the dominant one in his day. No doubt there were developments in that school after the time of Chrysippus, but we cannot now separate them from his work, because the ancient tradition is not full enough. Later writers such as Galen, Alexander, and Boethius speak constantly of the Stoics or 'the moderns' (οἱ νεώτεροι) without troubling to distinguish individuals.

Cicero made no original contribution to the development of logic, but his writings preserve some scraps of information about the teaching of the Stoics, and in this, as in other fields of philosophy, he did a useful service by inventing Latin equivalents for Greek technical terms. *Propositio*, for example, was introduced by him, but not with exactly the same sense as that it commonly has in later Latin. In his terminology it means the leading premiss of an argument (το` ἡγεμονικο`ν λη + ῆμμα), and is used to make a contrast with *assumptio*, which means the additional premiss (ἡ πρόσληψις). (1) This special sense is to be found later in the logical writings attributed to Apuleius and Martianus Capella, but already before the end of the first century A.D. the word was used by Quintilian, the rhetorician, in the more general sense of 'statement' or 'indicative sentence' which it retained throughout the Middle Ages.

Cicero's word for a conclusion in the passage we have just noticed is *complexio*, which means literally 'a knitting together', but it is interesting to notice that the same word occurs elsewhere in the book

with the sense of 'dilemma': '*Complexio est in qua, utrum concesseris, reprehenditur ad hunc modum: Si improbus est, cur uteris? Si probus, cur accusas?*' (2) No doubt such reasoning was popular with the Hellenistic rhetoricians fro whom Cicero took his material, and it may have been cultivated by them rather than by the Stoic logicians, who first studied conditional and disjunctive arguments. The 'theorem with two complex premisses' which we noticed in our section on the system of Chrysippus is, of course, a special case of the kind of argument called by later logicians a simple constructive dilemma (i.e. in Stoic terminology 'If the first, then the third; if the second, then the third; but either the first or the second; therefore in any case the third'), and the paradox of the crocodile and the baby, which Lucian attributes to Chrysippus, (3) involves an argument of similar pattern. So there can be no doubt that the Stoics were familiar with this development of their logic. On the other hand, according to Chrysippus all good arguments are διλήμματα in the original sense of 'arguments with two premisses'; and there is no evidence of the use of the word διλήμματον in the modern sense of 'dilemma' before the second century A.D., when it occurs in the work of the rhetorician Hermogenes with an explanation like that given by Cicero for *complexio*, namely by reference to two questions, both equally awkward to answer. (4)

Among Cicero's philosophical works there is a small treatise called *Topica* which has had considerable influence on the teaching of logic because it was highly regarded in late antiquity, when logic was associated with rhetoric in the way he thought proper. This book professes to be an adaptation of Aristotle *Topics* for the use of a friend called Trebatius, but it shows little trace of direct borrowing from Aristotle's work. It is conceived as a manual for the training of Roman orators and is therefore furnished with illustrations from Roman jurisprudence. Probably the plan, such as it is, was derived from some Hellenistic manual; for the topics discussed here are mentioned in the same order in the *De Oratore*, (5) as though they were in fact commonplaces of that age. Some topics, it is said, are connected intrinsically with the subject to be discussed (*in eo ipso de quo agitur haerent*), e.g. those concerned with definition, genus, species (or in Cicero's terminology *forma generis*), while others are brought in from without (*assumuntur extrinsecus*), e.g. that which

involves appeal to authority. With some elaborations this simple classification was retained as long as men thought there was anything to be learnt from the study of topics." (pp. 177-179)

Notes

(1) De Inventione, I.57 ff.

(2) Ibid. 45

(3) Vitarum Auctio, 22.

(4) Hermogenes, De Inventione, IV.6.

(5) De Oratore, II.162-73.

From: William and Martha Kneale, *The Development of Logic*, Oxford: Clarendon Press 1962.

Cicero's Topica

"It is a commonplace to talk, in general terms, of the dependence of all European thought and learning on Greek philosophy, and more particularly on Greek logic. It is a commonplace, also, to analyse the structure of individual works of Latin literature in terms of the divisions and subdivisions in the treatment of the subject involved, with their frequent prefatory definitions. This is a method that may in many cases be taken from recent Greek models of various kinds, in particular works on rhetoric or grammar, but which for Cicero goes back to the dialectic of the philosophers, and which Fuhrmann has traced even beyond Socrates to the sophists.(1) It is perhaps less of a commonplace, though doubtless rash, to try to take a comprehensive view of the Romans' attempt, over a wide spectrum of subjects, to apply this method, to try to see how important they felt it to be, and how far they were successful in it. The extent to which they regarded it as the transformation of the subjects in question into τἔκναι or *artes* must also be considered. I want to stress that we are not merely dealing with an expository method used in introductory handbooks of little intellectual originality, as Fuhrmann's useful *Das Systematische Lehrbuch* might suggest, but that it came to seem to the Romans simply the best way to think and write about a serious subject, to be applied both on a large scale, i.e. to works in a number of books, and on a small one, i.e. inside a single book. The Roman

attempt to organize almost the whole body of their knowledge into a series of systematic and comprehensible wholes along these lines can be seen as a development in intellectual history of great importance for later times. This attempt probably began before the first century BC opened, and continued to make more measured progress after it closed. But the earlier and middle first century is that of its most enthusiastic, indeed sometimes over-enthusiastic, adoption. If we see this, it should help us also to understand certain aspects of two of the most important figures of the time, Cicero himself and Varro, better than is always done, and to put into some sort of context the present lively argument as to what exactly was happening in Roman jurisprudence at this period.

In his *Topica*, which are aimed at persuading the lawyer Trebatius that rhetorico-philosophical ways of finding arguments may be useful to him, Cicero, possibly in the wake of Stoic dialectic, carefully distinguishes between *partitio*, μερισμός, listing the parts, or some of the parts, that go to make up a whole, and *divisio*, διαίρεσις, that operates with the concepts of *genus* and subordinate *species*, though because he does not like the forms *specierum* and *speciebus* he declares that he will use *forma* instead of *species* (the Greek terms are of course γένος and εἶδοσς). He also states that both *partitio* and *divisio* are forms of definition.(2) But in practice both he and other Romans are often far from precise: *genus, pars, species* and *forma* are used pretty indiscriminately,(3) and as we shall see definitions are actually often thought to be better if they are unphilosophically loose. But this does not make the adoption of the system less important, or alter the fact that it was felt to be derived from philosophy. Cicero at least was of course aware that there was much more to dialectic than the two procedures we have mentioned; but it is these that were most widely grasped and applied." (pp. 324-325 of the reprint)

Notes

(1) Manfred Fuhrmann: Das systematische Lehrbuch. Ein Beitrag zur Geschichte der Wissenschaften in der Antike Gottingen: Vandehoeck & Ruprecht, 1960, chap. 1.

(2) Cicero, *Topica* 28 f.; cf. Dieter Nörr, *Divisio und Partitio. Bemerkungen zur römischen Rechtsquellenlehre und zur antiken Wissenschaftstheorie*, Berlin:Schweitzer, 1972. M. Talamanca, Lo schema "genus-species' nelle sistematiche dei giuristi romani' (*Problemi attuali di scienza e cultura: colloquio italo-francese: La filosofia greca e il diritto romano*.), Roma 14-17 aprile 1973, Tomo II Accademia Nazionale dei Lincei, (1977) 103, 145, 156 argues that this is peculiar to Cicero.

(3) As their Greek equivalents are by Plato, probably Speusippus, and often Aristotle (in the biological as opposed to the logical works; also Theophrastus): D. M. Balme, 'Τἔϱος and εἴδος in Aristotle's Biology', *Classical Quarterly* XII (1962) 81. Diog. Laert. VII 39 reveals that some philosophers described as εἴδη of philosophical λὅγος what others called γἔνη; Strabo I 2 6 seems distinctly confused about the εἴδη of discourse, λὅγος, which is γενιχὅς.

From: Elizabeth Rawson, "The Introduction of Logical Organisation in Roman Prose Literature," *Papers of the British School at Rome* 46: 12-34 (1978). Reprinted in: E. Rawson, *Roman Culture and Society: Collected Papers*, Oxford: Clarendon Press 1991, pp. 324-351.

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History of Logic

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The Works of Boethius. Editions and English Translations

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For more information see: John Magee and John Marenbon, *Appendix: Boethius' Works,* in: John Marenbon (ed.), *The Cambridge Companion to Boethius*, Cambridge: Cambridge University Press, 2009, pp. 303-310.

"This Appendix is designed as a user's guide to Boethius' works. It is divided according to the four main spheres of his activity - (A) mathematical subjects; (B) logic; (c) theology; (D) the *Consolation* - with additional sections on (E) lost works and (F) works sometimes misattributed to him. For each work, there is a very brief description, any questions over its authenticity and completeness are considered and a dating given, where possible; the best edition is cited (and any other useful ones) and details of translations and commentaries given, where applicable."

Boethius Opera omnia in the Patrologia Latina

1. Migne, Jacques Paul, ed. 1860. *Manlii Severini Boethii opera omnia*. Paris: Garnier.

   The *editio princeps* wa published at Venice in 1491-1492 and reprinted 1497-1499, 1523, 1536.

   Other important editions are: Julianus Martianus Rota (only the logical works, Venice 1543, 1547, 1559), and Henrichus Loritus Glareanus, (Basel 1546, 1570).

   The edition by Glareanus with the partial editions of Renatus Vallinus (London 1656) and Pierre Cally (Paris 1680) were reproduced in Jacques Paul Migne, *Patrologia Latina* vol. 63 and 64 (= PL).

   Patrologia Latina vol. 63.

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910D - 1008C Topicorum Aristotelis Libri Octo Severino Boethio Interprete

1008D - 1040C Elencorum Sophisticorum Aristotelis Libro Duo Severino Boetio Interprete

1040D - 1173B In Topica Ciceronis Commentariorum Libri Sex

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1223A - 1238D De Disciplina Scholarum [opera spuria]

Theological tractates:

1247A - 1256A Quomodo Trinitas Unus Deus Ac Non Tres Dii

1299A - 1302C Utrum Pater Et Filus Ac Spiritus Sanctus De Divinitate Substantialiter Praedicentur Liber

1312A - 1314C Quomodo Substantiae In Eo Quod Sint Bonae Sint Cum Non Sint Substantialia Bona

1334B - 1338C Brevis Fidei Christianae Complexio

1337A - 1354D Liber De Persona Et Duabus Naturis Contra Eutychen Et Nestorium.

"Contains the complete Latin works of Boethius in two volumes, with general prolegomena, notes, and commentaries in Latin and a life of Boethius in French; because of textual corruptions and authorial misattributions, text should be consulted only when a later, edited critical edition is unavailable." Philip Edward Phillips, "Anicius Manlius Severinus Boethius: A Chronology and Selected Annotated Bibliography", in: *A Companion to Boethius in the Middle Ages*, edited by Noel Harold Kaylor, Jr., and Philip Edward Phillips, Leiden: Brill, 2012, p. 553.

Modern editions of Boethius' translations of Aristotle and Porphyry

1. Minio-Paluello, Lorenzo, and Dod, Bernard G., eds. 1966. *Categoriarum supplementa. Porphyrii Isagoge translatio Boethii et Anonymi fragmentum vulgo vocatum 'Liber sex principiorum'. Accedunt Isagoges fragmenta M. Victorino interprete et specimina translationum recentiorum categoriarum*. Bruges: Desclée De Brouwer.

   Aristotele Latinus I. 6-7. "This volume constitutes a supplement to the Latin versions of the *Categories*. It contains Porphyry's famous *Introduction* to Aristotle's *Categories* in

Boethius' translation (6) [pp. 5-31] and an extract of an anonymous 12th century Latin writing, which was widespread under the title *Liber sex principiorum* (7): it deals mainly with the last six categories, treated more briefly in Aristotle's work. The volume also contains the fragments quoted by Boethius from an older Latin version of Porphyry's *Introduction*, done by Marius Victorinus."

2. Porphyre. 1998. *Isagoge*. Paris: Vrin.

   Texte grec et latin, traduction par Alain de Libera et Alain-Philippe Segonds.

   Introduction et notes per Alain de Libera.

   Table des matières: Alain de Libera: Introduction VII; L' *Isagoge*: une Introduction aux *Catégories* d'Aristote XIII; Sur les sources non aristotéliciennes de Porphyre XXVII; Le paradoxe de l' *Isagoge* XXXIII; Le questionnaire de Porphyre XXXVI; Le σκοπός de l' *Isagoge* et la question des πέντε φωναι XXXVIII; Sur l'interprétation médiévale du questionnaire de Porphyre LXII; La solution néoplatonicienne du problème de Porphyre: la théorie des trois états de l'universel LXXV; Les sources aristotéliciennes de Porphyre et la théorie des prédicables XCII; Porphyre et le vocabulaire de la prédication CVI; L'interprétation médiévale de l' *Isagoge* CXXVII-CXLII.

   Introduction de Poprphyre aux *Catégories* d'Aristote.

   Texte grec, *Translatio Boethii*, traduction française 1; Notes de la traduction française 31; Notes de la *Translatio Boethii* 71; Bibliographie 73; Index verborum. Grec-latin 77; Latin-grec 88; Index nominum. Anciens et médiévaux 95; Modernes 98-100.

   [Contient la traduction latine de Boèce, *Porphyrii Introductio in Aristotelis Categorias a Boethio translata*, en bas de page du texte grec.]

   "Soucieux d'inscrire l' *Isagoge* dans la longue durée de son interprétation médiévale, nous proposons ici un texte qui s'écarte sur plusieurs points de l'édition critique de L. Minio-Paluello et B. G. Dod. Indépendamment de plusieurs variantes de détail, nous maintenons, notamment, « *differentibus specie*

» au lieu de « *differentibus speciebus* » ou « *differentibus* » (I, § 9) et « *Priami* » au lieu de « *Primum* » (II, § 1), car, même manifestement fautives, ce sont les leçons qui ont réellement circulé au Moyen Age (comme en témoignent, entre bien d'autres, les commentaires embarrassés de Guillaume d'Occam reproduits dans notre apparat critique)" P. CXLII.

3. Minio-Paluello, Lorenzo, ed. 1961. *Categoriae vel Praedicamenta. Translatio Boethii, Editio Composite, Translatio Guillelmi de Moerbeka, Lemmata e Simplicii commentario decerpta, Pseudo-Augustini Paraphrasis Themistiana*. Bruges: Desclée De Brouwer.

   Aristotele Latinus I. 1-5. "This volume contains five Latin versions of Aristotle's *Categories*. Numbers 1 (pp. 5-41) and 2 (pp. 47-79) both stem from Boethius, who is responsible for the Latin translations that were most widespread. One of them is more literal, the other more elegant. William of Moerbeke, on the other hand, was the author of a Latin version not only of Aristotle's work (3), but also of Simplicius' commentary, which contains the abbreviated lemmas of the Aristotelian text (4). Moreover, Aristotle's work was known by means of a Roman paraphrase attributed to Augustin and influenced by Themistius (5)."

4. Verbeke, Gerard, ed. 1965. *De interpretatione vel periermenias. Translatio Boethii specimina translationum recentiorum edidit Laurentius Minio-Paluello. Translatio Guillelmi de Moerbeka*. Bruges: Desclée De Brouwer.

   Edidit Gerardus Verbeke, revisit L. Minio-Paluello.

   Aristotele Latinus II. 1-2. "This volume contains the vulgate text of the *Perihermeneias*, which goes back to Boethius (1) [pp. 5-38], and the version composed with the lemmas of the Aristotelian text in William of Moerbeke's translation of Ammonius' commentary (2)."

5. Minio-Paluello, Lorenzo, ed. 1962. *Analytica priora. Translatio Boethii (recensiones duae), Translatio anonyma, Pseudo-Philoponi aliorumque Scholia,*. Bruges: Desclée De Brouwer.

Aristotele Latinus III. 1-4. "Boethius composed a double Latin version not only of the *Categories*, but of the *Prior Analytics* [pp. 5-191] as well (1-2). However, the two versions have not been edited separately except for certain parts, the second version having been displayed, for the other parts, in the critical apparatus. Apart from these widespread texts, a good, but not quite successful anonymous 12th century translation of Aristotle's logic has come down to us (3). Special attention is paid to a set of Latin scholia to the *Prior Analytics* (4), the origin of which is disputed. According to L. Minio-Paluello and J. Shiel, they were translated by Boethius along with the Aristotelian text; according to recent research, however, they might go back to a translation by James of Venice."

Reprint with a supplement composed by James Shiel, Leiden: Brill, 1998.

6. ———, ed. 1969. *Topica. Translatio Boethii, Fragmentum Recensionis Alterius et Translatio Anonyma*. Bruges: Desclée De Brouwer.

   Aristotele Latinus V. 1-3. "Boethius' rendering of the *Topics* [pp. 5-185] has been carried out, once more, in two versions (1-2), one of which has not been preserved but partly. Moreover, a 12th century version is extant: it stems from the anonymous translator of the *Prior analytics* (3)."

7. Dod, Bernard G., ed. 1975. *De sophisticis elenchis. Translatio Boethii, Fragmenta Translationis Iacobi et Recensio Guillelmi de Moerbeke*. Bruges: Desclée De Brouwer.

   Aristotele Latinus VI. 1-3. "The vulgate text of the *De sophisticis elenchis* [pp. 5-60] stems from Boethius (1). Fragments of another version have been attributed to James of Venice (2), and William of Moerbeke did a revision of Boethius' translation (3)."

Modern editione of the Commentaries on Cicero's Topica

1. Boethius. 1833. "In Ciceronis Topica." In *M. Tulli Ciceronis Opera Omnia. Vol. V. 1*, edited by Orelli, Johann Kaspar von

and Baiter, Johann Georg, 269-388. Zurich.

The text of this edition is frequently (but not always) better than Migne.

2. ———. 1990. *Boethius' De topicis differentiis und die byzantinische Rezeption dieses Werkes*. Paris: Vrin.

   De topicis differentiis kaì hoi byzantinès metaphráseis ton Manouèl Holobolou kaì Prochórou Kydóne: parartéma / Anhang: Eine Pachymeres-Weiterbearbeitung der Holobolos-Übersetzung eisagogé kaì kritiké ekdosé ton keimenon hypo Demetrio u Z. Niketa.

   Introduction (in German) and critical edition by Dimitrios Z. Nikitas (Corpus philosophorum medii aevi. Philosophi Byzantini, vol. 5).

Modern editions of the other works

1. Thörnqvist, Christina Thomsen. 2008. *Anicii Manlii Severini Boethii De syllogismo categorico*. Gothenburg: University of Gothenburg.

   Critical edition with Introduction, translation, notes, and indexes by Christina Thomsen Thörnqvist.

   Contents: Preface X; Editions cited XIII; Introduction. I. The author, the work, and its sources. 1. The author XV; 2. The work and its sources XVIII; 3. The interrelation and the titles of the two monographs on the categorical syllogism XXIX; II. Boethius' monographs on the categorical syllogism in the Middle Ages XLI; III. The edition. 1. The textual tradition LIII; 2. Editorial principles LXXIII; 3. The *apparatus fontium* and notes LXXIV; *De syllogismo categorico* 1; Translation 102; Notes 158; Appendix: Selected variant readings in the younger manuscripts 177; Bibliography 194; Word index 199; Index of passages 218; General index 226.

2. ———. 2008. *Anicii Manlii Severini Boethii Introductio ad syllogismos categoricos*. Gothenburg: University of Gothenburg.

Critical edition with Introduction, commentary, and indexes by Christina Thomsen Thörnqvist.

Contents: Editions cited XIII; Introduction. I. The work and its sources XV; II. The edition. 1. The extant tradition XXIII; 2. The interrelation of the manuscripts XXXIII; 3. Editorial principles XLVI; *Introductio ad syllogismos categoricos* 5; Synopsis 85;

Commentary 88; Bibliography 169; Word index 173; Index of passages 192; General index 205.

Abstract: "The Roman statesman and philosopher Anicius Manlius Seuerinus Boethius (c. 480-c. 525) translated and wrote commentaries on most of Aristotle's logical works. In addition, he wrote several treatises on logic, including two monographs on the categorical syllogism, which are commonly known as *De syllogismo categorico* and *Introductio ad syllogismos categoricos*. The present study is the first critical edition of the latter.

The main purpose of both *De syllogismo categorico* and *Introductio ad syllogismos categoricos* is to serve as Introductions to Aristotelian syllogistics by providing a pedagogical transition from the theory of the proposition to the doctrine of the categorical syllogism. In the case of *Introductio ad syllogismos categoricos*, however, the final section (supposedly the second book of the work) has either been lost or was never written. Certain characteristics of the extant tradition seem to indicate that the work is an improved redaction of *De syllogismo categorico*, but that it never underwent final revision before publication. As in the case of *De syllogismo categorico*, Boethius' ultimate sources are Aristotle's *Peri hermeneias* and *Analytica priora*, but dispositional, terminological, and doctrinological features give evidence that the influence of the Greek commentators is all-pervasive.

The reconstitution of the text rests on collation of 21 manuscripts dating from the 10th to the 15th century. An analysis of the interrelation of the manuscripts leads to the

conclusion that all extant manuscripts descend from a common archetype but that the tradition is severely contaminated and cannot be described by means of a stemma codicum. Hence, a formal hierarchy is established among the text witnesses. The Latin text is presented with a critical apparatus, an *apparatus fontium*, a commentary, and indexes."

3. Boezio, A. M. Severino. 1969. *De hypotheticis syllogismis*. Brescia: Paideia.

   Latin text, Italian translation, Introduction and commentary by Luca Obertello (in Italian).

4. Magee, John, ed. 1998. *Anicii Manlii Severini Boethii De divisione liber* Leiden: Brill.

   Critical edition, translation, prolegomena and commentary by John Magee.

5. Friedlein, Gottfried, ed. 1867. *Anicii Manlii Torquati Severini Boetii: De Institutione Arithmetica libri duo; De institutione musica libri quinque. Accedit geometria quae fertur Boetii*. Lipsiae: B.G. Teubner.

   Reprint: Frankfurt, Minerva, 1966.

   De institutione arithmetica pp. 3-173; *De institutione musica* pp. 175-371.

   The *Geometria* is not a work by Boethius.

6. Oosthout, Henri, and Schilling, Johannes, eds. 1999. *Anicii Manlii Severini Boethii De arithmetica*. Turnhout: Brepols.

   Corpus Christianorum. Serie Latina 94A.

   Critical edition with Introduction in Latin, index of mathematical concepts, definitions, and technical terms.

7. Guilaumin, Jea-Yves, ed. 1995. *Boèce. Institution arithmétique*. Paris: Les Belles Lettres.

   Texte établi et traduit par Jean-Yves Guillaumin.

8. Humphrey, Illo, ed. 2007. *Boethius. De institutione arithmetica libri duo: édition proto-philologique intégrale*

princeps d'un manuscrit du IXe siècle (Paris, Bibliothèque nationale de France, latin 14064). Ottawa: Institute of Mediaeval Music.

Texte, gloses, notes tironiennes, signes de renvoi par Illo Humphrey.

Text of *De institutione arithmetica* in Latin; preliminary essay in English; Introduction and concluding essay in French.

9. Folkerts, Menso, ed. 1970. *Boethius' Geometrie II. Ein mathematisches Lehrbuch des Mittelalters*. Wiesbaden: Franz Steiner.

   This work, attributed to Boethius for nearly a millennium, was compiled by an unknown author in the XI century.

10. Santosuosso, Alma, ed. 1999. *MSS Avranches, Bibliothèque Municipale, 236, 237. Boethius' De institutione musica*. Ottawa: Institute of Mediaeval Music.

    "Halftone of two 10th century. mss. once in the possession of the abbey of Mont Saint-Michel. Mss 236, compiled for teaching purposes, contains the complete text of Boethius' treatise on music and excerpts from Venerable Bede's treatises on the art of poetry, the reckoning of time and a few quotations from *De natura rerum*. Ms 237 comprises Boethius' *De institutione musica*, a short unpublished text on the modes, and six diagrams of the different species."

11. Meyer, Christian, ed. 2004. *Boèce. Traité de la Musique*. Tornhout: Brepols.

    Edition (from Freidlein's Latin edition of 1867) and French translation by Christian Meyer.

12. Bieler, Ludwig, ed. 1957. *Anicii Manlii Severini Boethii Philosophiae consolatio*. Turnhout: Brepols.

    Corpus Christianorum. Serie Latina 94.

    Revised edition 1984.

13. Moreschini, Claudio, ed. 2005. *De consolatione philosophiae. Opuscula theologica*. Lipsia: K. G. Saur.

Bibliotheca scriptorum Graecorum et Romanorum Teubneriana. Editio altera.

First edition 2000; the second edition includes the *Opuscula theologica*.

Praefatio [in Latin] V-XVIII; Conspectus siglorum XIX-XXI; Consolatio philosophiae 3-162; Opuscola theologica: I. De Sancta Trinitate 165-181; II. Utrum Pater et Filius et Spiritus Sanctus de divinitate substantialiter praedicentur 182-185; III. Quomod substantiae in eo quod sint bonae sint cum non sint substantalia bona 186-194; IV. [De fide catholica] 195-205; V. Contra Eutychen et Nestorium 206-241; Indices: Index fontium 242; Index nominum 243; Index rerum 245; Index metrorum 263.

N.B.: For the *De consolatione philosophiae* I give only the main editions and translations.

English translations

1. Boethius. 1957. "The Second Edition of the Commentaries on the *Isagoge* of Porphyry, (Book I)." In *Selections From Medieval Philosophers (I): Augustine to Albert the Great*, edited by McKeon, Richard 70-99. New York: Charles Scribner's Sons.

   Translation of *In Isagoge,* 1.1-12.

   "The selection which follows, the First Book of the second *Commentaries* on the *Isagoge*, illustrates the temper and interest, no less than the importance, of Boethius. The entire Book is commentary on not more than a page of text from Porphyry, and a good two-thirds of it is devoted to

   developing and enforcing in full detail a remark of his concerning the utility of the study of logic. The remaining part is devoted to a penetrating

   -- and startlingly cautious -- discussion of the problem of the universal. As in the case of the defense of logic, the discussion grows out of a remark by Porphyry -- his refusal to discuss in an introductory work questions concerning the possible existence

of genera and species outside our mind; concerning their nature, corporeal or incorporeal; and their relations to sensible objects. To answer such problems in any detail would be to develop an entire philosophy. Particularly, it would necessitate a choice between Plato and Aristotle as Boethius conceived and stated them.

Boethius, none the less, with reservations and for reasons which he carefully states, undertakes the discussion of the basic notions of the problem. The later development of scholastic philosophy is based, significantly, upon these questions. It is needless of course to say, as has frequently been said, that Boethius introduced the question to the middle ages and set the twelfth century to discussing the universal: the problem is to be found in Augustine, and it would be difficult to proceed far in philosophy without encountering it. Yet it is striking that most usually the discussion was introduced in twelfth century writings by a reference to Boethius and to his translation of the questions of Porphyry."

(...)

"It was as a logician that the middle ages chiefly esteemed Boethius, sometimes to the extreme of preferring him to Aristotle in translation. Although that preference yielded to others, at least Boethius was for centuries the principal source of aristotelianism in the

west. This contribution alone must be estimated considerable, if one remember the despair of Cicero at the rendering of philosophy in the latin language; in the time of Boethius latin had already become a supple philosophic language, and for good or ill many of the

terms of later philosophical discussions in it were originated by him." (Richard McKeon, pp. 67-69)

2. ———. 1994. "From His *Second Commentary to Porphyry's Isagoge*." In *Five Texts on the Mediaeval Problem of Universals. Porphyry, Boethius, Abelard, Duns Scotus, Ockham*, edited by Spade, Paul Vincent, 20-25. Indianapolis: Hackett.

The passage from Boethius's *Second Commentary on Porphyry* is from Book I, Chs. 10-11, of the Brandt edition (159.3-167.20).

3. ———. 1984. "Second Commentary to *De interpretatione*." In *Aristotle's Theory of Language and Its Tradition. Texts from 500 to 1750*, edited by Arens, Hans, 159-204. Amsterdam: Benjamins.

   Selection, translation and commentary by Hans Arens.

   Contents of the volume: Preface 1; 1. The extraordinary fate of *Peri hermeneias* 6; 2. Aristotle's text 16; 3. Commentary to Aristotle 24; 4. Ammonius: Commentary 58; 5. Commentary to Ammonius 124; 6. Boethius: Commentary 159; 7. Commentary to Boethius 205; 8. Abaelard: *Glosses* 231; 9. Commentary to Abaelard 303; 10. Albertus Magnus: *Paraphrase* 339; 11. Commentary to Albert 376; 12. Thomas Aquinas: *Expositio* 397; 13. Commentary to Thomas 434; 14. Martinus de Dacia: *Quaestiones* 458; 15. Commentary to Martin 471; 16. Johannes a S.Thoma: *Ars logica* 484; 17. Commentary to John of St.Thomas 507; 18. James Harris, an Aristotelian of the 18th century 514; References 523; Concordance 527; Index of Persons 530.

   The text translated is: *Commentaries to Aristotle's Peri hermeneias Second edition Book I* (pp. 159-204); followed by a Commentary by Hans Arens, pp. 205-230.

4. ———. 2010. *Boethius: On Aristotle On Interpretation 1-3*. London: Duckworth.

   Translated by Andrew Smith.

   Contents: Conventions VII; Textual Emendations VIII; Introduction 1; Translator's Note 11; Translation. Book 1 15; Book 2 57; Book 3 115; Notes 151; Select Bibliography 157; English-Latin Glossary 159; Latin-English Index 160; Index of Names 162; Subject Index 164-166.

   "Boethius' second and larger commentary on Aristotle's *On Interpretation* was written in Latin in the early sixth century AD in the style of Greek commentaries on Aristotle. Both commentaries were part of his project to bring to the Latin-

speaking world knowledge of Plato and Aristotle. His project was for comprehensive translation of them and for adaptation of the Greek commentaries on them. The project was cruelly interrupted by his execution at the age of about 45 between 524 and 526 AD, leaving the Latin world under-informed about Greek Philosophy for 700 years, although his commentary on Aristotle's *On Interpretation* remained the standard Introduction throughout the Latin Middle Ages.

Aristotle's *On Interpretation*.

In the first six chapters of his *On Interpretation* Aristotle defines name, verb, sentence, statement, affirmation and negation. This has standardly been seen as a progression beyond the subject of his *Categories*, which distinguishes single terms. For *On Interpretation* already studies the complexity of a statement, and it can be seen as pointing forward to the treatment in his *Analytics* of syllogistic arguments, which combine three statements, two of them premisses and one a conclusion. But C.W.A. Whitaker has argued that what turns out to interest Aristotle from Chapter 7 onwards is contradictory or contrary pairs of statements, and that these contradictory or contrary pairs relate rather to the practice of dialectical refutation discussed in Aristotle's other logical works, the *Topics* and *Sophistici Elenchi*. (1)"

In Chapters 8 to 10, Aristotle examines exceptions to the rule that in contradictory or contrary pairs one statement will be false and the other true. Chapter 11 addresses some puzzles about complex assertions, Chapters 12 to 13 consider pairs of statements involving possibility and necessity, while the last chapter, 14, discusses beliefs that are contrary." (*Introduction* by Richard Sorabji, p. 1)

(1) C.W.A. Whitaker, *aristotle's De Intepretatione, Contradiction and Dialectic*, Oxford 1996.

5. ———. 2011. *Boethius: On Aristotle On Interpretation 4-6*. London: Bristol Classical Press.

   Translated by Andrew Smith.

Contents: Conventions VII; Textual Emendations VIII; Introduction 1; Translator's Note 11; Translation. Book 4 15; Book 5 60; Book 6 100; Notes 141; Select Bibliography 145; English-Latin Glossary 147; Latin-English Index 148; Index of Names 150; Subject Index 151.

6. ———. 1998. *On Determinism. Ammonius On Aristotle On Interpretation 9 with Boethius On Aristotle On Interpretation 9 First and Second Commentaries*. London: Duckworth.

   Ammonius translated by David Blank; Boethius translated by Norman Kretzmann.

   With essays by Richard Sorabji, Norman Kretzmann and Mario Mignucci.

   Contents: Richard Sorabji: Preface VII; Acknowledgements VIII; I. Introduction. 1. Richard Sorabji: The three deterministic argumenta opposed by Ammonius 3; 2. Richard Sorabji: Boethius, Ammonius and their different Greek backgrounds 16; 3. Norman Kretzmann: Boethius and the truth about tomorrow's sea battle 24; 4. Mario Mignucci: Ammonius' sea battle 53; II. Translations. Textual Emendations 89; Ammonius *On Aristotle On Interpretation 9* translated by David Blank 91; Notes 118; Boethius *On Aristotle On Interpretation 9 (first commentary)* 129; Boethius *On Aristotle On Interpretation 9 (second commentary)* translated by Norman Kretzmann 146; Notes 187; Bibliography 193; English-Greek Glossary 197; Greek~English Index 200; English-Latin Glossary 207;

   Latin-English Index 210; Subject Index 213-216.

   "This is a volume on determinism. It contains the two most important commentaries on the determinist's sea battle argument, and on other deterministic arguments besides. It includes the earliest full exposition of the Reaper argument for determinism, and a discussion of whether there can be changeless knowledge of the passage of time. It contains the two fullest expositions of the idea that it is not truth, but only definite truth, that would imply determinism.

Ammonius and Boethius both wrote commentaries on Aristotle's *On Interpretation* and on its ninth chapter where Aristotle discusses the sea battle.Their comments are crucial, for Ammonius' commentary influenced the Islamic Middle Ages, while that of Boethius was of equal importance to medieval Latin-speaking philosophers.

It was once argued that Boethius was influenced by Ammonius, but these translations are published together in this volume to enable the reader to see clearly that this was not the case. Ammonius draws on the fourth- and fifth-century Neoplatonists Iamblichus, Syrianus and Proclus.

He arranges his argument around three major deterministic arguments and is our main source for one of them, the Reaper argument, which has hitherto received insufficient attention. Boethius, on the other hand, draws on controversies from 300 years earlier between Stoics and Aristotelians as recorded by Alexander of Aphrodisias and Porphyry.

Ammonius' commentary on the first eight chapters of Aristotle's *On Interpretation* has appeared in a previously published volume in this series, translated by David Blank." (*Preface* by Richard Sorabji)

7. Thörnqvist, Christina Thomsen. 2008. *Anicii Manlii Severini Boethii De syllogismo categorico*. Gothenburg: University of Gothenburg.

   Critical edition with Introduction, translation, notes, and indexes by Christina Thomsen Thörnqvist.

   Contents: Preface X; Editions cited XIII; Introduction. I. The author, the work, and its sources. 1. The author XV; 2. The work and its sources XVIII; 3. The interrelation and the titles of the two monographs on the categorical syllogism XXIX; II. Boethius' monographs on the categorical syllogism in the Middle Ages XLI; III. The edition. 1. The textual tradition LIII; 2. Editorial principles LXXIII; 3. The apparatus fontium and notes LXXIV; *De syllogismo categorico* 1; Translation 102; Notes 158; Appendix: Selected variant readings in the younger

manuscripts 177; Bibliography 194; Word index 199; Index of passages 218; General index 226.

Abstract. "The Roman statesman and philosopher Anicius Manlius Seuerinus Boethius (c. 480-c. 525) translated and wrote commentaries on most of Aristotle's logical works. In addition, he wrote several treatises on logic, including two monographs on the categorical syllogism, which are commonly known as *De syllogismo categorico* and *Introductio ad syllogismos categoricos*. The present study is the first critical edition of the former.

De syllogismo categorico divides into two books of which the first is an account of the categorical proposition and the second deals with the categorical syllogism. The ultimate sources are Aristotle's *Peri hermeneias* and *Analytica priora*, but certain dispositional, terminological, and doctrinological features show that the text is heavily influenced by the tradition of the Greek commentators.

From the rediscovery of Boethius' logical writings in the 10th century until the mid-12th century, Aristotle's doctrine of the categorical syllogism was known chiefly through Boethius' *De syllogismo categorico*. The influence by as well as on the work is discussed in the Introduction to the present study.

The reconstitution of the text rests on collation of 47 manuscripts dating from the 10th to the 15th century. An analysis of the interrelation of the manuscripts leads to the conclusion that all extant manuscripts descend from a common archetype but that the tradition is severely contaminated and cannot be described by means of a *stemma codicum*. The text is primarily based on the sixteen earliest text witnesses, among which a formal hierarchy is established. The Latin text is presented with a critical apparatus, an apparatus fontium, an English translation, notes, and indexes. Selected variant readings in the later manuscripts are reported in an appendix."

8. Boethius. 1988. *In Ciceronis Topica*. Ithaca: Cornell University Press.

   Translated, with notes and an Introduction by Eleonore Stump.

Contents: Acknowledgments IX; Abbreviations XI; Introduction 1; *In Ciceronis Topica*: Book I 21; Introduction: The Purpose of Topics 22; The Nature of Logic 25; The Nature of Topics 29; The Division of Topics 36; Book II 49; Introduction: The Nature of Related Things 50; The Topic from related things 55; An Extrinsic Topic 72; Book III 75; Introduction: The Relationship of Topics to the Thing at Issue 75; Definition 84; Book IV 105; Partition 106; Designation 108; Related Things 110; Book V 132; Introduction: The Nature and Sorts of Conditional Propositions 133; The Seven Stoic Modes of Hypothetical Syllogism 135; Causes 154; Book VI 167; Introduction: Review of The Nature of Topics 168; Causes 169; Effects and Comparison 171; The Division of Topics 176; The Extrinsic Topic 179; Notes to the Translation. Book I 185; Book II 194; Book III 205; Book IV 214; Book V 224; Book VI 240; Appendix: Categories and Predicables 244; Selected Bibliography 256; Indexes 265-277.

"Boethius's *In Ciceronis Topica* is one of two treatises Boethius wrote on the subject of the Topics or *loci*. The other treatise is *De top. diff.*, (11) one of the last philosophical works he composed.(12) Together these two treatises present Boethius's theory of the art of discovering arguments, a theory that was enormously influential in the history of medieval logic. (13) *De top. diff.* is a fairly short treatise, but it is Boethius's advanced book on the subject; it is written in a concise, even crabbed style, and it clearly presupposes acquaintance with the subject matter. In contrast, ICT is Boethius's elementary treatise on the Topics. It was written shortly before *De top. diff.* (14) and is a commentary on Cicero's *Topica*, though it is a much larger and more comprehensive work than the *Topica*; it is more than twice as long as the more tightly knit De top. *diff.*" (p. 4)

(...)

According to Boethius, who is dependent on both the Greek and Latin traditions, (22) two different sorts of things are Topics: a Topic is both a maximal proposition and the Differentia (23) of a maximal proposition. On Boethius's view, a maximal proposition is a self-evidently true, universal generalization,

such as 'Things whose definitions are different are themselves also different.' Boethian Topics of this sort probably have as their ancestors the Aristotelian Topics that are principles. Their official function, on Boethius's account, is to aid in the discovery of arguments, but in practice Boethius tends to use them to confirm arguments. (24) Differentiae are theoretically the differentiae dividing the genus *maximal proposition* into its subaltern genera and species, and in that capacity they serve to classify maximal propositions into groups. Some maximal propositions have to do with definition, for example, and other with genus; so from definition and from genus are Differentiae. Much more important, however, is the role Differentiae play in Boethius's method for the discovery of dialectical arguments. For the most part, Boethius thinks of dialectical arguments as having categorical rather than conditional conclusions, and he conceives of the discovery of an argument as the discovery of a middle term capable of linking the two terms of the desired conclusion. Boethian Differentiae are, for the most part, the genera of such middle terms. (In those cases where the arguments are hypothetical rather than categorical, Boethius generally but not invariably thinks of Topics as validating the conditional proposition in the argument.) To find an argument using Boethius's method, one first chooses an appropriate Differentia (criteria for appropriateness are left to the arguer's intuition). The genus of middle terms, determined by the Differentia chosen, and the two terms of the desired conclusion then indicate the specific middle term of the argument and so indicate a dialectical argument supporting the conclusion." (pp. 4-6)

(11) An edition of this text can be found in J.-P. Migne, *patrologia Latina (PL)*, vol. LXIV (Turnhout: Brepols: n.d.), 1174-1216. For a translation and notes, see Stump 1978.

(12) de Rijk, "On the Chronology of Boethius' Works on Logic. Part II", *Vivarium*, 2, 1964: 159-160.

(13) See Stump 1978, and idem, "Topics: Their Development and Absorption into Consequences," in Norman Kretmann et al. eds., *The Cambridge History of Later Medieval Philosophy*

(Cambridge: Cambridge University Press, 1982), pp. 273-299. See also Niels J. Green-Pedersen, *The Tradition of the Topics in the Middle Ages* (Munich: Philosophia Verlag, 1984).

(14) de Rijk 1964: 159-161.

(22) For a summary of the controversy over Boethius's sources, see Stump "Boethius Works on the Topics", Boethius Works on the Topics" *Vivarium,* 12, 1974, 77-93.

(23) I am capitalizing 'Differentia' here to distinguish this technical use of the word from its more ordinary use designating one of the predicables.

(24) For a detailed analysis of Boethius's use and understanding of Topics, see Stump 1978, especially pp. 179-204.

[For a modern edition of Cicero's *Topica*, see: *Cicero's Topica,* Edited with an Introduction, Translation, and Commentary by Tobias Reinhardt, New York: Oxford University Press, 2006.]

9. ———. 1978. *De topicis differentiis*. Ithaca: Cornell University Press.

Translated, with notes and essays on the text, by Eleonore Stump.

Contents: Abbreviations 11; Introduction 13; Part One. *De topicis differentiis*. Book I 29; Book II 43; Book III 63; Book IV 79; Notes to the Translation. Book I 97; Book II 110; Book III 128; Book IV 141; Part Two. Dialectic in Ancient and Medieval Logic. Dialectic and Aristotle's Topics 159; Dialectic and Boethius's *De topicis differentiis* 179; Between Aristotle and Boethius 205; Peter of Spain on the Topics 215; Differentia and the Porphyrian Tree 237; Differentia 248; Bibliography 263; Indexes 275-287.

"This book is a philosophical study of Boethius's treatise *De topicis differentiis*. It includes the first English translation of this historically and philosophically important text, as well as copious notes designed to make the text accessible to philosophers and scholars interested in the medieval period. Detailed philosophical analyses of the text and of important

technical concepts, such as the concept of the predicables, are worked out in the chapters of Part II. Chapters on Aristotle's *Topics* and the treatise on dialectic in Peter of Spain's *Tractatus* explain the work of these philosophers on the Topics and explore the relationship of their views to those of Boethius. My principal aim is to make Boethius's treatise available and comprehensible to scholars for whom the technical Latin vocabulary and unfamiliar subject matter have made it inaccessible." (*Preface*, p. 7)

(...)

"Boethius's De topicis differentiis is concerned with the discovery of arguments. As there is a method for judging or evaluating arguments (what we call 'logic'), so, Boethius thinks, there is also a method for finding arguments. The method varies somewhat, depending on whether the arguments sought will be used in rhetoric for legal or political speeches or in dialectic for philosophical inquiry. Most of Boethius's attention is given to the method as used in dialectic, but the fourth and last Book of the treatise examines the method as used in rhetoric and compares it with that used in dialectic.

Whether the method for finding arguments is rhetorical or dialectical, its main instrument is something called a Topic (in Latin, 'locus'). 'Topic' is the standard English translation for the Greek 'τόπος' (the Aristotelian counterpart of 'locus'), which means, literally, a place or area. A certain sort of Topic that plays a role in the ancient methods for memorization antedates and is probably the source for the kind of Topic used in discovering arguments. In the art of memorizing, a Topic is a place, in the literal sense, which the memorizer pictures in his mind and from which he recalls what he wants to remember. He familiarizes himself with some large edifice in which a number of places are picked out as the τόποι to aid memory, and these places are fixed in the memory in their actual order of occurrence in the edifice. Then the speech, or whatever is being memorized, is divided into parts, and a vivid image is associated with each of the parts. The memorizer pictures these images put into the places of the edifice in their appropriate

order. When he is delivering his speech, he imagines himself walking through the edifice, going from place to place, and finding in each place the image he put there. Each image reminds him of a certain part of his speech; and in this way he uses the τόποι to recall the entire speech, part by part, in order. (7)" pp. 15-16)

(...)

" *De top. diff.* is Boethius's definitive work on the Topics. In it he considers two different sets of dialectical Topics, one of which he finds in Cicero's *Topica* and the other of which stems from the Greek commentator Themistius (ca. 320-390); and he attempts to reconcile the two sets of dialectical Topics. He also discusses rhetorical Topics, and he concludes the treatise by comparing rhetorical and dialectical Topics to make their similarities and differences clear. Because it is an advanced work with a broad scope of material, *De top. diff.* does not devote much attention to the way in which a Topic functions to find an argument. One is likelier to find such discussion in the more elementary *In Ciceronis Topica*. Instead, in *De top. diff.* Boethius contents himself with describing the various Topics and giving examples using each, with a minimum of explanation about the basic method. In the chapter on Boethius, I have explained what I think his technique for finding arguments is and how it works." (p. 17)

(7) Cf. Frances Yates, *The Art of Memory* (London, 1966); Frances Yates, 'The Ciceronian Art of Memory," *Medioevo e rinascimento* (Florence, 1955), II, 871-903; Harry Caplan, tr., *Rhetorica ad Herennium* (Cambridge, Mass., 1954); and Richard Sorabji, *Aristotle on Memory* (London, 1972).

10. ———. 1988. "On Division." In *Logic and Philosophy of Language*, edited by Kretzmann, Norman and Stump, Eleonore, 11-38. Cambridge: Cambridge University Press.

    The Cambridge Translations of Medieval Philosophical Texts. Vol 1.

    "De divisione was probably written sometime between 505 and 509. It is a study of different sorts of division - e.g., the division

of a genus into its species or the division of a whole into its integral parts - an important part of the logical heritage on which the scholastic period built. Boethius investigates the way in which these various divisions are distinguished from one another and the logical relations between whatever is being divided (or analyzed, or classified) and its dividing elements. For example, he points out that a genus is naturally prior to its species but a whole is naturally posterior to its integral parts; if a genus is destroyed, so are all its species, but if a whole is destroyed, some of its integral parts may remain. A large part of the treatise is devoted to the division of genus into species, in connection with which Boethius deals extensively with the predicables (genus, species, definition, differentia, proprium, and accident), their interrelationships, and the way they combine to form a Porphyrian tree." (pp. 11-12)

11. ———. 1998. *De Divisione Liber*. Leiden: Brill.

    Critical edition, translation, prolegomena and commentary by John Magee.

    Contents: Acknowledgements IX; Abbreviations XI; Boethian Editions Cited XIII; Prolegomena XV; Date of De divisione XVII; Boethius, Porphyry, and Andronicus XXXIV; Textual Tradition of *De divisione* LVIII; *De divisione* 1; Commentary 53; Appendix: Elenchus Lectionum Singularium Selectarum 171; Bibliography 177; Word Index 187; Index of Passages 200; General Index 222-224.

    Date of composition: "All things considered, the period between 515 and 520 seems a safe surmise." (p. XXXIII)

    "Like all of Boethius' writings, *De divisione* looks both back to Antiquity and ahead to the Middle Ages. (1) It was copied with great frequency for use in the medieval schools, the MSS in which it is preserved being outnumbered only, among Boethius' works, by those of *De differentiis topicis* and the *Consolatio*. And in addition to the commentaries of Peter Abelard, Albert the Great, and Antonius Andreae, there is a wealth of glossed MSS, florilegia, and indirect evidence to suggest that *De divisione* proved of enduring interest to medieval students from the later tenth century on. This would have pleased Boethius,

who in the proem evinces particular concern for the utilitas of the treatise in the context of the Latin-speaking world. As for Antiquity, there is an important lost tradition underlying *De divisione*. More precisely, in the proem and conclusion Boethius mentions two works which are otherwise completely unattested: a "book" on diaeresis by Andronicus of Rhodes (1st c. BC) (2) and a "commentary" on Plato's *Sophist* by Porphyry (b. AD 232/3). (3) The lost ancient tradition is the concern of the present discussion, and I begin with the relevant passages. In the proem and conclusion Boethius indicates:

(1) that Andronicus published a book on diaeresis, in which he (Andronicus) remarked (a) that diaeresis is a method of great utility and (b) that the Peripatos (before Andronicus) had always held the method in high esteem: *Quam magnos studiosis afferat fructus scientia diuidendi quamque apud Penpateticam disciplinam semper haec fient in honore notitia, docet et Andronici diligentissimi senis* De diuisione *liber editus* (4,3ff.);

(2) that Plotinus approved of or recommended Andronicus' book: *et hic idem a Plotino grauissimo philosopho comprobatus* (4,5f.);

(3) that Porphyry (consequently) adapted Andronicus' book for his commentary on Plato's Sophist: *et in Platonis librì qui Sophistes inscrìbitur commentariis a Porphyrio repetitus* (4,6f.);

(4) that the *later Peripatos* (a) distinguished between diaeresis in the essential and incidental senses and (b) made subdivisions of each: *Posterior quidem Peripateticae secta prudentiae differentias diuisionum diligentissima ratione perspexit et per se diuisionem ab ea quae est secundum accidens ipsasque inter se disiunxit atque distribuii* (48,26ff.);

(5) that, by contrast, the *earlier Peripatetics* indiscriminately employed accidents in place of genera, species, and differentiae: *antiquiores autem indifferenter et accidente pro genere et accidentibus pro speciebus aut differentiis utebantur* (50,1 f.); and

(6) that the promiscuous “earlier” usage drove Boethius to explain how the various kinds of division are (a) similar to and (b) different from one another: *unde nobis peropportuna utilitas uisa est et commumones harum diuisionum prodere et eas propriis differentiis disgregare* (50,2ff.)." (pp. XXXIV-XXXV)

(1) The following is based on my “Boethius ... and Andronicus;” points of detail are treated in the commentary.

(2) The complicated issues of Andronicus’ precise dates and scholarchship I pass over here. One may consult, among others, Moraux, Aristotelismus I 45fF., with Tarân’s review, esp. 73 Iff., and Gottschalk, “Commentators” 55ff.

(3) A. Smith, (ed.) *Porphyry Philosophi Fragmenta* xf., and “Studies” 750, treats the “bulk” of *Dio*. as a Porphyrian fragment (169F). Although preferable to treating it as an Andronicean one, this entails complications of its own.

Ancient Commentaries on Boethius’ *De divisione*:

- Pietro Abelardo, *Scritti filosofici: Editio super Porphyrium - Glossae in Categorias - Super Aristotelem De Interpretatione - De divisionibus - Super Topica glossae*. Edited by Mario Dal Pra. Rome-Milan 1954, pp. 155-203.

- *B. Alberti Magni Ord. Praed. commentarii in librum Boethii De divisione*: Editio prìnceps. Edited by Fr. P.M. von Loë, O.P. Bonn 1913.

- *Robert Kilwardby’s Writings on the Logica Vetus Studied with Regard to Their Teaching and Method*. Edited by P.O. Lewry, O.P. (unpublished Dissertation), Oxford 1978, pp. 408-12.

- *Antonij Andree super artem veterem. Scripts: seu Expositiones Antonij Andree super artem veterem: et super Boetium de divisionibus: cum questionibus eiusdem*. Venice 1517. Fols. 89vb-103b.

12. ———. 1983. *Boethian Number Theory*. Amsterdam: Rodopi.

Translation, with Introduction and notes, of the *De institutione arithmetica* by Michael Masi.

Contents: Preface 9; Boethian Number Theory 11; The Iconography of the Liberal Arts and the Boethian Arithmetic 13; Boethian Number Theory and Music 23; Arithmetic Proportion and the Medieval Cathedral 31; Medieval Literature andf the Theory of Number 39; *De Institutione Arithmetica*: Commentaries and Derivative Works 49; Manuscripts Containing the *De Institutione Arithmetica* 58; A View of Bethius' Life and Works 64; Boethius, to Symmachus, his Lord, the Patrician 66; Boethius, *De Institutione Arithmetica* 71; Bibliography 189-197.

"The consistency, even into the Renaissance, of the Liberal Arts curriculum, (1) its essentially mathematical nature, its influence beyond the *quadrivium* on music theory and practice, and its bearing on the nature of aesthetics (2) are all revelant to the basic concepts outlined in Boethius' *De Institutione Arithmetica*. Not only does the name of Boethius appear repeatedly in discussions of proportions and harmony, but numerous manuscripts and publications of his works and commentaries on the *De Institutione Arithmetica* continued with undiminished, even increased, vigor into the sixteenth century.

Before I present an outline of this scope of influence, the distinction between practical and theoretical mathematics should be clarified in order to help avoid a common misunderstanding. The modem meaning of *arithmetic* conveys nothing of what it meant for Boethius. The difference between arithemetic (Αριθμητική) and logistics (Λογιστική) was the same for Boethius as it was for the Greeks who originally defined it. (3) Both disciplines deal with numbers, but arithmetic designates the theory or philosophy of number, only after the Middle Ages did the term designate an elementary discipline of counting and calculation. The process whereby one undertook the solution of practical problems of computation was known to the Greeks and to Boethius as logistics and to the Middle

Ages as algorism. (4)

The nature and scope of number theory is adequately explained in the first chapter of the *De Institutione Arithmetica* -- it is essentially a preparatory study for philosophy. As such, among the Neo-Pythagoreans, it had a fundamentally moral character and bespoke the order of the world in its most basic terms. The expression of this order was eventually, in the other disciplines of the *quadrivium*, expanded into musical terminology where it acquired the dimension of harmony; in the study of geometry, it was extended to plane surfaces and solid figures. In astronomy, the geometric measurements and the metaphor of harmony found their widest applications in the definition of the order of the universe and in the supreme model of concord, the music of the spheres.

To demonstrate within the limits of this Introduction the pervasiveness of Boethius' treatise on the study of number theory, its importance as a preparatory study for music, and the bearing of number theory on architecture, literature, and moral philosophy, I have organized my discussion under five headings. With each I have provided adequate Bibliography so that those interested in particular applications of this number theory may pursue and test the application of principles in the *De Institutione Arithmetica* to other disciplines. The five headings are: (I) The Iconography of the Liberal Arts; (II) the *De Institutione Arithmetica* and the *De Institutione Musica* in the theoretical writings of later musicologists; (III) Arithmetic proportion and architecture; (IV) Literary extensions of the Theory of Number; (V) Commentaries, derivative studies, and extant manuscripts." (pp. 11-12)

(1) *Trivium*: grammar, rhetoric, logic; *Quadrivium*: arithmetic, music, geometry, astronomy.

(2) See various chapters in E. de Bruyne *Études d'esthetique médiévale* (Bruges, De Tempel, 1946).

(3) See Sir Thomas Heath, A History of Greek Mathematics (Oxford, Clarendon Press, 1921), Vol. I, pp. 13-16.

(4) See Nicomachus of Gerasa, *Introduction to Arithmetic*, trans. Martin Luther D'ooge, intro. Frank E. Robbins and L.C. Karpinski (New York), Macmillan,1926, pp. 3-4; Plato, *Gorgias* Sec. 451C; *Theatetus*, Sec. 145A, 198A. For the Middle Ages, see A.C. Crombie, *Medieval and Early Modem Science* (New York, Anchor Books, 1959), Vol. I, pp. 50-51.

13. Palisca, Claude, ed. 1989. *Boethius. Fundamentals of Music*. New Haven: Yale University Press.

    Translated, with Introduction and notes by Calvin M. Bower.

    Contents: Preface by Series Editor Claude V. Palisca XIII; Translator's Preface XVII; Introductio XIX-XLIV; Book 1 1; Book 2 52; Book 3 88; Book 4 115; Book 5 162; Appendix 1: Chapters 20-30 of Book 5 181; Appendix 2: Notes on the Text of the Spartan Decree 185; Appendix 3: Notes on the Diagrams and their Sources 189; Index 197-205.

    "Shortly after the turn of the sixth century a young Roman patrician began to record in Latin the sources and background of his exceptional Greek education. Although it is uncertain that he ever studied in Athens or Alexandria, those fifth-century centers of liberal learning and philosophy fundamentally shaped his thinking, even to the extent of determining his literary and pedagogical objectives. He would lay a scientific foundation by writing on four mathematical disciplines—the quadrivium as he collectively called them. Thereafter he would translate and comment on the *Organon* of Aristotle and, building on the mathematical disciplines and Aristotelian logic, would finally approach the philosophical writings of Plato and Aristotle and the world of metaphysics. (1)

    In this context, Anicius Manlius Severinus Boethius (480-524) wrote the treatise entitled *De institutione musica*, one of his earliest works, probably around the middle of the first decade of the sixth century. It was intended to be read along with the *De institutione arithmetica* and may have been one of four works setting out the foundations of Platonic scientific education: arithmetic, music, geometry, and astronomy. None of the mathematical works—or even the logical works—was considered original by Boethius or his contemporaries.

Boethius's early works record in Latin what he was reading in Greek. Reading, translating, writing, and commenting formed an integrated process through which Boethius appropriated for his culture works that not only were unknown but that in most cases surpassed the superficial dabblings in science and logic from the golden and silver ages of Roman civilization. Scholars such as Marius Victorinus und Apuleius of Madaura had produced scientific translations for Latin readers of the fourth and fifth centuries, but Boethius carried the genre to new levels of rigor and thoroughness. Written for a cultural elite already initiated into philosophical literature, Boethius's mathematical and logical works represent one of the most notable projects in intellectual history of preserving and transmitting a corpus of knowledge from one culture to another. (2)

No evidence has been found that Boethius's mathematical works were read between his short lifetime and the ninth century. But when liberal learning saw a rebirth in the Carolingian era, Boethius's treatises on arithmetic and music reappeared as authoritative works on these disciplines, rivaled only by Martianus Capella's *De nuptiis Philologiae et Mercurii*. (3) When a tradition of independent musical treatises began in the ninth century, Boethius's treatise became the unique source for the thorough mathematical underpinning of Western musical theory. It is ironic that this work intended as an approach to logic and philosophy would essentially shape the most illiberal of the liberal arts. (4)" (pp. XIX-XX)

(...)

"An overview of the structure of the five extant books should assist the reader in placing the musical details of the treatise in perspective. Book 1 forms a self-contained Introduction to the discipline, whereas books 2 and 3 present mathematical demonstrations of propositions introduced in book 1. Book 4 applies the mathematical principles developed in books 2 and 3 to the monochord and presents the theory of modes. Finally, book 5 introduces the reader to the mathematical and musical subtleties of Ptolemy." (p. XXIX)

(1) For a thorough study of Boethius's life, see Henry Chadwick, *Boethius: The Consolations of Music, Logic, Theology, and Philosophy* (Oxford, 1981), pp. 1-68. Also informative is John Matthews, "Anicius Manlius Severinus Boethius," in *Boethius: His Life, Thought and Influence*, ed. Margaret Gibson (Oxford, 1981), pp. 15-43.

(2) Concerning the complex question of Boethius's literary precursors and his audience, see Helen Kirkby, "The Scholar and his Public," in *Boethius: His Life, Thought and Influence*, pp. 44-69.

(3) See *Martianus Capella*, ed. Adolf Dick, with addenda by Jean Préaux (Stuttgart, 1969); also *Martianus Capella and the Seven Liberal Arts*, vol. 1, William Harris Stahl, *The Quadrivium of Martianus Capella, Latin Translations in the Mathematical Sciences, 50 B.C.-A.D. 1250*, and Richard Johnson with E. L. Burge, *A Study of the Allegory and the Verbal Disciplines* (New York and London, 1971); vol. 2, *The Marriage of Philology and Mercury*, trans. W. H. Stahl and R. Johnson with E. L. Burge (New York, 1977).

(4) For the tradition of Boethius's treatise in the early Middle Ages, see Calvin M. Bower, "The Role of Boethius' De institutione musica in the Speculative Tradition of Western Musical Thought," in *Boethius and the Liberal Arts: A Collection of Essays*, ed. Michael Masi, Utah Studies in Literature and Linguistics 18 (Bern, Frankfurt, and Las Vegas, 1981), pp. 157-74; and Alison White, "Boethius in the Medieval Quadrivium," in *Boethius: His Life, Thought and Influence*, pp. 162-205.

14. Boethius. 1973. *The Theological Tractates and the Consolation of Philosophy: Text and Translations*. London: Heinemann.

    The Loeb Classical Library; new edition; Latin text and English translation.

    The Theological Tractates translated by H. F. Stewart, E. K. Rand and S. J. Tester; *The Consolation of Philosophy* translated by S. J. Tester.

Contents: Note on the Text VII; Introduction IX; Bibliography XV; *The Theological Tractates* 2; *The Consolation of Philosophy* 128; *Symmachi versus* 412; Index 415-420.

"A seventeenth-century translation of the *Consolatio philosophiae* is here presented with such alterations as are demanded by a better text, and the requirements of modem scholarship. There was, indeed, not much to do, for the rendering is most exact. This in a translation of that date is not a little remarkable. We look for fine English and poetry in an Elizabethan; but we do not often get from him such loyalty to the original as is here displayed.

Of the author " I. T." nothing is known. He may have been John Thorie, a Fleming born in London in 1568, and a B.A. of Christ Church, 1586. Thorie " was a person well skilled in certain tongues, and a noted poet of his times " (Wood, *Athenae Oxon*. ed. Bliss, I. 624), but his known translations are apparently all from the Spanish. (a)

Our translator dedicates his " Five books of Philosophical Comfort" to the Dowager Countess of Dorset, widow of Thomas Sackville, who was part author of *A Mirror for Magistrates and Gorboduc*, and who, we learn from I. T's preface, meditated a similar work. I. T. does not unduly flatter his patroness, and he tells her plainly that she will not understand the philosophy of the book, though the theological and practical parts may be within her scope.

The *Opuscula Sacra* have never before, to our knowledge, been translated. In reading and rendering them we have been greatly helped by two mediaeval commentaries: one by John the Scot (edited by E. K. Rand in Traube's *Quellen und Untersuchungen*, vol. I. pt. 2, Munich, 1906); the other by Gilbert de la Porrée (printed in Migne, *P.L.* LXIV.)."

(a) Mr. G. Bayley Poison suggests with greater probability that I. T. was John Thorpe (fl. 1570-1610), architect to Thomas Sackville, Karl of Dorset. Cf. *American Journal of Philology*, vol. XIII. (1921), p. 266.

15. ———. 1991. "De hebdomadibus." In *Being and Goodness. The Concept of the Good in Metaphysics and Philosophical Theology*, edited by MacDonald, Scott, 299-304. Ithaca: Cornell University Press.

    Translation by Scott MacDonald.

    "The Latin texts are Boethius 1978a and Peiper 1871. The line numbers from Rand's text are given in angle brackets in the text of the translation. In preparing this translation, I have consulted the translations of Stewart, Rand, and Tester in Boethius 1978a, Boethius 1981, and de Rijk's suggestions for translating the axioms in de Rijk 1987." (p. 299)

    References

    Boethius 1978a. *The Theological Tractates and the Consolation of Philosophy: Text and Translations*. Ed. and trans. H. F. Stewart, E. K. Rand, and S. J. Tester. Cambridge, Mass.: Harvard University Press.

    Boethius 1981. "How Are Substances Good Insofar as They Exist, Since They Are Not Substantial Goods? (*De hebdomadibus*) (Preliminary draft). Trans. Paul Vincent Spade. Translation Clearing House, Department of Philosophy, Oklahoma State University.

    Boethius 1871. *Anicii Manlii Severini Boetii Philosophiae Consolationis Atque Opuscula Sacra*. Ed. Rudolph Peiper. Leipzig: Teubner.

    Rijk, L. M. de. 1987. "On Boethius' Notion of Being: A Chapter in Boethian Semantics." In *Meaning and Inference in Medieval Philosophy: Studies in Memory of Jan Pinborg*, ed. Norman Kretzmann. Dordrecht: Kluwer.

16. ———. 1999. *The Consolation of Philosophy*. Oxford: Clarendon Press.

    Translated with Introduction and explanatory notes by Patrick Gerard Walsh.

    "This is an appropriate time to launch a new translation of *The Consolation of Philosophy*. In the past few years there has been

a significant revival of interest in Boethius; this has been marked by several studies which have partially restored him to the prominence which he enjoyed for over a millennium from the Carolingian age onwards. My rendering, with its accompanying Introduction and annotation, has sought to exploit these important researches.

The translation is based on Ludwig Bieler's admirable edition in the *Corpus Christianorum* series. The annotations have benefited conspicuously from the notable commentary of J. Gruber. Henry Chadwick's general study of Boethius, and the volume of essays edited by the late-lamented Margaret Gibson entitled *Boethius, his Life, Thought, and Influence*, have furnished much of the information on which the Introduction is based. My debts to Gerard O'Daly's *The Poetry of Boethius* for interpretation of the verses, and to R. W. Sharpies' edition of the taxing philosophical content of Books 4-5, will be obvious from the frequent citations in the notes. Details of these works are presented in the Select Bibliography." (from the *Preface*)

"Summary of the Treatise.

Book 1. As the prisoner grieves over his downfall and impending fate, Lady Philosophy appears before him. Initially he fails to recognize her, but once recognition dawns he pours out to her his resentment at the iniquity of Fortune. His devoted public service has ended in his condemnation; the order evident in the world of nature does not extend to the just treatment of humankind. Philosophy diagnoses his ailment; blinded by vicious emotions, he has forgotten how the world is ordered. She promises initially a gentler cure.

Book 2. Lady Philosophy denounces the prisoner's bitter indictment of Fortune, against whom he has no real complaint. Fortune herself is invoked to justify her ways with men. Hitherto she has favoured him, and the inconstancy she now shows is at one with the similar pattern in nature. Philosophy insists that his present life has its material consolations, but true happiness is not to be sought in them. She reviews the worldly goods to which men aspire, and successively rejects wealth, ambition for high position, and the pursuit of fame as

avenues to happiness. Fortune benefits man more when adverse than when favourable.

Book 3. Before explaining where true happiness is to be found, Lady Philosophy reiterates that the quests for riches, high position, and fame, and additionally physical pleasure, are defective ways of seeking the true good. The true avenue is reversion to our beginnings. The prisoner's former wealth, the tenure of public office, the kingship under which he has served, the desire for fame, the pursuit of bodily pleasure, the reliance on physical strength and beauty are all false goods which fail to attain sensation, imagination, reason, and understanding; these correspond with the four levels of existence, namely immobile life, that of the lower animals, the human, and the divine. The reconciliation between Providence and free will is achieved at the fourth level of divine understanding. God's knowledge is always in the present, not in the future or past. Though from the divine aspect all future events will be necessary, in their own nature some will be necessary but others freely chosen. In this sense the freedom of the will remains intact."

17. ———. 2001. *The Consolation of Philosophy*. Indianapolis: Hackett.

    Translated, with Introduction and notes, by Joel C. Relihan.

    "Principles of translation.

    Latin poetry does not rhyme; its rhythms, far more complex than those of English, are not related to the accents of the words themselves but to the succession of long and short syllables; that is to say, they depend upon the length of time that it takes to pronounce each syllable. The music of Latin poetry is accordingly quite polyphonic; sometimes word accent agrees with verse accent, and sometimes conflicts with it. Within this rhythmic environment is found a highly artificial poetic language: The great Latin poets (Vergil, Horace, Ovid) did not just write memorable works in verse but, for each writer who came after them, offered new solutions to the old problem of how to fit the Latin language into the shapes of Greek verse. Consequently, every Latin poem is a mosaic of phrases learned from earlier poems; the reading of any Latin poem is a

complicated intertextual game, as even a lone word in a given place in a line of a certain rhythm may evoke associations with an earlier poem that then becomes part of the context in which the new poem is meant to be read.

There are thirty-nine poems in *Consolation*, written in a wide range of meters and combinations of meters. The poetic nature of the text cannot be ignored; only *Satyricon* and Martianus Capella's *Marriage* come close to the richness of its mixture of prose and verse. No English translation of a Latin poem can hope to mirror the music of these Latin originals, or the complexities of their associations with the whole of Latin literature. That is for specialists; students curious to see Boethius the poet in his workshop, adapting the themes and language of his originals, may be referred to the study of O'Daly, [*Poetry of Boethius,* Chapel Hill and London, The University of North Carolian Press] 1991. What I have done here, and what has not been done before in the long history of translation of

Consolation into English, is reproduce through English accents the rhythms and meters of the original poems. I have thought it important to do so in order to make the reader stop and take the poems seriously; there is a tendency to take the poems as mere metrical restatements of the arguments of the preceding prose sections. I would claim that in fact the poems often shift the focus of arguments, or redirect them in surprising ways; the reader needs to linger on them. The rhythms of the Latin will for the most part not be familiar; I have included accent marks to show where the stresses should fall, and have added in the notes to each poem a brief discussion of the meter and its associations. The reader needs to know only that the stress marks are intended to have their Latin force: That is, they show where the syllables should be dragged out a bit, pronounced more slowly, given more time. (1) It is possible for other English accents to be heard against this background, and I flatter myself in thinking that the resulting synthesis of these two competing rhythms, while not the equivalent of the Latin complexity, makes a worthy music of its own.

The language of poetry is not the language of prose. I have tried to represent the prose speeches of the participants in this dialogue with full respect for what may be called their pedanticisms and niceties: And so it is for this very reason that . . . ; it cannot in any way be doubted . . . ; I see that that is indeed the logical consequence. . . . *Consolation* tells of the worlds of God and of mortals, of timeless reality and physical things, and I have not tried to substitute, as would be the standard translation practice, more elegant English abstract nouns for these crucial “things". " (pp. XXVIII-XXIX)

(1) Stress marks fall on the second element of a diphthong (e.g., eách). When on the first element, they help suggest a polysyllabic pronunciation (e.g., concéaled is trisyllabic at IV.m.5.9.).

(2) For example, IV.6.9: “Should one look at the force of these two terms in one’s own mind, it will appear quite easily that they are different; for Providence is the divine reason itself, established in the highest ruler of all things, which arranges all things; Fate is the arrangement that inheres in the things that have motion, the arrangement through which Providence weaves all things together in their proper orders.” In the verse sections, necessities of meter at times force me to exploit a fuller range of translation options.

18. Sharples, Robert W., ed. 1991. *Cicero: On Fate (De fato): & Boethius: The Consolation of Philosophy (Philosophiae consolationis) IV. 5-7, V*. Warminster, England: Aris & Phillips.

    Contents: Preface VI; Note on abbreviations IX; Introduction. 1. Cicero and the Latin reception of Greek philosophy 1; 2. The place of *On fate* among Cicero’s philosophical works 3; 3. The freewill problem before Cicero; 3.1 Causation 6; 3.2 Future truth and possibility 11; 4. Cicero’s treatise *On Fate*: plan and sources; 4.1 The plan of the work 16; 4.2 Cicero’s sources 20; 5. An evaluation of Cicero’s treatise 23; 6. The influence of Cicero’s treatise 24; 7. Divine foreknowledge from Cicero to Boethius 25; 8. Fate and providence 29; 9. The problem of evil 31; 10. Boethius’ life and works 34; 11. The *Consolation of Philosophy* 37; 12. The sources and arguments of IV.5-7) and V

41; 13. The *Consolation* and Christianity 46; 14. The influence of the *Consolation of Philosophy* 48;

14. On the texts 49; Sigla 51; Text and translation: Cicero, *On fate* 52; Appendix: Parallel texts 92; Boethius, *Consolation of Philosophy* IV.5-7 and V 102; Commentary: Cicero, *On fate* 159; Appendix: Parallel texts 196; Excursus: Terminology for Causes 198; Boethius, *Consolation of Philosophy* IV.5-7 and V 202; Select Bibliography 233; Index 241-244.

"The two texts considered here are linked by more than one common feature. They are examples of the writings of the two men who did more to communicate Greek philosophy to the Latin-speaking West than anyone else in antiquity, with the possible exceptions of Augustine and (in one particular field) Lucretius. They are works which reflect two very different branches of the tradition that goes back to Plato, or to Plato's Socrates. Cicero writes as a follower of the sceptical New Academy, which derived its readiness to challenge dogmatic positions from Socrates even if its belief that certainty is impossible was not one he would have shared; Boethius' *Consolation* is in the tradition of the revived dogmatic Platonism of the Imperial period, a Platonism that welcomed, and made use of, ideas from Aristotle as well as from Plato. They are works of philosophy written by two men each of whom played a part in the public life of their times - and paid with their own lives for doing so; though there is the difference that Boethius' *Consolation of Philosophy* was written when its author was already under sentence of death, while Cicero's *On Fate* was written in haste as its author was planning the return to the political arena that was ultimately to be his downfall. Above all, however - and this is the justification for uniting the two texts, or rather one fragmentary text and one partial extract, in this single volume - they represent two stages in a story, the story of man's attempt to understand whether he is or is not in control of his own destiny; this story in one guise or another pervades the literature of antiquity, and is not finished yet.

That said, there are also great differences between the two texts. Cicero's treatise *On Fate* survives in fragmentary form only; we may have about two-thirds of the whole text, but it lacks its beginning and its end, and there are major gaps which seriously affect our interpretation of the whole. Questions concerning the literary form and structure of the treatise as originally composed, of Cicero's sources and of philosophical interpretation are here all closely intertwined with one another, giving this work a particular fascination over and above that of the subject-matter itself; but, while it has been extensively quarried for technical discussions, and extensive extracts have been included in source-books, English readers have been poorly served until now as far as the availability in a single volume of a reliable continuous text and translation is concerned.

The situation with Boethius' *Consolation* could hardly be more different. It is one of the major works of world literature; the work that - along perhaps with Augustine's *City of God* - marks the boundary between ancient and medieval thought; a work which profoundly influenced the thought of the Middle Ages; a work translated into English by, among others, Alfred the Great, Chaucer, and Elizabeth the First. It is a daunting prospect to write about such a work, a work moreover that can be approached from many different perspectives: its relation to earlier Latin literature both in prose and in poetry, its relation to Boethius' philosophical interests on the one hand and his Christian beliefs on the other, its influence on later thought and literature. In a book of the present size it would scarcely be possible to do justice to all these perspectives; given the reason for including Cicero and Boethius together in this book in the first place, I hope that my comments may at least be helpful for those who wish to consider the part of the *Consolation* here included as a stage in a particular philosophical debate.

That, too, must be the justification for violating Boethius' design by including only a part of the whole, even though it is the final part and culmination. I can only hope that those who read the end of the work here will want to go on and read what precedes. Boethius does mark a new stage in the discussion by

Philosophy's observation that "You summon me to a matter which involves the greatest enquiry of all"; the reason for including the end of book 4 as well as book 5 is that it introduces the question of how fortune and freedom are to be reconciled with the divine providence which has formed the topic of the discussion since 3.12." (*Preface*, VI-VII).

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History of Logic

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Boethius' Logic as a Discourse on Being

Introduction: An Overview of the Logical Works of Boethius

"According to Minio-Paluello, the editor of most of the translations, the medieval manuscript tradition shows traces of both a first and a second version of the Latin *Categories*, *Peri hermeneias*, *Prior Analytics* and *Topics*. (5) Boethius did not take his task as a translator lightly!

Only one commentary on the *Categories* is extant, but in it Boethius announces a plan to write a second one, and it seems likely that an anonymously transmitted text may be a small fragment of the second commentary (whether it was ever completed or not). (6) Of the two commentaries on *Peri hermeneias*, the second is considerably longer and generally more interesting than the first. There is no dedicated companion monograph, but parts of the lore of the *Peri hermeneias* are presented in the works on categorical syllogisms and the one about topical differences.

It seems possible that Boethius composed or prepared a commentary on the *Prior Analytics*. While preparing an edition of Boethius' translation of this Aristotelian text, Minio-Paluello discovered that a twelfth-century manuscript contains marginal scholia on that work which must be translations from the Greek or adaptations of a Greek source, and the translator's habits seemed to indicate that he was no one other than Boethius. (7) Possibly, then, these scholia were raw materials intended for use in a commentary. Later I discovered traces of more translated Greek scholia in a twelfth-century

commentary on the *Prior Analytics*. (8) This suggests that either (1) Boethius had left more extensive raw materials than the ones discovered by Minio-Paluello, or (2) he had actually left a whole commentary, of which we have only discovered little fragments, or (3) in spite of the agreement with Boethius' habits as a translator, what Minio-Paluello and myself discovered were in fact traces of a twelfth-century translation – complete or partial – of a Greek commentary. The matter is in need of further research. The monograph on categorical syllogisms may reasonably be seen as a handy summary of the subject treated at length and in depth in the *Prior Analytics*, while the one on hypothetical syllogisms is only linked to the Aristotelian work in the sense that it was customary in late antiquity to think that, by laying the foundations of categorical syllogistic in *Prior Analytics*, Aristotle had also laid the foundations of hypothetical syllogistic, and commentators seem routinely to have said something about the latter in connection with *Prior Analytics* I.23.

Boethius' treatment of hypothetical syllogisms is (to put it mildly) very strange; recently a Greek parallel to a little part of it was discovered, (9) but for the most part it is unparallelled in ancient literature, though, admittedly, we do not have much by which to gauge what may have been the standard approach to the matter in late antiquity. Boethius probably never translated or commented on the *Posterior Analytics*, though he obviously had some acquaintance with the work, and must be assumed to have intended to include it in his program. (10) He himself mentions that there was a book by Vettius Praetextatus (c.320–84) which claimed to be a Latin translation of both of Aristotle's *Analytics*, while in fact it contained translations of Themistius' fourth-century paraphrases, "as is obvious to anyone who knows both." (11) Nor does Boethius seem to have commented on the Sophistical Refutations, although he did translate it. About Boethius' lost commentary on the *Topics* not much can be said except that it probably depended on a paraphrase-commentary by Themistius, which he also used in his *De topicis differentiis*, and from which he seems to have derived the idea that a topic (Greek *topos*, Latin *locus*) is not only a highly general notion such as "genus" or "form," but also an associated axiom (Greek *axioma*, Latin *maxima*), such as "A thing is capable of exactly as

much as its natural form permits" and "Things that have different genera are also different from one another." (12)

In a way, *De topicis differentiis* might more properly be classified as a companion to Cicero's *Topics*, which was taught in Roman rhetoric schools, it seems, and on which first Marius Victorinus and then Boethius had composed commentaries. Boethius, however, in On Topical Differences, inserts so much material with a background in Aristotelian exegesis that the result is something that might well be taken to contain the essentials of the lore of Aristotle's *Topics* – and, indeed, that was how medieval schoolmen were to read the work." (pp. 37-38)

Notes

(5) See Minio-Paluello's Introductions to volumes I, II, III and V of *Aristoteles Latinus* [= *AL*]. His arguments seem very strong, but I cannot quite suppress a fear that his similar results for each work may be due to some flaw in his methodology. Dod 1982: 54 cautiously says that "[t]he revisions may be Boethius' own, or they may be the work of an unknown editor, possibly working in Constantinople where Boethius' works are known to have been transcribed (and perhaps edited) already in the sixth century."

(6) See Hadot 1959.

(7) See Minio-Paluello 1957. Cf. Shiel 1982. Edition in *AL* III.4, supplements in Shiel 1984.

(8) See Ebbesen 1981b.

(9) See Bobzien 2002.

(10) A reference to a Boethian commentary on *Posterior Analytics* I is found in a thirteenth-century MS (Munich, clm 14246), but this is surely an error. The work referred to was really the translation of Philoponus' commentary that most schoolmen attributed to Alexander of Aphrodisias. I regret having called attention to the Munich MS in a small article of 1973 (CIMAGL 9: 68–73), and I beg my readers not to waste their time on looking up that article.

(11) Boethius 2IN [*Second Commentary on On Interpretation*] 3.

(12) For the history of the Boethian theory of topics see Ebbesen 1981a: 1. 106ff. The maxims cited occur at TD [*De topicis differentiis*] 2.7.26: p. 36 (1190A) (page references to TD are to Boethius 1990, with references to Boethius 1847 added in brackets) and 3.3.11: p. 52 (1197C).

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From: Sten Ebbesen, "The Aristotelian Commentator", in John Marenbon (ed.), *The Cambridge Companion to Boethius*, Cambridge: Cambridge Unviersity Press 2009, pp. 34-55.

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History of Logic

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Bibliography on Boethius' logical works and Commentaries (A-Ebb)

Studies in English

1. Ashworth, Earline Jennifer. 1989. "Boethius on Topics, Conditionals and Argument-Forms." *History and Philosophy of Logic* no. 10:213-225.

   "Eleonore Stump's splendid translation of *Boethius's In Ciceronis Topica* (Ithaca and London: Cornell University Press, 1988) is a very welcome companion to her earlier translation of Boethius's *De topicis differentiis* (Ithaca and London: Cornell University Press, 1978). Together the iwo volumes provide us with a hitherto unequalled opportunity to come to grips with the logical work of an author whose influence on medieval and Renaissance developments in this field was surpassed only by Aristotle himself. Indeed, it was only because of Boethius, his translations and commentaries, that Aristotle was first transmitted to the Latin speaking West. The importance of Boethius's work on the Topics is not purely historical, for it offers us a valuable insight into a type of logic which is aimed not at the production of formal languages or the examination of valid inference forms, but at ways to produce belief in the context of debate and against a background of straightforwardly metaphysical doctrines.

   In this essay review I shall first make some general remarks about the nature of Topics-logic, with particular reference to *In Ciceronis Topica*. I shall then explore just one Topic, that of incompatibles, which is a particularly interesting Topic for

several reasons. First. Boethius's attempt to define incompatibles shows the limitations of any formal approach to the material in hand. Second, Boethius's use of the Topic casts considerable light on his view of conditionals and their basis in metaphysical features of the world. Third, the examination of these issues helps explain Boethius's interpretation of certain key argument forms and their relation to Stoic logic. Finally, I shall make some remarks about Stump's translation and notes." (p. 213)

2. Asztalos, Monika. 1993. "Boethius as a Transmitter of Greek Logic to the Latin West: the *Categories*." *Harvard Studies in Classical Philology* no. 95:367-407.

   "...my purpose in this paper is to bring out what these commentaries, and especially the ones on the *Isagoge* and the *Categories*, reveal about Boethius' working methods in his earliest works on Greek logic. I intend to deal less with the end product than with the road to it, and to point to the stages of development and improvement exhibited within these early works." (p. 367)

   (...)

   "Boethius devoted his first effort in Greek philosophy to Porphyry's *Isagoge*, and later, in the year of his consulate (510), when he was in all likelihood in his late twenties, he spent all his spare time commenting for the first time on a work by Aristotle, the *Categories*. Ever since Samuel Brandt attempted a chronology of Boethius' works on the basis of their internal references, it has been commonly held that when Boethius began commenting on the *Categories*, he had already written both his expositions of Porphyry's *Isagoge* (hereafter *Isag*. *1* and *Isag*. *2*), the first one a dialogue in two books based on Marius Victorinus' apparently incomplete Latin version, the second a five book commentary on his own, complete translation. (2) This is certainly not the place for a full discussion of the chronology of Boethius' works, but for the arguments of this paper it is necessary to establish the order between *Isag*. *2* and the commentary on the Categories (CC)." (p. 368)

(..)

"... I am not in a position to judge whether or not Boethius displays real originality in his later, more mature works. But I think that it would be unfair to expect novel interpretations in commentaries like the *Isag*. *1* and CC, which, if my assumptions in the first sections of this paper are correct, are not only the earliest of Boethius' works on Greek philosophy but also the context in which he first encountered Aristotle. He seems to have come quite unprepared to both the *Isagoge* and the *Categories*, unarmed with proper translations and unfamiliar with the work he was commenting on. Boethius is indeed an epitome of the expression *docendo discimus*." (p. 407)

(2) 2 S. Brandt, "Entstehungszeit und zeitliche Folge der Werke von Boethius," *Philologus* 62 (1903), 141-154 and 234-275. See also pp. XXVI-XXIX of the Prolegomena to *Anicii Manlii Severini Boethii In Isagogen Porphyrii commenta*, rec. S. Brandt, *Corpus Scriptorum Ecclesiasticorum Latinorum* 48, Wien/Leipzig, 1906. In his " Stylistic Tests and the Chronology of the Works of Boethius," *Harvard Studies in Classical Philology* 18 (1907), 123-156, A. P. McKinley's conclusions concerning the chronology of *Isag*. *7*, *Isag*. *2,* and the commentary on the *Categories* (hereafter CC) are the same as Brandt's.

McKinley studied the frequency of certain particles in these commentaries as well as in Boethius' translations of the *Isagoge* and *Categories*, assuming that Boethius' language was influenced by his translations of Porphyry and Aristotle. Now, some of McKinley's data corroborate Brandt's chronology whereas others support the one I will suggest below. Furthermore, McKinley's tests were made before the appearance of L. MinioPaluello's critical editions of Boethius' translations in the *Aristoteles Latinus* and would therefore have to be remade. I also believe that a necessary preliminary stage in examining whether Boethius' translating activities influenced his choice of particles is to compare his Latin commentaries with the extant Greek sources. Since there is no adequate source apparatus in any of the editions of Boethius'

commentaries, this would mean a great deal of work. Concerning the question whether Boethius wrote *Isag. 2* before or after CC, L. M. De Rijk follows Brandt's view on pp. 125-127 of "On the chronology of Boethius' works on logic," *Vivarium* 2 (1964), 1-9 and 125-162, on exactly the same grounds as the ones on which Brandt based his conclusions and without corroborating them further.

3. ———. 2003. "Boethius on the *Categories*." In *Boèce ou la chaîne des savoirs*, edited by Galonnier, Alain, 195-205. Louvain-Paris: Éditions Peeters.

   "Among Boethius' commentaries on Greek works on logic (that is to say, on Porphyry's *Eisagoge* and on Aristotle's *Categories* and *Peri hermeneias*), only the one on the *Categories* has so far not been critically edited. At present I am editing the text and at the same time preparing an English translation of it to appear in *Ancient Commentators on Aristotle*. (1) So far only translations of Greek commentaries have appeared in this series, and consequently the fact that Boethius' work on the *Categories* will be included is a statement about his heavy dependence on Greek sources. It is of course a well-known fact that all Boethius' commentaries on Aristotle's works are heavily dependent on Greek Neoplatonic interpretations. However, the extent to which this is true has so far not been revealed in the form of a source apparatus accompanying the texts edited. In the case of the commentaries on the *Peri hermeneias*, the two volumes of which appeared in 1877 and 1880 respectively, the editor did not have access to a modern edition of the extensive commentary by Ammonius which has since appeared in *Commentaria in Aristotelem Graeca*. (2) But for an editor of Boethius' commentary on the *Categories* the work is easier: first of all, there are a number of Greek commentaries on this work that have been edited in CAG. In addition, those by Porphyry, Dexippus, and Ammonius have appeared in commented translations in *Ancient Commentators on Aristotle*.

   So, while in the process of editing Boethius' work on the *Categories*, I have provided the text with an apparatus indicating parallels in the Greek commentaries. A great deal of

work has already been done in order to map out the nature and extent of Boethius' dependence on the Greeks in this particular work of his. There is Bidez' groundbreaking article "Boèce et Porphyre", where Porphyry's little commentary on the *Categories* in the form of questions and answers (3) is described as "la source unique, ou a peu près unique, du commentaire de Boèce" (p. 195); James Shier's provocative papers presenting Boethius as a translator of scholia that he allegedly found in the margins of his copy of Aristotle, some of them originating from the school of Proclus but the majority taken from *Q&A*; Sten Ebbesen's article on Boethius as an Aristotelian scholar, in which *Q&A* is described as Boethius' main source, a source from which he deviated when he wished to avoid introducing Neoplatonic entities such as the Eternal Mind into his own elementary work; a contribution of my own in which I claim that Boethius used *Q&A* but also a commentary on the *Categories* written by a follower and occasional critic of Iamblichus; and the valuable footnotes to Steven Strange's English translation of *Q&A* with their references to Boethius' commentary. (4) What all these different studies have in common is that they consider Porphyry's *Q&A* to be Boethius' main source.

So, one may justifyibly ask, is there anything really new to be said about Boethius' use of the Greek sources in his commentary on the *Categories*? The purpose of this paper is to show that while putting together a source apparatus for Boethius' text I have come to the conclusion that our view of Boethius' dependence on Porphyry needs to be modified. (5)" (pp. 195-196)

(...)

"To conclude: Boethius naturally used Porphyry's extant little dialogue on the *Categories*. But his main source is a later Greek commentary that makes use of Iamblichus' commentary but whose author takes an uncompromisingly Aristotelian stance. Since Iamblichus made ample use of Porphyry's no longer extant *Ad Gedalium*, the influence of Porphyry is quite heavy on Boethius' commentary. When the two sources (*Q&A* and the

later commentary) expressed different views, for example on the scope of the *Categories*, Boethius did not bother to try to harmonize between the two. In that respect, he is not a full-fledged scholastic in his commentary on the *Categories*, which is an early work of his, at least not as full-fledged as he was to become later, when he wrote the *Consolation of philosophy*." (pp. 204-205)

(1) General editor: Richard Sorabji.

(2) *Anicii Manlii Severini Boetii commentarii in librum Aristotelis PEPI EPMHNEIAS*, rec. Carolus Meiser, I-II, Leipzig, 1877, 1880. Ammonius, *In Aristotelis De interpretatione commentarius*, ed. A. Busse, *Commentaria in Aristotelem Graeca* (=CAG) IV:5, Berlin, 1897.

(3) *Porphyrii in Aristotelis Categorias expositio per interrogationem et responsionem*, ed. A. Busse, CAG IV: 1, Berlin, 1887. This work is henceforth referred to as *Q&A*.

(4) J. Bidez, “Boèce et Porphyre”, *Revue belge de philologie et d’histoire*, 2, [1923] ρ. 189-201. J. Shiel, “Boethius’ commentaries on Aristotle”, *Mediaeval and Renaissance Studies*, 4, 1958, p. 217-244; *Boethius*. Ed. by M. Fuhrmann and J. Gruber. Darmstadt, 1984, p. 155-183; *Aristotle transformed. The ancient commentators and their influence*. Ed. by R. Sorabji. London, 1990, p. 349-372. S. Ebbesen, “Boethius as an Aristotelian Scholar” in *Aristoteles, Werk und Wirkung, Paμί Moraux gewidmet*. Bd II. Ed. J. Wiesner. Berlin-New York, 1987, p. 286-311. M. Asztalos, “Boethius as a Transmitter of Greek Logic to the Latin West: the Categories”, *Harvard Studies in Classical Philology*, 95, 1993, p. 367-407. Porphyry, *On Aristotle Categories*. Translated by S. K. Strange. London, 1992.

(5) I wish to thank Börje Bydén, Göteborg University, for his valuable comments on this paper.

4. ———. 2014. "*Nomen* and *Vocabulum* in Boethius’s Theory of Predication." In *Boethius as a Paradigm of Late Ancient Thought*, edited by Kirchner, Andreas, Jürgasch, Thomas and Böhm, Thomas, 31-52. Berlin: Walter de Gruyter.

"Anyone who tries to make sense of Boethius's commentary on Aristotle's *Categories* will be intrigued by his use of the terms *nomen* and *uocabulum*. Sometimes it is clear that he cannot be using the terms to refer to names (in our sense of the word) and words, but then how does he use them? They may appear to be interchangeable, (1) but there is a difference in how Boethius uses these terms, and it is important to establish what the difference is, given that they are essential in Boethius's theory of predication. Then there is a cluster of verbs — *uocare, nominare, nuncupare* —which are clearly connected with *uocabulum* and *nomen*, but how? The purpose of this paper is to present Boethius's thoughts on predication by exploring the way he uses these key terms.

I will be quoting extensively from my own forthcoming edition of Boethius's commentary on the *Categories*. I have not given references to the text printed in Migne's *Patrologia Latina* vol. 64 but have specified which lines in Aristotle's text the passages quoted comment on. This will make it fairly easy for readers to find the appropriate places in the Migne edition. All translations are my own.

In Boethius's commentary on Aristotle's *Categories*, *nomina* and *uocabula* are couched in a theory involving also *res, uox, significare, significatio, and designare*.

These are main protagonists in Boethius's commentaries on the *De interpretatione*, a work in which *nomina* and *uocabula* take the back seat." (p. 31)

(...)

"Does Boethius's use of *uocabulum* and *nomen* make him a paradigm of Late Ancient thought? In the case of *nomen* as a term for a mental collection of things he could to a certain extent lean on tradition, given that the word is commonly used for a collection like a family or a people in classical Latin. Furthermore, it cannot be ruled out that Aristotle uses ὄνομα in the same way. But what about *uocabulum* and its connection with *uox* and *uocare*? Only a study of earlier Latin texts can confirm that Boethius has introduced a new tool in the theory

of predication. And it remains to be investigated whether or not medieval philosophers appreciated the value of the tool and employed it in their own discussions of predication." (p. 50)

(1) In her recent book *Boethius on Mind, Grammar and Logic. A Study of Boethius' Commentaries on* Peri hermeneias, (= Philosophia antiqua; 127), Leiden/Boston 2012, Taki Suto holds: "Even though there may be some difference in Boethius' usage of these two expressions, the difference is slight, and he may not differentiate between them." (p. 68, note 109).

5. Barnes, Jonathan. 1981. "Boethius and the Study of Logic." In *Boethius: His Life, Thought and Influence*, edited by Gibson, Margaret, 73-89. Oxford: Blackwell.

   Reprinted in J. Barnes, *Logical Matters. Essays in Ancient Philosophy II*, New York: Oxford University Press, Chapter 26, pp. 666-682.

   "Boethius' logical oeuvre contains works of three types. First, and at the centre, there are the Latin translations of the Greek texts: Boethius put into Latin the *Categories*, the *de Interpretatione*, the *Prior* and *Posterior Analytics*, (5) the *Topics*, the *Sophistici Elenchi;* and he prefaced his Latin *Organon* with a version of Porphyry's *Isagoge*, the standard Greek introduction to Peripatetic philosophy. (6) Secondly, there are the commentaries: Boethius planned commentaries on the *Isagoge* and on each book of the *Organon*, and he added, as a supplement, a commentary on Cicero's *Topics*. (7) The commentaries on Aristotle's *Topics* and *Analytics* have not survived; and some scholars doubt if Boethius lived to complete his commentatorial task. (8) Thirdly, there are the treatises: *On Division* covered much of the ground tilled in the *Categories*; *On Categorical Syllogisms* and the unfinished *Introduction to Categorical Syllogisms* correspond in part to the *de Interpretatione* and the *Prior Analytics*; *On Hypothetical Syllogisms* has no counterpart in Aristotle's works, but answers to a fixed feature of later Peripatetic logic; *On Topical Differences* matches Aristotle's *Topics*. (9)

   Thus on three distinct levels Boethius translated Peripatetic logic from Greece to Rome. His achievement is remarkable by

any reckoning; and his work in logic stands as a paradigm of sustained and systematic scholarship. The next three sections will discuss separately the translations, the commentaries, and the treatises; but it should not be forgotten that, for Boethius, those three types of scholarly production were complementary parts of a unitary whole." (pp. 74-75)

(...)

"What, then, was Boethius' contribution to the study of logic?

First, Boethius was not an original logician: he did not pretend to be. He saw himself as a translator, conveying Greek wisdom to a Greekless world; the insights which his works contain are not his own, his knowledge is tralaticious. From time to time we can, I believe, hear Boethius' own voice; and some at least of the disposition and organisation of his material originated in his own head. But those touches of personality are relatively rare and relatively unimportant: the *summa logicae* which Boethius determined to present was traditional Peripatetic logic; and it is an error to speak of a Boethian logic.

Secondly, it must be admitted that today we owe little to Boethius' immense labours. He strove to transmit Aristotle to the West; but our present knowledge of Aristotle depends hardly at all on his strivings. Aristotle's texts, and the texts of his Greek commentators, have survived in their original Greek: we can study Peripatetic logic, as Boethius himself did, in the original sources. Had all Boethius' logical writings been lost, ihr modern student of logic would have little to bewail, apart perhaps from the treatment of hypothetical syllogistic.

It is rather within the context of his own dark times that Boethius' service to logic must be sought. Greek learning was increasingly inaccessible, and the Latin world was rude. By his sole efforts Boethius ensured that the study of Aristotle's *Organon*, and with it the discipline of logic, was not altogether eclipsed in the West. Boethius' labours gave logic half a millenium of life: what logician could say as much as that for his work? what logician could desire to say more?" (pp. 84-85)

(5) The translation of the *Posterior Analytics* has not survived; but see *AL* [*Aristoteles Latinus*], IV. 1-4, pp. XII-XV.

(6) For the status of the *Isagoge* see in *Isag* ed 1. 14-5. Boethius regarded the *Organon*, prefaced by the *Isagoge*, as a unitary — but not a fully comprehensive — treatment of logic.

(7) At first blush, the commentary on Cicero seems anomalous; but in fact Cicero presents his *Topics* as a version indeed, a translation — of Aristotle's *Topics*, and Boethius regarded Cicero's work as forming an integral part of Peripatetic logic (*in Cic Top* 271-3).

(8) (i) *Topics*: Boethius states categorically that he has written a commentary (*Top diff* 1191 A, 1209 C, 1216 D). Nothing is known to have survived.

(ii) *Prior Analytics*: we possess only preliminary notes (published in *AL*, III. 1-4) ; at *Syll cat* 829D Boethius says that he will comment on the *Analytics*, but he nowhere asserts that he has composed such a commentary.

(iii) *Posterior Analytics*: a note to a thirteenth-century commentary on the *Sophistici Elenchi* quotes from 'Boethius' commentary on Book I of the *Posterior Analytics*': see S. Ebbesen, 'Manlius Boethius on Aristotle's *Analytica Posteriora*, CIMAGL IX (1973), 68-9. If we believe the note, then — contrary to orthodox opinion — Boethius did write such a commentary.

(9) The dating of Boethius' logical works is to some extent conjectural: see the long discussion of L. M. de Rijk, 'On the chronology of Boethius' works on logic', *Vivarium* II (1964), 1-49, 125-62. His first *opus* was in *Isag* ed 1, composed in 504/5; he was probably working on *Intr syll cat* and *in An Pr* in 523; *in Cat* is dated to 510. There is not much awry with the following ordering: *in Isag* ed 1; *Syll cat*; *Div*; *trans Isag*; *in Isag* ed 2; *trans Cat*; i*n Cat*; trans *de Int*; *in Int* ed ı; *in Int* ed 2; trans *Top*; trans *Soph El*, *Syll hyp*, *in Top*; i*n Cic Top*; trans *An*; *Top diff*; *Intr syll cat*; *in An Pr*.

6. Belli, Margherita. 2014. "Boethius, disciple of Aristotle and master of theological method: The term *indemonstrabilis*." In

Boethius as a Paradigm of Late Ancient Thought, edited by Kirchner, Andreas, Jürgasch, Thomas and Böhm, Thomas, 53-82. Berlin: Walter de Gruyter.

"*Indemonstrabilis*. This term belongs to the Late Latin language and is a legacy of Aristotle's logic, especially of the *Analytica posteriora*. It can be considered, therefore, a useful tool to focus on three aspects of the deep and wide knowledge of the Aristotelian logic, which contributes to making Boethius a unique figure among the Late Ancient authors of the Latin West and the leading guide of the so-called *boethiana aetas*. The three aspects entail:

a) the relationship between Boethius and the Author of the *Peri hermeneias*, as both committed themselves to transmitting the Aristotelian logic to the Latin West and to developing a suitable terminology;

b) the methodological meanings that Boethius conveyed to *indemonstrabilis*, in order to open it to rational theology, through the convergence between *maxima propositio* and *comunis animi conceptio*;

c) the way in which some 12th-century authors transformed the previous convergence into an identity, making it the starting point of a method that distinguishes theological knowledge from the other arts and places it above them all.

From a research conducted by using the *Library of Latin Texts A–B, Aristoteles Latinus Data-base, Patrologia Latina Data-base, and Repertorium edierter Texte des Mittelalters*, (1) it results that *indemonstrabilis* was rarely employed until the first half of the 12th century, when the *Analytica Posteriora* came back to the Latin West, along with Aristotle's other treatises. During the Late Antiquity *indemonstrabilis* was used only by the Author of the *Peri hermeneias* and by Boethius. It does not matter if the Author of the *Peri hermeneias* cannot be identified as Apuleius of Madaura, because in the worst hypothesis the *Peri hermeneias* must be dated no later than the 4th century, having been quoted by Martianus Capella in *De nuptiis Philologiae et Mecurii*. (2) Among the pages of the *Peri*

hermeneias and Boethius's *De syllogismo categorico* (505–506), *In librum Aristotelis De interpretatione secunda editio* (513–516), and *De topicis differentiis* (522–523),3 there are 16 occurrences of *indemonstrabilis*, which signify (for the related passages see the appendix):

1.1.a. the first four moods in the first figure of categorical syllogism

1.2. the Stoic hypothetical indemonstrables

1.3.a. the maximal propositions of dialectic." (pp. 53-54)

(1) *Brepolis Latin*, www.brepolis.net (accessed 30/05/2014); *Patrologia Latina Database*, Alexandria/Cambridge 1995–2008; *Repertorium edierter Texte des Mittelalters aus dem Bereich der Philosophie und angrenzender Gebiete*, ed. by Rolf Schönberger et alii, Berlin 2011.

(2) The authorship of the *Peri hermeneias* is still questioned. Some scholars maintain Apuleius's paternity of the treatise and others reject it. Among the scholars in favour are Sandy, Sullivan, Londey, Johanson, and Sallmann, whilst Beaujeu, Lumpe, Moreschini, and Harrison are contrary. See Stephen J. Harrison: *Apuleius. A Latin Sophist*, Oxford/New York 2000, 11; Gerard Sandy: *The Greek World of Apuleius. Apuleius and the Second Sophistic*, (= Mnemosyne. Supplementum; 174), Leiden/New York/ öln 1997, 38–41; *Die Literatur des Umbruchs. Von der römischen zur christlichen Literatur, 117 bis 284 n. Chr.,* ed. by Klaus Sallmann, (= Handbuch der Altertumswissenschaft; 8,4), Munich 1997, 301; Claudio Moreschini: "Ricerche sulla tradizione manoscritta del *De interpretatione* pseudoapuleiano", in: *Pan* 10 (1990), 61–73; David Londey/Carmen Johanson: *The Logic of Apuleius. Including a Complete Latin Text and English Translation of the* Peri Hermeneias *of Apuleius of Madaura*, (= Philosophia antiqua; 47), Leiden/New York 1987, 8–15; Adolf Lumpe: *Die Logik des Pseudo-Apuleius: ein Beitrag zur Geschichte der Philosophie, Augsburg 1982, 44–46; Apulée: Opuscules philosophiques et fragments, ed. J. Beaujeu, Paris 1973, vii–viii; Mark W. Sullivan:* Apuleian Logic. The Nature, Sources,

and Influence of Apuleius's Peri Hermeneias, (= Studies in logic and the foundations of mathematics; 37), Amsterdam 1967, 235–242.

(3) Apuleius: *Peri hermeneias*, in: Apuleius: *De Philosophia libri*, ed. C. Moreschini, (= Bibliotheca Teubneriana), Stuttgart/Leipzig 1991; Boethius: *De syllogismo categorico*, ed. C. Thomsen Thörnqvist, (= Studia Graeca et Latina Gothoburgensia; 68), Gothenburg 2008; Boethius: *Commentarii in librum Aristotelis Περι ̀ Ἑρμηνείας,* ed. C. Meiser, II, (= Bibliotheca Teubneriana), Leipzig 1880; Boethius: *De topicis differentiis und die Byzantinische Rezeption dieses Werkes*, ed. D.Z. Nikitas, (= Corpus Philosophorum Medii Aevi. Byzantinoi philosophoi; 5), Athens/Paris/Bruxelles 1990.

7. Bertagna, Mario. 2017. "Arguments and Proofs in Boethius's *De topicis differentiis*." In *La filosofia medievale tra antichità ed età moderna: saggi in memoria di Francesco Del Punta*

   edited by Bertagna, Mario, Bertolacci, Amos and Paravicini Bagliani, Agostino, 101-138. Firenze: Sismel - Edizioni del Galluzzo.

8. Bird, Otto. 1960. "The Formalizing of the Topics in Mediaeval Logic." *Notre Dame Journal of Formal Logic* no. 1:138-149.

   "The Topical Difference, or more literally the Difference of the Maximal Proposition, is that by which one Topic differs from another (BDT. 1186A).

   Thus the Topic of Definition, for instance, differs from that of Whole and Part in that the Maxim of the one warrants an inference among terms in which a Definition occurs, while the other warrants an inference among terms in which Whole and Part occur.

   Topical Differences, according to Boethius, "are drawn forth from the terms constituting the question and then discoursed about" (BDT. 1186A).

   Thus in our example, it is the question, whether trees are animals, that makes it possible to appeal to the Topic of

Definition, since, knowing the definition of "animal" and that trees do not satisfy it, we are warranted by the Topical Maxim to conclude that trees are not animals.

The De Differentiis Topicis is little more than a listing of such Topical Differences with representative Maxims for each. Book II gives the compilation of Topics made by Themistius from Aristotle; Book III that of Cicero, followed by a comparison of the two. Book I is a general introduction dealing with the terms used for analysing an argument, and Book IV, the final book, considers the Topics used by rhetoricians.

This work became the source for mediaeval Topical doctrine. It seems to be the only work Abelard used for his extensive treatise on the Topics.

Peter of Spain made a precis of it (primarily of the second book) and provided additional Maxims in the fifth tract of his Summulae. Since this became a standard elementary text in logic from the late 13th through the 15th centuries, Boethius thus remained indirectly the auctoritas for the Topics, and this seems to have remained true even after the recovery of the Aristotelian Topic a in the late 12th century." (pp. 140-141)

References

BDT = Boethius, *De Differentiis Topicis*, in Migne, *Patrologia Latina*, T. 64.

9. Bobzien, Susanne. 2000. "Wholly hypothetical syllogisms " *Phronesis* no. 45:87-137.

Abstract: "In antiquity we encounter a distinction of two types of hypothetical syllogisms.

One type are the 'mixed hypothetical syllogisms'. The other type is the one to which the present paper is devoted. These arguments went by the name of 'wholly hypothetical syllogisms'. They were thought to make up a self-contained system of valid arguments. Their paradigm case consists of two conditionals as premisses, and a third as conclusion. Their presentation, either schematically or by example, varies in different authors. For instance, we find 'If (it is) A, (it is) B; if (it

is) B, (it is) C; therefore, if (it is) A, (it is) C'. The main contentious point about these arguments is what the ancients thought their logical form was.

Are A, B, C schematic letters for terms or propositions? Is 'is', where it occurs, predicative, existential, or veridical? That is, should 'A ἔστι be translated as 'it is an A', 'A exists', 'As exist' or 'It is true/the case that A'? If A, B, C are term letters, and 'is' is predicative, are the conditionals quantified propositions or do they contain designators? If one cannot answer these questions, one can hardly claim to know what sort of arguments the wholly hypothetical syllogisms were.

In fact, all the above-mentioned possibilities have been taken to describe them correctly. In this paper I argue that it would be mistaken to assume that in antiquity there was one prevalent understanding of the logical form of these arguments - even if the ancients thought they were all taLking about the same kind of argument. Rather, there was a complex development in their understanding, starting from a term-logical conception and leading to a propositional-logical one.

I trace this development from Aristotle to Philoponus and set out the deductive system on which the logic of the wholly hypothetical syllogisms was grounded."

10. ———. 2002. "A Greek Parallel to Boethius *De hypotheticis syllogismis*." *Mnemosyne* no. 55:285-300.

"In this paper I discuss a longish anonymous scholium to Aristotle's *Analytics* which is a Greek parallel to Boethius' *De Hypotheticis Syllogismis*.

The scholium is available in print only in Theodor Waitz's edition of Aristotle's *Organon* (Leipzig 1844). It is Codex Laur. 72.5, ff. 210-2, appended at the end of a manuscript of the *Prior* and *Posterior Analytics*. Dieter Harlfinger has dated this part of the codex to the second half of the 10th century (7) this gives us a terminus *ante quem*.

The scholium has, I believe, so far not been recognized as a parallel to Boethius, nor has it been discussed in the literature on hypothetical syllogisms. (8) I am also not aware of any

translation. The scholium is important for the history of hypothetical syllogistic, because it is the only extant Greek text that provides a close parallel to the particular theory Boethius presents in Latin. We can assume that the scholium was composed no later than the 10th century (see above). But it preserves elements of a theory that was most probably developed before the 6th century. There are a number of idiosyncrasies in the terminology, a fact that sets the text apart from all other Greek sources on hypothetical syllogistic, and thus adds to its interest.

In the following I present the text of the scholium, a translation, and a commentary, including some general remarks about the theory the scholium preserves." (p. 286)

(...)

"In the commentary section it should have become increasingly apparent that the anonymous scholium on hypothetical syllogisms in Waitz is Peripatetic, and not Stoic, in its theoretical approach as well as its terminology. There are several elements of early Peripatetic hypothetical syllogistic preserved in it, although section (10) is likely to be witness to a later development of Peripatetic or Platonist hypothetical syllogisms. The most striking feature in the scholium is the large number of close parallels to Boethius' *De Hypotheticis Syllogismis*. Since it is rather unlikely that the scholium is based on a Latin source, we can assume that there must have been a Greek source from which both the scholium and large parts of Boethius' *De Hypotheticis Syllogismis* are ultimately derived." (p. 300)

(7) D. Harlfinger, in: Paul Moraux (ed.), *Aristoteles Graecus*,vol. 1 (Berlin 1976), Nachtrâge, 475-80, discusses Laur. 72.5.

(8) Except that Prantl, *Geschichte der Logik im Abendlande*, vol. I (Leipzig 1855), 656, quotes part of the scholium in footnote 167.

11. Bosman, Bianca. 2018. "The Roots of the Notion of Containment in Theories of Consequence. Boethius on Topics,

Containment, and Consequences." *Vivarium* no. 56:222-240.

Abstract: "In medieval theories of consequence, we encounter several criteria of validity. One of these is known as the containment criterion: a consequence is valid when the consequent is contained or understood in the antecedent. The containment criterion was formulated most frequently in the thirteenth and fourteenth centuries, but it can be found in earlier writings as well. In *The Tradition of the Topics in the Middle Ages,* N.J. Green-Pedersen claimed that this criterion originated with Boethius. In this article, the author shows that a notion of containment is indeed present in Boethius, but is not used to define or describe the relation between antecedent and consequent, i.e., the relation of consequence, as Green-Pedersen asserted. The author then offers two interpretations of the notion of containment that are present in Boethius – a metaphysical and a semantic interpretation – and shows how these relate to the containment criterion."

12. Cameron, Margaret. 2009. "Boethius on Utterances, Understanding and Reality." In *The Cambridge Companion to Boethius*, edited by Marenbon, John, 85-104. Cambridge: Cambridge University Press.

    "In this chapter, we will look at the three elements that form the basis of the theory of signification for Boethius, namely expressions, understanding and reality, and their relation to one another. Boethius did not write separate treatises on the philosophy of language, cognition or metaphysics. Instead, he wrote commentaries on Aristotelian logic. By the time he began to work on them around the start of the sixth century, the texts of Aristotelian logic were read in a fixed sequence: the first three were the *Isagoge*, *Categories* and *On Interpretation*, and Boethius treated topics as and when they are discussed in these texts by Porphyry and Aristotle. To grasp Boethius' theory of signification, we must therefore gather his views on utterances, understanding and reality from a variety of places in his commentaries and put them together. As evidenced by the sheer length of the treatment of Aristotle's brief comments on signification in his commentaries on *On Interpretation*, there is no question but that Boethius was aware of the importance of a

theory of signification in explaining how the words we use are able to make sense to others and to refer to reality. We might expect, therefore, that Boethius' views on language broadly cohere with his theory of cognition and metaphysics given elsewhere in the commentaries on the *Isagoge* and Categories. (1)

The following sections aim to give a general overview of Boethius' theory of signification by considering in turn what he says about expressions, understanding and reality in his logical commentaries.

In the final section, we will consider the ways in which Boethius' views have been variously interpreted from medieval and contemporary perspectives." (p. 85)

(1) This is not to suggest that Boethius' views did not change over the course of writing his several commentaries. With the exception of Aristotle's *Categories*, Boethius wrote two commentaries per treatise. Here we are concerned to acquire a general overview of Boethius' theory of signification, and we will concentrate mainly on two commentaries by Boethius, 2IS [*Second Commentary on Isagoge*] and 2IN [*Second Commentary on On Interpretation*], as well as CAT [*Commentary on Categories*].

13. Casey, John Patrick. 2012. "Boethius's Works on Logic in the Middle Ages." In *A Companion to Boethius in the Middle Ages*, edited by Kaylor Jr., Noel Harold and Phillips, Philip Edward, 193-219. Leiden: Brill.

    "This chapter discusses important Boethian contributions to medieval logic, in particular his definition of the problem of universals and his translation of Aristotelian logical works. It provides a brief introduction to the basic features of ancient logic relevant to Boethius's most noteworthy contributions to medieval logic. The chapter also discusses the three primary avenues of Boethius's influence upon medieval logic: his translations, commentaries, and original logical treatises. In the late ancient world, the Aristotelian and the Stoic systems of logic were considered to be incompatible rivals. The form of Aristotelian logic survived and was translated into the Middle

Ages in the work of Boethius. This meant that medieval logicians learned about categorical propositions, syllogisms, and the problem of universals, rather than propositions, disjunctions, and conditionals." (p. 193)

14. Chadwick, Henry. 1981. *Boethius: The Consolations of Music, Logic, Theology, and Philosophy*. Oxford: Clarendon Press.

    Chapter III. Logic Part of Philosophy or a Tool of all Philosohy? 108; Logic and Rhetoric 111; Porphyry 120; Neoplatonists after Porphyry: Iamblichus, Syrianus, Proclus, Ammonius 127; Boethius' commentaries on the *Isagoge* 131; Translator of Aristotle 133; The Ten Categories 141; On Interpretation 152; Future Contingents 157; The Monographs on Logic 163; Propositional Logic and the Hypothetical Syllogism 166.

    "The place of logic in the hierarchy of knowledge was one of the many matters long in dispute between the Aristotelians and the Stoics. To the Stoics 'logic' meant something wide, an independent branch of philosophy, the other two contrasted branches being ethics and 'physics' (the scientific study of nature). The Stoics could point out that this threefold classification had a basis in the *Topics* (A, 14) of Aristotle himself. The Aristotelians, on the other hand, treated logic almost in our modern sense as a practical instrument for the discovery of fallacies in argument on any subject, an indispensable tool for every department of human inquiry. This Peripatetic attitude, from which the title *Organon* derives, presupposes a narrow understanding of the discipline as concerned with propositions and syllogisms and terms.

    The Platonic tradition originally preferred to speak of 'dialectic', according to Boethius because it is a power of dividing *(In Cic. Top*. I, 1045B following Plato, *Sophist* 253d). Through its distinctions we learn to divide genera into species, and classify different things under their proper genus. But neither the Neoplatonists of Athens and Alexandria nor Boethius mark a significant difference in force between 'logical' and 'dialectical' reasoning. (1) Until the twelfth century, when an attempt was made to classify dialectic with grammar as two

branches of *Logica*, the terms were to be used more or less interchangeably.

The Peripatetic case for their estimate of logic is most eloquently put by Alexander of Aphrodisias in his commentary on the *Prior Analytics* (CAG II, 1) in a way that makes minor concessions to the Platonic tradition. We have a number of late Platonist accounts of this dispute, e.g. the commentaries on the *Prior Analytics* by Ammonius (CAG IV, 6 pp. 811) and Philoponus (CAG XIII, 2 pp. 69). It is incautious to assume with Courcelle that Boethius had Ammonius before him when writing his second commentary on Porphyry in which the dispute is discussed. (2) One major element in Boethius' argument there, that logic is not confined by the limits and aims of other parts of philosophy, and is not restricted to a particular set of questions, stands without parallel in Ammonius. It is difficult to affirm a literary relation when one is dealing with a convention of the schools which every Neoplatonic teacher will think it his duty to expound." (pp. 108-109)

(1) The contrary is asserted, on a waferthin basis, by G. Pfligersdorffer, ['Zu Boethius, *De Interpr*. ed sec. I p. 4, 4 sq. Meiser nebst Beobachtungen zur Geschichte der Dialektik bei den Römern'], *Wiener Studien* 66, 1953, 131-154.] p. 152.

(2) P. Courcelle, *Les Lettres grecques en occident* (1948), p. 272 = *Late Latin Writers* (1969), p. 288.

15. Clark, Joseph T. 1952. "Boethius and Analytical Techniques." *Philosophical Studies of the American Catholic Philosophical Association* no. 3:35-37.

16. ———. 1952. "Boethius and Material Implication." *Philosophical Studies of the American Catholic Philosophical Association* no. 3:37-38.

17. Conti, Alessandro D. 2016. "Relations and Relatives in Boethius's Commentary on the Categories: the Invention of Monadic Two-place Predicates." *Documenti e studi sulla tradizione filosofica medievale* no. 27:107-129.

Abstract: "That of *ad aliquid* is the most problematic category among the ten listed by Aristotle in the homonymous treatise. In Late Antiquity and the Middle Ages many authors attempted to develop new formulations of the Aristotelian theory of relatives, since Aristotle's account of *ad aliquid* in the *Categories* is imprecise and incomplete. From a purely theoretic point of view, in Late Antiquity the most successful attempt to improve the Aristotelian doctrine was that of the Greek Neoplatonic commentators. They were able to elaborate a notion of relation (*schesis*) almost equivalent to a hypostatization of our modern notion of two-place predicates, as they conceived of relations as abstract forms whose distinctive feature was the property of being present-in and joining two different substances at once. Yet, for the history of Medieval philosophy, far and away the most influential attempt to clarify Aristotle's text was that of Boethius, who, faithful to Aristotelian teaching, maintained that relation was an accident (we could say 'a property') which was-in a substance (its substrate of inherence) and simply entailed a reference to another, without inhering in it.

Thus, unlike Greek Neoplatonic commentators of the *Categories* (and modern logicians as well), Boethius did not think of a relation as a two-place predicate, but he seems rather to consider it as a sort of *monadic two-place predicate*, or function. The difference betweenBoethius's conception and ours is that according to him each relation has only a place empty for individual variables and the other filled by an individual constant. The paper is aimed at clarifying the legacy Boethius left to the Medieval thinkers in relation to the theory of *ad aliquid*, namely the logical and terminological apparatus drawn up in order to solve the chief problems raised by the seventh chapter of the *Categories*, with the general interpretative context in which the apparatus itself was set."

18. Correia, Manuel Antonio. 2001. "Boethius on Syllogisms with Negative Premises." *Ancient Philosophy* no. 21:161-174.

"According to Aristotle, no syllogism is conclusive with two negative premisses (Prior Analytics i 4.41 b7-9). The observation is a central rule of his Theory of Syllogism and

recognized so by ancient, medieval, and modern logicians. In ancient scholastic discussions, however, there is a case made in support of thepossibility of conclusion from two negative premisses. It takes, as an authoritative proof, a syllogism made by Plato in the Theaetetus and affirms that syllogisms with two negative premisses are more frequent in philosophical literature than one might suppose.

The problem, recovered especially by Boethius' second commentary on Aristotle's De Interpretatione (Meiser 1877-1880), arises from considerations of the logical properties of indefinite names in categorical or simple propositions." (p. 161)

(...)

"The question of whether Plato was conscious of the syllogistic technicality that Boethius indicates is surely controversial. We can instead try to resolve the question of whether this syllogism can be reasonably derived from Plato.

Meiser's edition gives a valuable notice: the syllogism in question can be found at *Theaetetus* 186. In fact, the exact passage seems to be Theaet. 186c5-e10." (p. 168)

(...)

"I have argued that the case of a syllogism in Plato's *Theaetetus*, where two apparent negative premisses draw a conclusion, is simply a confirmation of the rule that there are no syllogisms with negative premisses and not, as Boethius suggests, a proof that a universal negation like 'Every man is not just' is equivalent to another one like 'Every man is not-just'. I have discussed this equivalence and similar ones arising from singular, particular, and unquantified propositions.

but the result is that if the equivalence in question does work, it cannot be a characteristic of every categorical proposition. Indeed, even though formal proofs can be provided for some cases of categoricals, unquantified ones are explicitly stated as consequences by Aristotle (‚A man is not just' follows from' A man is not-just', but not vice versa). Moreover, equivalences are indeed inconsistent with the principle that there is only one

negation for a single affirmation, which Aristotle emphasizes in *De Interpretatione* and *Prior Analytics*. In the end, the question of which was Aristotle's idea of logic arises: whether a formal idea or a dialectical one (i.e., one compatible with the principle that an affirmation can have only one negation)." (p. 174)

19. ———. 2009. "The Syllogistic Theory of Boethius." *Ancient Philosophy* no. 29:391-405.

    "Boethius played an important role in transmitting logic to the Latin West. His translations, commentaries, and treatises deal amply with the most important thesis of Aristotelian logic, a theory whose influence is perceptible even in the last century (cf. Corcoran 2009 [‘Aristotle’s Demonstrative Logic’ *History and Philosophy of Logic*, 30: 1-20]). Two of his surviving logical treatises have traditionally received the title of ‘syllogistic’, the *Introductio ad syllogismos categoricos* (=ISC) and *De syllogismis categoricis* (=DSC), but DSC is the only one explaining syllogistic, for ISC does little more than mention, belatedly in the course of the text, its being an introduction to syllogistic." (p. 391)

    (...)

    "Since there has been much discussion concerning the literary unity of DSC’s two books and its relation to ISC—including attempts to take book 2 of DSC as book 2 of ISC (which would be the actual *Introductio* Boethius wrote), it is my purpose to argue that DSC proposes a unitary view of Aristotelian logic, in which syllogistic comes to be the third of the three branches organizing the main logical inferences of the theory: opposition, conversion, and syllogism. Accordingly, DSC is indivisible from a doctrinal point of view and no book of DSC can be the part of the other treatise. This discussion is long overdue and it should contribute to understanding the scope of the respective treatises and their relation to each other." (p. 393)

20. ———. 2012. "Boethius on the Square of Opposition." In *Around and Beyond the Square of Opposition*, edited by Béziau, Jean-Yves and Jacquette, Dale, 41-52. Basel: Birkhäuser.

Abstract: "This article intends to reconstruct the textual tradition of the square of oppositions from the earliest textual sources just as treated in Boethius' commentaries on Aristotle's *De Interpretatione* and his treatises on syllogistic, *De syllogismo categorico* and *Introductio ad syllogismos categoricos*. The research discovers two different tracks. One way comes from Plato's *Sophist* and Aristotle's *De Interpretatione*, and the aim is to distinguish contrariety from contradiction. The second influence also starts from Aristotle, but now in connection with his *Prior Analytics* and its commentaries and treatises on categorical syllogistic, where the aim is to show the square as one of the three main chapters of the complete theory of categorical logic. I suggest that this double ingredient has accompanied the development of the square from the very original beginning of logic."

21. ———. 2017. "Logic in Apuleius and Boethius." *Revista portuguesa de filosofia*:1035-1052.

    Abstract: "The aim of this paper is to offer an alternative explanation to the notorious similitude detected in two ancient treatises on logic, namely, the *Liber Peri Hermeneias*, attributed to Apuleius of Madaura (II AD), and *De syllogismo categorico*, written by Boethius (VI AD).

    Both were enormously authoritative in posterity. I argue that their similitude is due to the presence of an internal division of categorical propositions that Boethius gives in full in his *De syllogismo categoricos*, and repeats with extensions in his *Introductio ad syllogismos categorico*. The division outlines the three main parts of the theory: opposition, conversion and syllogism. This leads us to argue that similarity and correspondence of these two ancient logical treatises can be sufficiently explained from this resource, and insufficiently explained by a certain common literary source, which was proposed by Isaac (1953), without clarifying some important dissimilarities and divergences contained in these treatises. Also, our hypothesis does not need to suppose, as Sullivan (1967), that Boethius borrowed from Apuleius."

    References

Isaac, I. *Le Peri hermeneias en Occident de Boèce à Saint Thomas. Histoire littéraire d'un traité d'Aristote*. Paris: J. Vrin, 1953.

Sullivan, M.W. *Apuleian Logic. The Nature, Sources and Influence of Apuleius's Peri Hermeneias*. Studies in Logic and the Foundations of Mathematics. Amsterdam: North-Holland, 1967.

22. Cranz, Edward F. 2006. "Boethius and Abelard." In *Reorientations of Western Thought from Antiquity to the Renaissance*, edited by Struever, Nancy, 1-20. Aldershot: Ashgate.

    "Let me conclude with two brief general addenda. First, I have tried to outline the main development of Abelard's logic and the one most dependent upon Boethius. What we have seen may be summarized by saying that, where Boethius closely connects, sometimes even identifies, intellections, universals and propositions with *'res*' or beings, Abelard shifts all these relationships to a new context and then denies them all: intellections, universals and propositions are not *'res*" as physical things. To repeat a phrase; he desubstantializes them all.

    But Abelard never stops thinking. Sometimes his conclusions are more new questions than new answers, and his second treatment of a problem is sometimes very different from his first. Some scholars have described the last stage of his thought as a 'return to Platonism': but I think he is more creative and original. He has changed Boethius' res into 'physical things,' and he has denied that intellections or meanings were 'physical things' and turned them into 'nothings.' But there are hints, and there is no time to analyze them here, that at the end he began to move to another new solution in which meanings from having been nothings turn into the ultimate realities. If I had to suggest parallels to his last stage, Petrarch, Lorenzo Valla and Nicholas of Cusa come to mind. So if I have tried to describe Abelard's transformation of Boethius, what was left, and I don't believe it was ever completed, might be called Abelard's transformation of Abelard.

Second, while Abelard's writings had no wide dispersion and while he was not followed by any school or even by very many pupils, I believe his diffuse influence was greater than one might expect. The reorientations of thought one finds in his logic and elsewhere often spread more widely in his own time than did his specific ideas; they were not destroyed by the reception of Aristotle and in some ways provided a context within which Aristotle was received. So in concluding I cannot resist noting that, while I have characterized what happened as a transformation of Boethius, let us not in this group forget that it was a transformation of Boethius." (p. 20)

23. Curley III, Thomas. 1987. "The *Consolation of Philosophy* as a Work of Literature." *American Journal of Philology*:343-367.

    "Much, in fact most of the scholarship devoted to Boethius' *Consolatio* has dealt with the work as a philosophical treatise. And this it certainly is. The author is almost ostentatiously conversant with Platonic, Aristotelian, Stoic, Epicurean, and neo-Platonic thought; what is more, he weaves these various strands into an organic whole. But in addition to philosophy the *Consolatio* is also literature. Formally, it is an example of an ancient literary genre, the Menippean Satire, a medley of alternating verse and prose, which had served the very different purposes of Petronius, the author of the *Apocolocyntosis*, Martianus Capella, and the mythological allegorist, Fulgentius. But even those critics who do treat the *Consolatio* as a work of literature too often limit themselves to tracing Boethius' sources and to indicating his influence on subsequent authors, Dante and Chaucer being the most renowned.

    What I should like to do, and the present paper is merely a premier essai in this direction, is to determine Boethius' literary purposes and to suggest what implications the literary aspects of the work may have on its philosophical content. More specifically, I shall try to explain how Menippean Satire functions in the *Consolatio* and why Boethius chose this medium for a philosophical treatise." (p. 343, notes omitted)

24. de Rijk, Lambertus Marie. 1964. "On the Chronology of Boethius' Works on Logic. Part I." *Vivarium* no. 2:1-49.

"The chronological order of Boethius' works appears to be a rather difficult problem. Hence, it is not surprising that the numerous attempts to establish it led the scholars to results which are neither all conclusive nor uniform. In this article I confine myself to Boethius' works on logic. Before giving my own contribution it would seem to be useful to summarize the results of preceding studies and to make some general remarks of a methodological nature.

(...)

My conclusion from this survey is that the best we can do in order to establish approximately the chronological order of Boethius' works on logic is to start a careful and detailed examination of all our data on this matter. In doing so an analysis of their contents seems to be quite indispensable, no less than a thorough examination of doctrinal and terminological differences." (pp. 1 and 4).

25. ———. 1964. "On the Chronology of Boethius' Works on Logic. Part II." *Vivarium* no. 2:125-162.

"We shall now sum up the results of our investigations. First some previous remarks. Our first table gives of nine of the works discussed the chronological interrelation, which can be established with a fair degree of certainty. The figures put after the works give the approximative date of their composition (the second one that of their edition); when printed in heavy types they are based on external data; the other ones are based on calculation.

Table 1

Boethius' birth about 480 A.D.

In Porphyrii Isagogen, editio prima about 504-505

In Syllogismis categoricis libri duo (= ? Institutio categorica) about 505-506

In Porphyrii Isagogen, editio secunda about 507-509

In Aristotelis Categorias (? editio prima) about 509-511

In Aristotelis Perhemeneias, editio prima not before 513

In Aristotelis Perhemeneias, editio secunda about 515-516

De syllogismis hypotheticis libri tres between 516 and 522

In Ciceronis Topica Commentaria before 522

De topicis differentiis libri quattuor before 523

Boethius' death 524

The rest of the works discussed cannot be inserted in this table without some qualification. (...)

We may establish the following table for the works not contained in out first table:

Table 2

Liber de divisione between 505 and 509

possible second edition of the *In Categorias* after 515-516

Translations of the *Topica (and Sophistici Elenchi*) and of the

Analytica Priora and *Analytica Posteriora* not after 520

Commentary on Aristotle's *Topica* before 523

the so-called *Introductio* (? = *In Priora Analytica Praedicanda*) certainly after 513; probably c. 523

Scholia on Aristotle's *Analytica Priora* first months of 523 at the latest"

pp. 159-161 (notes omitted).

26. ———. 2003. "The Logic of Indefinite Names in Boethius, Abelard, Duns Scotus, and Radulphus Brito." In *Aristotle's Peri hermeneias in the Latin Middle Ages. Essays on the Commentary Tradition*, edited by Braakhuis, Henk A.G. and Kneepkens, Corneli Henri, 207-233. Groningen: Ingenium Publishers.

"Aristotle's doctrine of indefinite names (nouns) was handed down to the Middle Ages together with Boethius' comments and explanations. Boethius' view of the matter has two characteristic features. For one thing, there is a certain ambiguity on his part concerning the precise semantic value of

such terms; for another, Boethius deviates considerably from Aristotle in that he explicitly assigns the property of 'holding indifferently of existents and non-existents' not only to the indefinite *rhéma* (as it is found in Aristotle, *De interpr*. 3, 16b15) but to the indefinite name (*onoma*) as well.

Until the end of the 12th century the logic and grammar (1) of indefinite terms (nouns and verbs) was a much debated issue. Although assiduously echoing the well-known *auctoritates* Medieval thinkers did not always go the whole way with their predecessors. For example, Abelard and Scotus, starting from their own philosophical tenets, more or less inconspicuously corrected some dubious elements in Boethius' interpretation of Aristotle's doctrine of the indefinite name. Peter Abelard, especially, took great pains to precisely define the meaning of indefinite terms. He focussed his attention on the proper meaning of indefinite terms rather than on the question whether they are 'holding indifferently of existents and non-existens'. In contrast, 13th-century scholars like Duns Scotus and Radulphus Brito based their discussion of the proper meaning of the indefinite name upon the question '*Utrum nomen infinitum aliquid ponat*' ("Whether an infinite name posits something"), which calls to mind Boethius' claim that indefinite names 'hold indifferently of existent and non-existents'.

Abelard's discussion of the proper meaning of the indefinite name is also interesting in that it helps us to gain a good understandiiip of what Boethius had in mind in claiming that the indefinite name 'siginifes an infinite number of things' ('*significat infinita*'). For, thanks to Äbelard's expositions, it becomes clear that the phrase '*significare infinita*', which, on the face of it, may be taken as referring to the extensional of the indefinite name, on closer inspection proves to concern its intension, because the controversy between Abelard and Boethius turns out to be about two different views of the indefinite name's intension rather that about any opposition of intension as against extension." pp. 207-208.

(1) For the grammatical approaches to the problem of the indefinite term in the 12th century, see C.H. Kneepkens, "Orléans 266 and the Sophismata Collection: Master Joscelin of Soissons and the infinite words in the early twelfth century", in St. Read (ed.) *Sophisms in Medieval Logic and Grammar*. Acts of the Ninth European Symposium for Medieval Logic and Semantics, held at St Andrews, June 1990 (Nijhoff International Philosophy Series, 48; Dordrectt/Boston/London 1993), 64-85.

27. Dürr, Karl. 1951. *The Propositional Logic of Boethius*. Amsterdam: North-Holland.

    Contents: Preface VIII; Abbreviations IX-X; Introduction 1; I. The sources of "De Syllogismo Hypothetico" 4; II. The effects of Boethius' propositional logic in the early scholastic period 16; III. Choice of metascience and metalanguage 19; IV. Analysis of "De Syllogismo Hypothetico" 30; V. Analysis of a section of Boethius' Commentary on Cicero's *Topics* 66; Appendix by Norman M. Martin 74-79.

    Boe. = *Anitii Manlii Severini Boethi . . . opera, quae extant, omnia*. Basileae (1570).

    "The text of the treatise "The Propositional Logic of Boethius" was finished in 1939. Prof. Jan Lukasiewicz wished at that time to issue it in the second volume of "Collectanea Logica"; as a result of political events, he was not able to carry out his plan.

    In 1938, I published an article in "Erkenntnis" entitled "Aussagenlogik im Mittelalter"; this article included the contents of a paper which I read to the International Congress for the Unity of Science in Cambridge, England, in 1938 (Cf. Erkenntnis, vol. 7, pp. 160-168). The subject matter of this paper touched upon that of the above-mentioned treatise. Recently an article of Mr. René van den Driessche, "Sur le 'de syllogismo hypothetico' de Boèce", was published in the journal "Methodos" (vol. I, no. 3, [1949]). Mr. van den Driessche referred in this article to the article on propositional logic in the Middle Ages, which had appeared in "Erkenntnis". This reminded me of my yet-unpublished treatise on the propositional logic of Boethius." (From the *Preface*)

"§ 1. The Two Books of Boethius on the Theory of the Proposition.

It is the unique property of propositional logic that the variables which are used are propositional variables, i.e. variables whose values are propositions.

Among the logical writings of the man whom, for short, is called “Boethius” and whose full name is “Anicius Manlius Severinus Boethius”, we find two which can be characterized as presentations of propositional logic.

The first of these is entitled “de syllogismo hypothetico” (on the hypothetical syllogism).

Incidentally, it should be noted that this title, as Samuel Brandt has shown, does not originate with Boethius, and it would be more correct to give the book the title “de hypotheticis syllogismis” (on hypothetical syllogisms) (Cf. Samuel Brandt: 'Entstehungszeit und zeitliche Folge der Werke des Boethius'. *Philologus*, Bd. LXII (1903) p. 238). Nevertheless, one does well to quote the work under its incorrect title “de syllogismo hypothetico” as long as the old editions are in use.

The second book is a commentary on the *Topics* of Cicero. Here we do not consider the entire commentary, but only certain sections; we will indicate later which sections come into consideration (Cf. infra § 38)." (p. 1)

(...)

"§ 4. More Precise Charactrization of Boethius' Propositional Logic.

At the beginning of this treatise, we declared that the logic which is represented in the two works of Boethius, may be characterized as propositional logic. We add the remark that all of the sentences that have an independent value (i.e. that do not occur only as auxillary sentences) in this logic were deductive rules, or, which comes to the same thing, inference schemes.

In this connection we recall the explanation of Clarence Irving Lewis in the book “Symbolic Logic”: “Exact logic can be taken in two ways: (1) as a vehicle and canon of deductive interference, or (2) as that subject which comprises all principles the statement of which is tautological” (Cf. ClarenceIrving Lewis and Cooper Harald Langford: *Symbolic Logic* (1932 p. 235). We can now say that the logic of Boethius belongs to the first of these two forms of exact logic. Boethius’ aim is not to set up sentences which are tautological, but rather to present all of the deductive rules." (p. 3)

(...)

§ 38. The Three Enumerations of the Seven Conditional Syllogisms.

We now turn to the consideration of the form of propositional logic to be found in Boethius’ commentary on Cicero’s *Topics*.

At the beginning of the fifth book of this commentary, Boethius notes that he has treated all the hypothetical syllogisms in another book; he obviously has “de syllogismo hypothetico” in mind (Cf. Boe., p. 823). The exposition which follows this remark covers more than the first half of the fifth book of the commentary; it constitutes that part of the commentary that is of interest to us here (Cf. *supra*, § 1).

In order to determine this section more precisely one can best indicate its beginning and its end. It begins with the words “de omnibus quidem hypotheticis syllogismis” (Cf. Boe., p. 823) and continues to the place immediately preceding the following words of Cicero, “proximus est locus” (Cf. Boe., p. 934).

Boethius notes that Cicero mentioned some modi (inference types). From the exposition that follows, it is to be assumed, that Boethius identifies the *modi* that Cicero mentioned with the system of the seven conditional syllogisms (Cf. Boe., p. 823). By conditional syllogisms we understand inference schemes.

At the place which Boethius has in mind, Cicero enumerates seven inference schemes. Boethius quotes this place in the fifth

book of his commentary (Cf. Boe., p. 817). We will call the quotation of this place from Cicero's *Topics* in Boethius' commentary "the quotation".

In the text of the commentary as given by the editions we find the seven conditional syllogisms enumerated three times. The first and the second enumerations precede the quotation, while the third follows it (Cf. Boe., p. 831-833). It may be mentioned that the second enumeration agrees so closely with the first, that it may be called a duplication of the first.

Propositional variables are used only in the third enumeration of the seven conditional syllogisms; the system of propositional variables which we called the simple system is used (Cf. supra, § 17). In all three enumerations each of the conditional syllogisms is illustrated by an example. These examples are expressions related to the inference schemes; like the inference schemes, they contain functors and always contain a sign which can be identified with the functor "*igitur*"; they contain however no propositional variables, instead having simple, i.e. atomic, sentences.

The examples of conditional syllogisms which Boethius gives with the first and second enumerations, are extremely simple and the two sequences agree almost completely member for member.

We will quote these examples in English; in this translation the English word "therefore" occurs instead of the functor "igitur" It seems desirable to divide the seven conditional syllogisms into four groups; we will divide them in such a way that the first and second modi constitute the first group, the third modus constituhs the second group, the fourth and fifth modi the third group and finally the sixth and seventh modi form the fourth group." (pp. 66-67)

28. Ebbesen, Sten. 1973. "Manlius Boethius on Aristotle's *Analytica Posteriora*." *Cahiers de l'Institut du Moyen-Âge Grec et Latin* no. 9:68-73.

"A reference to a Boethian commentary on *Posterior Analytics* I is found in a thirteen th-century MS (Munich, clm 14246), but

this is surely an error. The work referred to was really the translation of Philoponus' commentary that most schoolmen attributed to Alexander of Aphrodisias. I regret having called attention to the Munich MS in a small article of 1973 (*CIMAGL* 9: 68–73), and I beg my readers not to waste their time on looking up that article." S. Ebbesen, "The Aristotelian Commentator" in John Marenbon (ed.). The Cambridge Companion to Boethius, Cambridge: Cambridge University Press, 2009, p. 52.

29. ———. 1987. "Boethius as an Aristotelian Scholar." In *Aristoteles. Werk und Wirkung. Paul Moraux zum 65 Geburtstag gewidmet - Band 2: Kommentierung, Uberlieferung, Nachleben*, edited by Wiesner, Jürgen, 286-311. Berlin: Walter de Gruyter.

    Reprinted as *Boethius as an Aristotelian Commentator* in: Richard Sorabji (ed.), *Aristotle Transformed. The Ancient Commentators and Their Influence*, London: Duckworth, 1990, pp. 373-392.

    Citations are from the reprint in Sorabji 1990.

    "It has been suggested that the only material at Boethius' disposal was a copy of the *Organon* with marginal scholia, and that this collection of scholia is no longer extant. (14) We may often be able to ascertain the remoter origin of one of the scholia Boethius knew, but we shall never know whether he deviated from his direct source in any way and the standard answer to the question 'Why does Boethius say this?' can only be, 'Because it was in his only source.'

    The 'one source - no thinking' theory has the support of eminent scholars and it cannot be refuted by any means that I can think of. But neither can it be proved by any conceivable means short of finding the supposed manuscript of the *Organon* with the marginal scholia. To my mind, the circumstantial evidence in favour of this theory, though not negligible, is less than convincing. (15) The observable facts are quite as easily explained on the assumption that Boethius had access to several Greek monographs and commentaries and that he followed the common practice of using for each work

one main source while also exploiting secondary sources. It is an old discovery that this hypothesis works well in the case of the extant short commentary on the *Categories,* the only case in which we still have what may be the main source. Boethius acknowledges a debt to Porphyry (16) and actually keeps so close to the latter's extant minor commentary on the *Categories* (*CAG* 4, 1) that it is simpler to assume that he had direct access to a complete copy of it than to assume second-hand acquaintance by way of a book which also contained the post-Porphyrian material detectable in Boethius' commentary.

Granted that Boethius' main source was Porphyry's extant work, we can begin to examine the way he used it. As it turns out, he follows his predecessor to the extent of reproducing most of the questions he raised and the answers he gave, but not to the extent of reproducing long segments of his text in direct translation. Boethius expanded arguments which he found too compressed while curtailing or suppressing other passages. (17) In fact, he followed the procedure which his own remarks in this and other works indicate (18) -- and that procedure involved making choices. It looks as if it might be worth while to speculate about his possible motives for choosing as he did." (pp. 376-377; note 15, 17 and 18 omitted)

(14) J. Shiel, 'Boethius' Commentaries on Aristotle': *Medieval and Renaissance Studies* 4, 1958, 217-44, extensively revised in Chapter 15; id, 'Boethius and Eudemus', *Vivarium* 12, 1974, 14-17; id, 'A recent discovery: Boethius' notes on the Prior Analytics', *Vivarium* 20, 1982,128-41.

(16) Boeth. *in Cat.* 160A; see n. 20 below.

30. ———. 2003. "Boethius on the Metaphysics of Words." In *Boèce ou la chaîne des savoirs*, edited by Galonnier, Alain, 257-275. Louvain-Paris: Éditions Peeters.

Reprinted in: S. Ebbesen, *Greek-Latin Philosophical Interaction. Collected Essays of Sten Ebbesen Volume 1,* Aldershot: Ashgate, 2008, pp. 115-128.

"Boethius distinguished himself from most panegyrical orators by having pursued the study of the words he lived by beyond

ordinary grammar and rhetoric school. He may not have delved deeply into the theory of grammar, but his works on topics demonstrate a live interest in the borderland between rhetoric and logic, and he spent much time on Aristotelian logic. He saw logic as fundamentally a language science: logic and grammar study the same matter, he says; but though logic gives a deeper understanding of language than grammar, it cannot replace grammar, for they study the subject from different points of view.

We might expect Boethius to have thought about the question "What is a word" and the related questions "What is a phrase?" and "What is a sentence?" (pp. 257-258, note omitted)

(...)

"Boethius' discussion of molecular propositions is revealing of his way of thinking. A conjunction of propositions is semantically several propositions, but a conditional is somehow one proposition: 'If it is day there is light' does not signify several things, but rather one "following", one consequently as he says, translating the Greek ακολουθία. In other words: it takes two facts to make two conjoined propositions true, but only one to make a conditional true. A fact that can be described in a conditional is at least as good a fact as one describable in a categorical proposition.

One might think Boethius should have distinguished between assertion and signification; he could have held that the conditional signifies whatever the antecedent signifies and whatever the consequent signifies, whereas it asserts that one follows from the other. Boethius actually had the necessary tools for so doing. The verb "proponere", which does occur in the context, would do nicely for "assert".

I doubt, though, that he would have embraced the recommendation with alacrity. If I am not mistaken, his intuition was that words signify real things, and things are more real the more they are understood as unit-seeds capable of unfolding in multiplicity. Consequents of true conditionals really are contained in their antecedents in the sense that what

the whole conditional signifies is one thing the richness of which may be gauged by seeing it unfold in a conditional. (34) (pp. 272-273, notes omitted)

(34) For the unity of conditionals and the antecedent-consequent relationship, see Boethius, *Top. Cic.* IV. 1124-1126.

31. ———. 2008. "Boethius on Aristotle." In *Greek-Latin Philosophical Interaction: Collected Essays of Sten Ebbesen Volume 1*, 107-114. Aldershot: Ashgate.

This chapter was written for the present volume, but to a considerable extent it recapitulates Ebbesen (1987) [‘Boethius as an Aristotelian Scholar’, in Wiesner (ed.) (1987) *Aristoteles, Werk und Wirkung*, (Berlin–New York: Walter de Gruyter): 2.286–311).]

"Anicius Manlius Boethius (d. c.525) was *the* great mediator between ancient Greek and medieval Latin philosophy. He completed a tremendous piece of work by translating all of the Organon (except, it seems, the *Posterior Analytics*) into Latin and writing commentaries as well as other companion volumes. It is remarkable that there are two commentaries of his on Porphyry and two on *Perihermeneias*, but only one on the *Categories*. Actually, there may have existed a second one on that work too, but at least it did not survive for the medievals to use. (2) As for the *Ars nova*, Boethius himself refers to a commentary on the Topics (3) of which there is no trace in later times. It is uncertain whether he accompanied his translation of the *Prior Analytics* with a commentary (the question is discussed in Chapter 13 [*Analysing Syllogisms or* Anonymus Aurelianensis 111 - *the (presumably) Earliest Extant Latin Commentary on the* Prior Analytics *and its Greek Model*, pp. 171-186] Boethius’ monographs on categorical and hypothetical syllogistic, on divisions and on topical argumentation were intensely studied from the late eleventh to the early thirteenth century, and they left their mark on Latin logic long after they ceased to be standard reading. A commentary on Cicero's *Topics* was less influential.

Finally, it must be mentioned that Boethius composed treatises on the quadrivial arts: arithmetic, music, geometry (uncertain,

not extant), and just possibly astronomy •as well. In one famous passage he himself reveals a grandiose plan to translate the whole of Aristotle and Plato. (4)

Remarkable as the list of Boethius' accomplishments is, two lacunas stand out. There is no grammar at all and no proper treatise on rhetoric, only the somewhat related commentary on Cicero's *Topics* and the fourth book of *De topicis Differentiis*, which was actually used as a textbook of rhetoric in medieval Paris. We can only guess at the reasons, but quite possibly Boethius thought of grammar and rhetoric as sub-philosophic disciplines. After all, as opposed to logic and the quadrivial arts, grammar and rhetoric had traditionally been taught by their own professional teachers, not by philosophers. (5) Moreover, he may have felt that such existing handbooks as Donatus' *Ars* were sufficient for the grammatical needs of the Latin world, and there surely was no dearth of rhetorical treatises in the tongue of Cicero." (p. 108)

(...)

"So. the way 1 read Porphyry and Boethius, they shared the view that becoming a good Aristotelian is a necessary step on the way to becoming a good Platonist, and what you have learned in the first step of your intellectual career does not become false when you ascend to a higher level -- you are just able to put it into a much wider context.

The medieval West inherited from late antiquity numerous texts that could help send people off on fanciful Neoplatonic stratospheric flights. The fact that Boethius provided them with a proper set of down-to-earth, but still interesting, logic books ensured that quite a few preferred safer and saner flights closer to the surface of mother earth, or at least tried to secure proper ground support before lifting off." (p. 114)

(2) See P. Hadot, "Un fragment du commentaire perdu de Boèce sur les *Catégories* d'Aristote dans le codex Bernensis 363", *Archives d'histoire doctrinale et littéraire du Moyen Âge*, 26, 1959, pp. 11-27.

(3) Boethius. *Top. Diff.* 2.8.8 (*PL* 64 1191A) and 4.13.2 (*PL* 64: 1216D).

(4) Boethius. *Comm. Int.* ed. 2a. Weiser, pp. 79-80.

(5) For the quadrivium as the philosophers' domain, see I. Hadot, *Arts libéraux et philosophie dans la pensée antique. Contribution à l'histoire de l'éducation et de la culture dans l'antiquité*. Seconde édition revue et considérablement augmentée. Paris: Vrin, 2005.

32. ———. 2009. "The Aristotelian Commentator." In *The Cambridge Companion to Boethius*, edited by Marenbon, John, 34-55. Cambridge: Cambridge University Press.

    "The point, then, is that we have to start from the lowest level to work our way toward the higher. We have to learn our grammar before we can get a deeper understanding of language-related matters by studying logic.

    We have to achieve a simplified understanding of logic before we can undertake an in-depth study. We have to know our logic properly before we can ascend to higher matters, such as Neoplatonic metaphysics, in the light of which our initial understanding of logic will appear primitive.

    This way of looking upon thingswas not Boethius' invention. In its essentials it was already Porphyry's, it was what allowed Porphyry to include the study of Aristotle in a curriculum aimed at producing good Platonists ready to take leave of their bodily frame. As Aristotle's logic was supposed not to have trespassed on Plato's metaphysical territory, teachers of Aristotle need not and ought not Platonize him. Boethius' extant commentaries evince a decision to follow Porphyry, though he was clearly sympathetic to some of the more extravagant Neoplatonists – people of the stripe of Iamblichus, Syrianus and Proclus – and it makes one shudder to imagine what the "Pythagorean" exposition of the *Categories* that his extant commentary says he was contemplating was or would be like." (p. 51)

33. ———. 2011. "Boethius as a Translator and Aristotelian Commentator." In *Interpreting the Bible and Aristotle in Late*

Antiquity. The Alexandrian Commentary Tradition between Rome and Baghdad, edited by Lössl, Josef and Watt, John W., 121-133. Farham: Ashgate.

"Virtually the whole of Boethius' literary output – including his final *Consolation of Philosophy* – may be viewed as a Herculean effort to transfer Greek philosophical thought to Latin, but only his Latinizations of the works of the *Organon* were strictly speaking translations. The commentaries and companion volumes are free adaptations of Greek prototypes. Exactly how free is difficult to gauge because in all cases but one we are sure that we no longer possess any of the Greek texts he used. The exception is Porphyry's commentary on the *Categories*.

There is some scholarly disagreement about whether he used that text directly or only indirectly, but if he did have direct access to it, as I believe, he did not at all follow it slavishly. In any event, even if he made a very free use of his Greek sources, producing the commentaries and companion volumes involved a considerable amount of translation, because he had to find out how to render all the technical terminology of his sources in Latin.

Boethius did not have to start from scratch. Already in the first century B.C., Cicero and Varro had coined Latin equivalents of many philosophical terms, and more had been added over the centuries. In fact, for most of the technical terms of logic Boethius could depend on his predecessors. He was probably the first to use *subalternus* and *subcontrarius* when dealing with the square of opposition, and he was almost certainly the first to translate ἀξίωμα 'axiom' as *maxima propositio*, which is the origin of the English – and pan-European – *maxim*. But more often than not he would use an existing translation. His problem was rather one of choice, because in several cases Latin usage was not uniform. (pp. 123-124)

(...)

"In the short run, Boethius' translations, commentaries and monographs met with no success, due to the collapse of the

political structure and of higher schooling in the western part of the Roman empire shortly after his death. In the long run, he was immensely successful.

Use of his works began slowly in early Carolingian times, but by 1100 his translations of Porphyry, *Categories* and *Perihermeneias* were in common use in several schools, and so were his commentaries on those works and his handbook-like works. By about 1120 people were beginning to also use his translations of the *Prior Analytics*, the *Topics* and the *Sophistical Refutations*.

This laid the foundation for the Aristotelian scholasticism that was to dominate the study of philosophy in the West for some four centuries. It also meant that it was Boethius' choices that decided what was to become the technical vocabulary of Latin Aristotelian logic." (p. 124)

34. ———. 2016. "Boethius as an Aristotelian commentator." In *Aristotle Transformed: The Ancient Commentators and Their Influence*, edited by Sorabji, Richard, 403-421. New York: Bloomsbury.

Second revised edition; first edition London: Duckworth 1990, pp. 373-391.

"In periods when the scholastic attitude to the auctores prevails, the exegesis of the classics of philosophy acquires great importance. By the year 500 a considerable number of commentaries and auxiliary treatises relating to the works of Aristotle and Plato had been written in Greek. Quite a few would be available to anyone with the will and the fi nancial means to obtain them. But in spite of an attempt in the fourth century to produce a Latin scholastic library,(3) philosophy had not come to Latium. It had to wait for Boethius. How little his predecessors had achieved may be gauged from the fact that he has no standard Latin equivalents for several elementary Greek terms. To render organon (instrument) he feels obliged to use a hendiadys, *ferramentum et quodammodo supellex*.(4) For *phantasia* he uses v*isum*. The term had been coined by Cicero five hundred years earlier, but Boethius introduces it in a way which shows that he expects his readers to be as unfamiliar

with it as were Cicero's contemporaries.(5) To benefit from Plato's and Aristotle's useful writings a mastery of Greek was still required." (pp. 403-404)

(3) Texts relating to the *Organon*: Isagoge (free translation) + commentary + monograph on definition, all by Victorinus; paraphrase of *Cat*. (= ps.-Augustine, *Categoriae Decem*); paraphrases of *An. Pr*. and *An. Post*. by Themistius, translated by Praetextatus; monograph on hypothetical syllogisms by Victorinus. It is very doubtful whether there was a translation or paraphrase of *Int*. ; possibly Apuleius' *Peri Herm*. was used. Instead of Aristotle's *Topics,* Cicero's was read; Victorinus composed a commentary on it. Cf. on these matters, P. Hadot, *Marius Victorinus,* Paris 1971.

(4) Boeth. *in Isag*.1 10; cf. i*n Isag*.2 93.

(5 Boeth. *in Isag*.2 25: the Greeks call them *phantasiai,* we may call them *visa*. Cicero *Acad*. 1 40: which they call *phantasia* we may call it *visum*.

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History of Logic

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Studies in English

1. Eco, Umberto. 1984. "Signification and Denotation from Boethius to Ockham." *Franciscan Studies* no. 44:1-29.

   "Boethius translates "semaînein" with "significare" but he follows the Augustinian line of thought according to which "significatio" is the power that a word has to arouse in the mind of the hearer a thought, through the mediation of which one can implement an act of reference to things. He says that single terms signify the corresponding concept or the universal idea and takes "significare"— as well as, less frequently, "designare"— in an intensional sense. Words are conventional instruments used to make known one's thoughts (*sensa* or *sententias*) (*In Per. Herm.* I).

   Words do not designate *res subiectas* but *passiones animae*. The designated thing is at most called "underlying the concept of it (*significationi supposita* or *suppositum*)", see de Rijk 1967:180-181. (3)

   As for "*denotatio*," Boethius uses extensively "*nota*," but we know how vague was the meaning of this term in the Latin Lexicon — at least as vague as the meaning of the equivalent Greek "*symbolon*." It must be remembered that Boethius, in the translation of *De lnterpretatione* used "*nota*" for both

"*symbolon*" and "*semeîon*," thus creating a first "sad tale of confusion"." (pp. 5-6)

(3) *in Peri herm*. II, pp. 26-27, ed. Meiser, debating the question whether words refer immediately to concepts or to things, Boethius uses in both cases the expression '*designare*.' In II, p. 20 he says in the same context, "vox vero conceptiones animi intellectusque significat" and "voces vero quae intellectus désignant." In II, pp. 23-24, speaking of "litterae, voces, intellectus, res," he says that "litterae verba nominaque significant" and that "haec vero (nomina) principaliter quidem intellectus secundo vero loco res quoque designant. Intellectus vero ipsi nihil aliud nisi rerum significativi sunt." *In Arist. Categ*. col. 159 B4-C8, says that "prima igitur ilia fuit nominum positio per quam vel intellectui subiecta vel sensibus designaret." It seems to me that "designare" and "significare" are taken as more or less equivalent. The real point is that first words signify concepts and, because of that, and mediately, can be referred to things. Cf. on the whole question de Rijk (1967, II, I, p. 178 ff.) Nuchelmans (1973:134) remarks that even though Boethius also uses "significare," along with "designare, denuntiare, demonstrare, enuntiare, dicere" with an object-expression to indicate what is true or false, however when he uses the same terms with a person as a subject he means that someone makes known his opinion that something is or is not the case: "the definition of the *enuntiatio* or *propositio* as an utterance which signifies something true or false reflects the fact that in Aristotle's view it is the thought or belief that something is the case which is true or false in the primary sense. As Boethius puts it, truth and falsity are not in things but in thoughts and opinions and secondarily (*post haec*) in words and utterances— *in Cat*. 181b. Cf. also such a passage as in *In Per*. I, p. 42, 1" (Nuchelmans 1973:134).

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De Rijk, L. M., ed., 1967. *Logica modemorum*, II, 1. Assen: Van Gorcum.

Nuchelmans, G., 1973. *Theories of the Proposition*. [Vol. I: *Ancient and Medieval Conceptions of the Bearers of Truth and*

Falsity]. Amsterdam: North-Holland.
2. Gambra, José Miguel. 2015. "To Be *in* a Subject and Accident." *Vivarium* no. 53:170-193.

   Abstract: "Boethius identifies beings that are *in* a subject with what the Scholastics called predicamental accident, and predication by accident with the predication of what is in a subject. The first of these questionable assimilations went on to become terminology commonly accepted by Scholastics of all eras. On the other hand, the second, which seems quite consistent with the thinking of Aristotle, was only admitted with many reservations, probably because of the bewildering claims of Aristotle in *Cat*. 5, 2a27-34 about the predication of what is in the subject. In what follows I will try to show how these phrases, properly understood, are consistent with the idea that what is in the subject is said by accident of the substance, although they implicate a difficulty poorly resolved by Boethius himself and those who followed him on this point, of whom I will only mention by way of example some Scholastics from the 16th century."

3. Gersh, Stephen. 1997. "Dialectical and Rhetorical Space. The Boethian Theory of Topics and its Influence during the Early Middle Ages." In *Raum und Raumvorstellungen im Mittelalter*, edited by Aertsen, Jan A. and Speer, Andreas, 391-401. Berlin: de Gruyter.

   "According to L. Obertello's chronology, Boethius' writings on topics: the commentary on Cicero's 'Topica' and the 'De Topicis Differentiis' date from the last few years of his life (ca. 518 — 524)'. They do indeed reveal the maturity of reflection characteristic of a thinker who has translated and commented upon Aristotle's *Organon* and is perhaps on the threshold of elaborating the Platonic synthesis of which 'De Consolatione Philosophiae' stands as a poignant reminder. In this paper I hope to show how the notion of 'place' {*locus*) developed in Boethius' topical writings lies at the heart of important issues not only in rhetoric and dialectic but also in metaphysics." (p. 391)

(1) 1 See L. Obertello, *Severino Boezio* I, Genova 1974, 342. Cf. L. M. de Rijk, *On the Chronology of Boethius' Works on Logic* II, in: *Vivarium* 2 (1964), 159 — 161.

4. Gili, Luca. 2015. "A neglected source of Boethius's *De syllogismo categorico*." *Mnemosyne* no. 68:304-307.

   Abstract: "This paper shows that Boethius's *De syllogismo categorico* had among its sources Alexander of Aphrodisias's commentaries on the *Topics* and on the *Prior Analytics*. The first of these sources has been neglected by scholars until now. Boethius's usage of these sources shows the originality of his logical treatise."

5. Green-Pedersen, Niels Jørgen. 1984. *The Tradition of the Topics in the Middle Ages. The Commentaries on Aristotle's and Boethius' 'Topics'*. Münich: Philosophia Verlag.

   Contents: Preface 9; Part I. The Sources of the Medieval Doctrine of the Topics 11; A. Aristotle's Works on the Topics 11; B. Boethius' Works on the Topics 39; Part II. The Medieval Approach to the Sources 83; A. Aristotle's *Topics* 85; B. Boethius' *De Differentiis Topicis* 123; C. The University Teaching 127; Part II. The Doctrine of the Topics in the Middle Ages 135; A. Introductory 135; B. The earliest Texts 139; C. The 12th Century 163; D. The 13th Century 223; E. The Topics and the Theory of Consequences 265; F. The 14th Century 301; G. The 15th Century 321; Part IV. General Conclusion 345; Appendix 1: Selection of Unprinted Texts 347; Appendix 2. List of Commentaries 381; A. Commentaries on Aristotle's *Topics* 383; B. Commentaries on Boethius' *De Differentiis Topicis* 418; References 433; Index 449; Summary in Danish 455-459.

   "B. Boethius' Works on the Topics

   1. Introductory

   In chronological order the next work to discuss would be Cicero's *Topica*, which is the first work on the topics after Aristotle that has come down to us. I shall, however, proceed directly to Boethius's works, partly because an acquaintance with Boethius' doctrines contributes to a better understanding of Cicero. Partly also because there are no medieval

commentaries on Cicero's *Topica*. Apparently this work was only influential on the teaching in the very early period, probably not much after c. A. D. 1050. The teachers of those days did not write commentaries, as far as we know, but only compendia or summaries of the texts they based their teaching on; or they added glosses to these texts. Ina later chapter we shall see how Cicero's *Topica* - directly or indirectly - is the basis of the earliest medieval teaching about the topics which we know of. Yet even in these early years the medievale use not only Cicero's book, but also Boethius' commentary on it. All these facts suggest that at least in a medieval context it is better to consider Boethius before Cicero. The things which we need to know about Cicero can be set out in connection with Boethius or with the discussion of the works which base their teaching upon Cicero.

Boethius wrote about the topics primarily in two works, the *Commentary on Cicero's Topica* (*In Ciceronis Topica*, ICT) and the monograph *De differentiis topicis* (DDT). The commentary on Cicero is the earlier of the two, as we can infer from references in the DDT back to the ICT and from remarks in the ICT about plans for the DDT. But the distance in time between the two is small, both were written in the last years of Boethius' life, i. e. after c. 520. (1) Boethius also refers to a commentary which he claims to have written on Aristotle's *Topics*, (2) but such a work has not come down to us. As the references to it are found in the DDT and no references are found in the ICT, we may conjecture that the commentary on Aristotle's *Topics* was written in the period between the ICT and the DDT. On the other hand Boethius refers to his translation of Aristotle's *Topics* in the ICT, 3 and it is natural to assume that he wrote the commentary while working on the translation.

Boethius' commentary on Cicero's *Topica* (ICT) follows the text in Cicero's work continuously, but it is either preserved incompletely or it was never finished by Boethius, since it ends in the comments on Cicero's § 76. Cicero's work contains a prologue (§§ 1-5), an introduction (§§ 6-8), a summary statement of his list of loci (§§ 9-24), a detailed exposition of the same list (§§ 25-78), and finally a section of a more

rhetorical character (§§ 79-100). The most interesting parts of the ICT are the rather long discussions about the nature and the division of the loci which Boethius has inserted before both Cicero's first and second enumeration of the loci. Further Boethius utilizes Cicero's second exposition of the locus 'from antecedents' etc. for a long discussion of conditionals and hypothetical syllogisms. We shall have occasion to look at these discussions more closely.

We need not know more about the contents of the ICT, but we shall instead turn to the DDT with which we must be well-acquainted in order to understand the medieval doctrine of the topics." (pp. 39-40)

(1) De Rijk (1964) pp. 151-154.

(2) Boethius, DDT II.1191 A; IV, 1216 D. - Cf. De Rijk 1964, p. 156.

(3) Boethius, ICT I, p. 280,40-41 (1052 A-B).

References

L. M. De Rijk 'On the Chronology of Boethius' Works on Logic. I-II", *Vivarium*, 2, 1964, pp. 1-49 and 125-162.

6. Huby, Pamela M. 1988. "Boethius vindicates Cicero as a logician." *Liverpool Classical Monthly* no. 13:60-61.

   "Boethius' reading of Cicero's *Topics* 54 shows that he had a better text than we do, and thus makes more sense of Cicero's argument."

7. Kretzmann, Norman. 1985. "*Nos Ipsi Principia Sumus*: Boethius and the Basis of Contingency." In *Divine Omniscience and Omnipotence in Medieval Philosophy*, edited by Rudavsky, Tamar, 23-50.

   "Boethius's two commentaries on Aristotle's *De interpretatione* contain an account of the metaphysical foundations of contingency in their discussions of Chapter 9. (1) For the countless medieval discussions of future contingents only *De interpretatione* 9 itself is of greater historical importance than Boethius's discussions of it. In this chapter, however, my

concern is with the content of Boethius's theory of contingency and not with its historical sources or influences. In order to give his theory the kind of consideration I think it deserves, I need to extract it from the other material in the commentaries and expound it in its own right; I also want to examine some of its consequences. Because those tasks are the only ones I can undertake in this paper, I am not now concerned with what the later medievals thought about Boethius or with what Boethius thought about Aristotle or with what Aristotle thought about contingency, but only (or as nearly as possible only) with what Boethius thought about contingency in his two commentaries on *De interpretatione*.(2)"

(1) The Latin texts of the commentaries are published in Migne's *Patrologia Latina*, Vol. 64, cols. 329-342 and 487-518; and in the critical edition by C. Meiser, *Boetii Commentarii in Librum Aristotelis Il EPI EPMHNIA E E*, Leipzig: Teubner, 1877-1880 (2 vols.), Vol. I, pp. 103-126, and Vol. 11, pp. 185-250. All my references to and quotations from Boethius's commentaries in the notes will be taken from Meiser's edition. For the definitive edition of Boethius's translation of Aristotle see 1. Minio-Paluello (ed.), *Aristoteles Latinus* II 1-2: *De Interpretatione vel Periermenias*, Desclée de Brouwer, Bruges 1965.

(2) See also Boethius, *Consolation of Philosophy* in Boethius. *The Theological Tractates and the Consolation of Philosophy*, H. F. Stewart and E. K. Rand (eds), Harvard University Press, Cambridge Mass 1968, Bk V, esp. Prose 1 and 2; and *In Ciceronis Topica* in *Ciceronis Opera*, J . C. Orelli and G. Baiterus (eds), Zurich 1833, Bk V, chs, 15.60-17.64. l owe the latter reference to Eleonore Stump.

8. ———. 1987. "Boethius and the truth about tomorrow’s sea battle." In *Logos and Pragma: Essays on the Philosophy of Language in Honour of Professor Gabriel Nuchelmans*, edited by Rijk, Lambertus Marie de and Braakhuis, Henk Antonius. Nijmegen: Ingenium Publishers.

   Reprinted in D. Blank, N. Kretzmann (eds.), Ammonius on Aristotle *On Interpretation* 9 with Boethius on Aristotle *On*

Interpretation 9, London: Duckworth, 1998, pp. 24-52.

"My concern here is with the principal ancient rival to the so-called traditional interpretation, a rival whose subsequent medieval career was so long and so eminent that it provides another reason for feeling uneasy about calling the simple denial of universal bivalence 'the traditional interpretation'.

Since the one I am focusing on is the second-oldest on record, I will refer to it simply as the second-oldest interpretation and continue referring to the denial of universal bivalence as the oldest. I will also continue to refer to both of them as interpretations even when I am primarily interested in them as responses to logical determinism, regardless of their accuracy as interpretations of Aristotle. The second-oldest interpretation's claim to preserve bivalence while rejecting determinism is what essentially distinguishes it from the oldest interpretation. Its details will emerge gradually." (p. 25 of the reprint)

(...)

"Having said all I have to say about sources of the second-oldest interpretation, I want now to try to say what it comes to. My ulterior motive for undertaking this critical exposition is my interest in the development of the response to logical determinism (and the interpretation of Aristotle's response) among medieval philosophers, for whom the second-oldest interpretation had the stamp of Boethius' authority. For that reason I have examined the interpretation in Boethius' rather than in Ammonius' version of it.(26) Ammonius' commentary remained inaccessible to the Latins until William of Moerbeke translated it in 1268, and so it is irrelevant to at least the earlier stages of the medieval development.(27)" (p. 29 of the reprint)

(26) I have noticed the following passages in Ammonius' discussion of *Int*. 9 where he makes use of at least the distinctive terminology of the second-oldest interpretation. On definitely (or indefinitely) true (or false): 130,23-6; 131,2-4; 138,11-139,20; 141,18-25; 143,17-22; 144,9-14; 145,29-31; 147,20-2; 148,9-10; 149,16-18; 154,10-12; on definite or

indefinite cognition: 133,15-16; 134,25; 135,2; 136,3; 136,14-15; 36,30-137,4; 137,13-14; on definite or indefinite nature: 134,28; 136,2; on nature bringing about all things 'definitely and necessarily'; 148,21-2.

(27) See G. Verbeke (ed.), *Commentaire sur le Peri Hermeneias d'Aristote: Traduction de Guillaume de Moerbeke*, Louvain 1961. The indispensable guide to the earlier medieval development is J. Isaac, *Le Peri Hermeneias en occident de Boèce à Saint Thomas: Histoire littéraire d'un traité d' Aristote*, Paris 1953

9. Leff, Michael C. 1974. "Boethius and the history of medieval rhetoric." no. 25:135-141.

   Near the end of his life, Boethius wrote a treatise entitled *De differentiis topicis*.

   This work was an analysis of topical logic in four books. Its purpose was to rationalize the field of topical logic; the first three books attempted to explicate and synthesize the dialectical theories of Aristotle and Cicero,(3) while the fourth sought to place rhetorical topics within the ambit of this synthesis. Consistent with his purpose, Boethius dealt with rhetoric only insofar as it was relevant to the study of topical logic.

   He certainly did not intend to compose an introductory textbook on rhetoric.(4) Nevertheless, a number of later medieval scholars detached the fourth book of *De differentiis topicis* from its context and approached it as though it was a primer on the art of speaking. This article proposes to explain how and why this development occured.

   As the problem is now stated, it appears to be rather narrow, but, as we shall soon observe, its solution hints at some major conclusions about the history of medieval rhetoric." (pp. 135-136)

10. Lenzen, Wolfgang. 2019. "A Critical Examination of the Historical Origins of Connexive Logic." *History and Philosophy of Logic* no. 41:16-35.

Absract: "It is often assumed that Aristotle, Boethius, Chrysippus, and other ancient logicians advocated a connexive conception of implication according to which no proposition entails, or is entailed by, its own negation. Thus Aristotle claimed that the proposition 'if B is not great, B itself is great [. . .] is impossible'. Similarly, Boethius maintained that two implications of the type 'If p then r' and 'If p then not-r' are incompatible. Furthermore, Chrysippus proclaimed a conditional to be 'sound when the contradictory of its consequent is incompatible with its antecedent', a view which, in the opinion of S. McCall, entails the aforementioned theses of Aristotle and Boethius. Now a critical examination of the historical sources shows that the ancient logicians most likely meant their theses as applicable only to 'normal' conditionals with antecedents which are not self-contradictory. The corresponding restrictions of Aristotle's and Boethius' theses to such self-consistent antecedents, however, turn out to be theorems of ordinary modal logic and thus don't give rise to any non-classical system of genuinely connexive logic."

11. Lewry, Osmond. 1981. "Boethian Logic in the Medieval West." In *Boethius: His Life, Thought and Influence*, edited by Gibson, Margaret, 90-134. Oxford: Blackwell.

    "Almost three centuries after his death, Boethius entered the school-room. With Alcuin of York as master and Charlemagne as pupil, a halting dialogue ensued. This *Dialectica* is a tenuous link between the learning of a member of the old Roman nobility, from the early sixth century, and the studious aspirations of the Frankish kingdom, at the end of the eighth. But the title is an ambitious one for these exiguous remains of classical culture, and even the presence of Boethius here is faint. In sixteen chapters, Alcuin rehearses the rudiments of the old logic. (1) He begins with Porphyry's *Isagoge*, for his account of the five universals, and ends with Aristotle's *Perihermeneias*, for the statement and its parts but, as his dedicatory verses to Charlemagne show, the categories are the core of his work, and for these, lacking the *Praedicamenta* of Aristotle himself, he had to turn to the Themistian paraphrase, the *De Decem Categoriis*, which he ascribes to Augustine. The Pseudo-

Augustine only omits matters of minor importance, but Alcuin received an account of the categories affected by transpositions and mixed with many non-Aristotelian elements. (2) The solid contribution of Boethius himself is in his translations of the *Isagoge* and *Perihermeneias* if there are borrowings from his commentaries and treatises, they are meagre. (3) Of the nineteen valid moods of the categorical syllogism, only four appear in the treatment of argumentation, and these, the moods of the first figure with their premisses interchanged, in a form derived from the *Perihermeneias* of Apuleius and not from the *De Syllogismis Catégoricis* of Boethius. (4) The fifteen kinds of definition derive from a treatise which the Middle Ages attributed to Boethius, but this *Liber de Definìtionibus* was in fact by Marius Victorinus, (5) as Boethius recognised in summarising its teaching. (6) They came to Alcuin through the *Institutiones of Cassiodorus*, (7) and it was sixth-century interpolations in the same source that gave Alcuin some second-hand knowledge of Boethius' *De Differentiis Topicis*. (8)" (pp. 90-91)

(...)

"In the first half of the fifteenth century, however, a reaction against the influence of Boethius can be seen in Lorenzo Valla's preface to his Dialecticae Disputationes. His reference to 'eruditorum ultimus Boetius' and his question, 'How many were there after Boethius whom one would consider worthy to be called a Latin and not a Barbarian?', (150) may suggest more than a grudging recognition for his authority, but elsewhere Boethius is sharply criticised for his doctrine. (151) Valla also thinks that he was overrated by Albertus Magnus among the scholastics and Poggio among the humanists. (152) Despising Aristotle as a man who contributed nothing to civic life and lacked practical skills, Valla's endeavour was to bring logic back from a realm of abstractions to what he regarded as its proper concern, natural expression : in effect dialectic was to be reduced to rhetoric. (153) This enterprise of reduction could not be carried through without a reform of terminology, and this led him, at the beginning of his work, to attack the teaching of the categories as it had been mediated by Boethius (154) and

the Porphyrian hierarchy of substance. (155) His second book extended the reduction to propositional logic; his third to reasoning. Here he poured scorn on Boethius and those who praise him, for their failure to see that the fourth figure syllogisms are but indirect forms of the first. (...) In this humanist reaction the authority of Cicero and Quintilian is preferred to that of Boethius." (pp. 120-121)

(...)

"The preface to the Basel edition of 1570 [*of the works of Boethius*] tempers the criticism of Valla, but passes quickly over the logic to celebrate the achievements of Boethius in mathematics and music. The dedicatory letter recalls the aims of Boethius himself as a translator and commentator and praises him for opening to the Latin world what Aristotle had hidden from many, and judiciously weighing the opinions of antiquity. Regret is voiced that nothing survives of his commentaries on the *Analytica* and *Topica* of Aristotle. Of the logical works, it is the double commentary on the *Perihermeneias* which is particularly valued, and the 'four beautiful books *De Differentiis Topicis*, by which he distinguished dialectical from rhetorical topics'. Mention is still made, though, of the works on the syllogistic and division, (159) so that even if rhetoric had made its inroads here too, the legacy of the Boethian logic was still prized for its own sake." (p. 122)

(1) PL CI. 949B-80B.

(2) See L. Minio-Paluello, 'Note sull'Aristotele Latino Medievale: XV. Dalle Categoriae Decem pseudo-Agostiniane (Temistiane) al Testo Vulgato Aristotelico Boeziano', in *Opuscula: The Latin Aristotle* (Amsterdam, 1972), pp. 448-58, and the same author's edition of the text, *Pseudo-Augustini Paraphrasis Themistiana* (*AL* i. 1-5, pp. lxxvii-xcvi, 129-75)·

(3) See A. van de Vyver, 'Les Etapes du Développement Philosophique du Haut Moyen-Age', *Revue Belge de Philologie et d'Histoire* VIII (1929), 425-52, and the account of Alcuin's work there, pp. 430-2.

(4) See M. W. Sullivan, *Apuleian Logic* (Amsterdam, 1967), pp. 178-82.

(5) Ed. T. Stangl (Munich, 1882); reprinted in P. Hadot, *Marius Victorinus* (Paris, 1971), pp. 329-65.

(6) *In Cic Top* III (PL LXIV, 1098A).

(7) *Cassiodori Senatoris Institutiones* II. 14, ed. R. A. B. Mynors (Oxford, 1937), pp. 119-24.

(8) PL LXX. 1175D12 1190C4.

(150) Quotus enim quisque post Boëtium fuit qui Latinus dici mereatur et non Barbarus: Laurentius Valla, *Opera Omnia* (Basel, 1540), reprinted Turin, 1962, i. 644.

(151) See *Elegantiae* VI, xxxiv (ed. cit., i. 215-16); *De Voluptate* III. xi (ed. cit., I. 973); *Ep. ad Ioannem Aretinum* (Venice, 1503, reprinted Turin, 1962, II. 122).

(152) See *In Pogium Antidoti* II (ed. cit., I. 292-3).

(153) See G. di Napoli, *Lorenzo Valla: Filosofia e Religione nell'Umanesimo Italiano* (Rome, 1971 *Uomini e Dottrine* XVII), pp. 57-99.

(154) *Dialectica* I. i (ed. cit., i. 645-6).

(155) *Ibid.*, I. vii (i. 646-7).

12. Lopez-Astorga, Miguel. 2021. "Aristotle and Boethius: Two Theses and their Possibilities." *Praxis Filosófica* no. 53:69-84.

Abstract: "There is a kind of logical theses that can be a cognitive problem. They are theses that are not tautologies and people tend to accept as absolutely correct.

This is the case of theses such as those of Aristotle and Boethius. This paper tries to give an explanation of the reasons why this happens. The explanation is based on the theory of mental models. However, it also resorts to modal logic and the account of the ideas presented by Lenzen. Thus, relating the general framework of the theory of mental models to basic aspects of modal logic and this last account, a possible solution of the problem is proposed."

13. Magee, John. 1989. *Boethius on Signification and Mind*. Leiden: Brill.

    Contents: Acknowledgements IX; Sigla X; Abbreviations and Editions XI; Introduction 1; I. Aristotle: *Peri Hermeneias* I, 16a3-9; 7; II. Boethius' Translation 49; III. Orandi Ordo 64; IV. Cogitabilis Oratio 93; Afterword 142; Bibliography 150; Index Locorum 155; Index Nominum et Rerum 162-165.

    "The following is a study of Boethius' thought on signification which attempts to situate that thought historically and to evaluate it philosophically. Its justification is found in the present lack of any systematic examination of the subject, (1) and in the intrinsic importance of that subject for the history of later ancient and especially of medieval thought. It is frequently the case that medievalists will have read Boethius' philosophical works with an eye only to subsequent developments; those classicists who bother with him at all will probably have done so out of an interest (one which shows signs of increasing) in investigating the very last stages in the history of ancient learning. That Boethius has sometimes run afoul of misunderstandings originating on both sides of the academic fence can, I believe, be explained in part by the fact that his work as both commentator *and* translator sets him somewhat apart in the history of ancient commentary on Aristotle. As a commentator, he has tended to be ignored by those classical scholars who are accustomed to the massive and weighty Greek commentaries from the likes of Alexander (late 2nd-early 3rd c. AD) and Simplicius (6th c. AD). As a translator, he has sometimes obscured, for the medievalists not working in the Greek tradition of commentary (as indeed for the many medieval writers who depended upon his translations), the prehistory of certain ideas expressed during the course of his commentaries on the texts of what in the Middle Ages came to be known as the *logica vetus*."

    (...)

    "The present work is divided into four chapters, taking as its starting point the lines of Aristotle's *Peri Hermeneias* around which Boethius' theory of signification turns. The first chapter

of the study plunges in *medias res*, and for that the reader's patience is requested. The Greek text is both difficult and compressed, and necessarily brings into consideration questions of the history of transmission and commentary, as well as numerous aspects of Aristotle's thought both in this and in other works. But since Boethius translated either all or part of the *Peri Hermeneias* before commenting upon it, and then revised the translation for the second commentary; and since in his translation, as in all translations, there is an element of "commentary" upon the meaning of the original, it has been thought necessary to come to a clear understanding of what Aristotle wrote before proceeding to the translation and commentaries. After careful examination of the Greek passage and of the questions it poses, there follows in the second chapter an analysis of Boethius' Latin translation of the same, and of the interpretation implicitly contained therein. The third and fourth chapters treat of Boethius' commentaries on the passage, as seen from two points of view: (a) from the way in which Boethius thinks Aristotle to have disposed or ordered the four things (*res, intellects, vox, litterae*) laid down in the context of the doctrine of *Peri Hermeneias* 16a3-9; (b) from the point of view of the theory of cognition Boethius develops in support of the above. The question Boethius ultimately poses for our consideration is: How are the operations of the passive mind converted into words and statements that can be spoken aloud? If his commentaries allow no certain answer to this question, important ground will nevertheless have been gained in studying carefully the way in which Boethius introduces the problem, and then in suggesting the solution which seems most consistent with what is said in his commentaries." (pp. 1-2)

(1) There are two valuable studies by L.M. De Rijk, as well as a short article by K. Berka. Beyond this, however, very little has come to my attention. [De Rijk 1981 and 1988, Berka 1968]

14. ———. 1994. "The text of Boethius' *De divisione*." *Vivarium* no. 32:1-50.

"The *De divisione* of Boethius (= B.) has come down to us in nearly 200 MSS dating from the 10th c. onward. The treatise maintained a position of some importance in the medieval

schools and as a result the textual tradition is highly complex, although it remains unstudied for the most part. L. Minio-Paluello investigated and compared some of the early MSS in the course of editing a fragment of B. 's revised *Topics* translation that sometimes circulated as part of *De divisione*, and he put forward tentative conclusions as to the bearing of his findings on the history of the transmission of De divisione itself. In what follows I undertake to examine the earliest extant MSS of *De divisione* known to me, and to reconsider Minio-Paluello's hypothesis concerning the early period of transmission. The study is in three parts: (a) analysis of the evidence indicating a lost ancient "edition" of *De divisione*, (b) the text of the treatise as transmitted to us by the oldest MSS; (c) a handlist of MSS containing *De divisione*." (p. 1)

15. ———. 1997. "Boethius, *De divisione* 875–76, 891–92, and Andronicus Rhodius." In *A Distinct Voice: Medieval Studies in honor of Leonard E. Boyle, O.P.*, edited by Brown, Jacqueline and Stoneman, William P., 525-560. Notre Dame: University of Notre Dame Press.

    "Thus Boethius begins and ends his treatise on Diaeresis. To ascertain the precise meaning of these two passages is crucial not only for determining the sources from which Boethius worked but for the light they shed on Andronicus of Rhodes, the Peripatetic scholarch (first century B.C.) who is thought to have initiated a revival of Aristotelian studies following the decline that set in after the deaths of Theophrastus and Eudemus. Boethius furnishes specific information concerning Andronicus in only two other places, in which he reports Andronicus's athetizations of the *Postpraedicamenta* and *Peri hermeneias*.

    In the case of the first, what he says is attested also by Simplicius, so that we are not dependent upon Boethius alone in ascertaining Andronicus's view of the final chapters of the *Categories*. In the case of the second, the importance of Boethius's testimony is elevated by the fact that the only parallel for it, in Ammonius, is really no parallel at all: both sources agree that Andronicus condemned the *Peri hermeneias*

as spurious, but they disagree in giving the reasons why." (p. 526, note omitted)

16. ———. 2010. "On the Composition and Sources of Boethius' Second *Peri hermeneias* Commentary." *Vivarium* no. 48:7-54.

    Abstract: "The paper is in three parts, prefaced by general remarks concerning Boethius' logical translations and commentaries: the text of the *Peri Hermeneias* as known to and commented on by Boethius (and Ammonius); the organizational principles behind Boethius' second commentary on the *Peri Hermeneias*; its source(s). One of the main purposes of the last section is to demonstrate that the *Peri Hermeneias* commentaries of Boethius and Ammonius are, although part of a common tradition, quite independent of one another, and special consideration is given to the question of how Boethius interpreted and shaped the doxographical material concerning Aspasius, Herminus, and Alexander that had been handed down to him by Porphyry."

    "Sifting through the interpretations of earlier commentators was painstaking and laborious, Porphyry's interpretation of 19b22-24 alone requiring, as we have seen, seventeen pages of commentary. By about the year 515 Boethius' attention must have been turning toward other projects, to new translations and commentaries, the theological tractates, logico-rhetorical monographs, and so on. If the Peri Hermeneias were allowed to consume so much time and energy, what would become of the rest of the *Organon* and Aristotle, not to mention Plato? Even for a treatise as rich and complex as the *Peri Hermeneias* Boethius may have had finally to calculate his "point of diminishing returns." He may have grown impatient with the project, his copy of Porphyry may have failed, or both. Had he known of the premature end that awaited him, he might have thought differently about how to weight the commentary, might have sought compensation in other projects for problems left unsolved in connection with the *Peri Hermeneias*; but as it is, he left a work which, despite its imperfections, has proved to be one of his most fascinating and influential." (p. 54)

17. ———. 2011. "Preliminary Observations on the Textual Tradition of Boethius' First *Peri Hermeneias* Commentary." In *Logic and Language in the Middle Ages: A Volume in Honour of Sten Ebbesen*, edited by Fink, Jakob Leth, Hansen, Heine and Mora-Márquez, Ana María 13-26. Leiden: Brill.

    "In editing the first of Boethius' two commentaries on Aristotle's *Peri Hermeneias* Carl Meiser essentially worked from a single witness, F (below), which he ranked both *antiquissimus* and *optimus*. (1) Readings from three other munich manuscripts, e (MS Bayer. Staatsbibl. clm 14401, s. XI), M (below), and T (MS Bayer. Staatsbibl. clm 18479, s.XI), he reported *perpetuo more* but with varying degrees of accuracy. (2) He further consulted two st. Gall manuscripts, G (below) and S (MS Stiftsbibl. 817, s. XI-XII) *omnibus locis paulo difficilioribus* — citing them only infrequently, however, in his critical apparatus. from *Peri Hermeneias* 17b20 on, F preserves excerpted lemmata, and Meiser correctly recognized that the supplemented versions found in other witnesses violate Boethius' intention. (3)

    But F is in fact neither *antiquissimus* nor *optimus*, and Meiser's edition suffers from a particular failure to distinguish between the three versions of Boethius' *Peri Hermeneias* translation, two of which form his commentary lemmata. Hence a full assessment of the evidence seems called for. In what follows, I hope to shed some light on certain salient characteristics of the textual tradition." (p. 13)

    (1) Boethius, *Commentarii in librum aristotelis περι ερμηνειασ, pars prior versionem continuam et primam editionem continens*, ed. C. Meiser (Leipzig: Teubner, 1877), pp. VIII-X.

    (2) Cf. J. Magee, 'On the Composition and sources of Boethius' second *Peri Hermeneias* Commentary', *Vivarium* 48 (2010), 15, n. 32.

    (3) Above, n. 1; cf. Aristotle, *De interpretatione vel Periermenias: Translatio Boethii*, ed. L. Minio-Paluello, AL 2.1 (Bruges: Desclée de Brouwer, 1965), pp. XI; LIII.

[MS F = Munich Bayer. Staatsbibl. clm 6374, s. IX

MS M = Munich Bayer. Staatsbibl. clm 14377, s. X-XI]

18. Magnano, Fiorella. 2013. "Boethius: the Division of Logic between Greek and Latin Traditions." In *Ad notitiam ignoti. L'Organon dans la translatio studiorum à l'époque d'Albert le Grand*, edited by Brumberg-Chaumont, Julie, 141-171. Turnhout: Brepols.

"Basically Boethius's division of logic is the foundation of a large number divisions of logic belonging to other medieval philosophers as Peter Abaelard and Albert the Great; for this reason it is extremely important to understand first of all how Boethius developed and understood his own division, and in this paper I will explore just these aspects of Boethius's logical works. Thus, first I will describe Boethius's two divisions of logic presented in his *Isagoge* commentaries. I will then look at his mature attempt to merge the Greek heritage of Aristotle with the Latin heritage of Cicero. Finally, I will focus on Boethius's own division of logic, in order to observe where the art of the topics is exactly placed. To better achieve my goals, it will be necessary to use several diagrams through which the reader can better visualize these complex aspects of Boethius's logical thought." (pp. 142-143, note omitted)

(...)

"Conclusion.

In short, in Boethius's view the *Topics* is the foundational discipline for the dialectician, the rhetorician, and the philosopher, precisely because it is the only way to discover the starting points of all types of argumentation. Boethius arrives at this view through combining in a particularly ingenious and original way the division of logic and the sciences more generally descended from the Aristotelian and Ciceronian, the Greek and the Latin traditions. It is necessary to think of this endeavor as a mosaic composed of many pieces, because combination of the two divisions of logic is only one stage of a much large project, and the instruments used to carry out this plan are numerous. In his second commentary on the *Isagoge*,

Boethius began to stress that this book is also indispensable in order to understand Cicero's *ratio disserendi*. As regards the art of the topics, he translated and commented on Aristotle's *Topics* and, after having commented also on Cicero's Topics he stressed the original axiomatic nature of Ciceronian *loci*, in order to bring out their dialectical value — a process completed in the third book of the *De topicis differentiis* where the Ciceronian *loci* are presented as dialectical *loci*. Finally, after having shown the substantial agreement of Cicero's division of logic (*ratio disserendi*) lwith that directly attributed to Aristotle and called λογικἡ, he also tried to show the agreement between Themistius's and Cicero's divisions of the topics, i.e. the Greek and the Latin traditions on the topics.

All these considerations allow us to conclude that in the fundamental reorganization of the entire logical material of antiquity made by Boethius, it is possible to discern his intention not only to rehabilitate the dialectical value of the topics, but also to return them to the centrality that they had in the authentic Aristotelian system. In this respect, Boethius does not simply repeat a neo-platonic thesis, because no neo-platonic philosopher gave, as far as know, real attention to Aristotle's *Topics*. On the contrary, Boethius re-established their use, and this is one of the most important aspects of Boethius's own contribution to the development of logic. The importance of this cultural phenomenon was really enormous, since this division of logic, like this role of the topics, were the specific ways in which philosophers received and used them in the Middle Ages." (pp. 170-171, note omitted)

19. ———. 2017. *Boethius on Topical Differences: A Commentary*. Barcelona - Roma: Fédération Internationale des Instituts d'Études Médiévales.

"A few years after writing his commentary on Cicero's *Topica* (finished before AD 522), Severinus Boethius (ca. AD 480 to 524) composed his last monograph on logic, the aim of which was to present a defi nitive work on the discipline of topica. The *De topicis differentiis* (completed before 523) is divided into four books, and the text is remarkable for the systematic nature in which the subject is put forth, a clear sign of Boethius's

desire to achieve completeness and of the didactic motivations for his writing the text." (*Introduction*, pp. IX-X, notes omitted)

(...)

"3. The partition of the *De topicis differentiis*

The first book presents a compendium of basic knowledge on logic that a student must possess in order to embark on the study of this discipline.

Boethius explains the meaning of the terms *propositio, quaestio, conclusio, maxima propositio*, and *argumentum* – it is to be noted that these last concepts recall the elements of which a syllogism is composed. In the second book, the concept of *argumentatio* is introduced, along with two species of loci that can be linked directly to Themistius, the *maxima propositio* and *maximarum propositionum differentiae*, while the following portion of the second book is dedicated to a presentation of the list of Themistius's *maximae propositiones* and their *differentiae*. In the third book, Cicero's division of the loci is introduced, so that the first objective announced in the *intentio operis* is achieved, namely to show the ways in which the divisions of the Themistian and Ciceronian loci are different and similar, and in what way each can in turn contain the other. The fourth and last book is entirely dedicated to rhetoric and the exhibition of the *loci rhetorici,* so that the second objective announced in the intentio operis is accomplished, namely to show how the

loci rhetorici are distinguished from each other and from the *loci dialectici*." (*Introduction*, p. XV, a note omitted)

20. Maloney, Thomas S. 2003. "Boethius on Aristotle on the Division of Statements into Single/Multiple and Simple/Composed." *Carmina Philosophiae* no. 12:49-74.

"The goal of this paper, then, is to set forth and clarify the second and third divisions of statements proposed by Aristotle in Chapter 5 of *On Interpretation* and to see what, if any, additions or corrections are made by Boethius. The quest proceeds by responding to six questions, and these will be

followed by comments on a few statements that can be taken as statement types that present special problems for Aristotelian and/or Boethian analysis." (pp. 50-51)

(...)

"But, on balance, Boethius is to be much commended for his labor to make Aristotle's comments on the division of statements into single/multiple and simple/composed more comprehensive and comprehendible. His clarifications lead us considerably beyond the Aristotelian text. His is surely a successful effort, and we are left to wonder just what use the Medievals will make of this valuable assistance.(51)" (p. 69)

(51) For a response, see my "Roger Bacon on the Division of Statements into Single/Multiple and Simple/Composed," *The Review of Metaphysics*, forthcoming. [Vol. 56, No. 2 (Dec., 2002), pp. 297-321]

21. Marenbon, John. 2003. *Boethius*. Oxford: Oxford University Press.

    Contents: Abbreviations of Boethius's Works XV; 1 Introduction 3; 2 Life, Intellectual Milieu, and Works 7; 3 Boethius's Project: The Logical Translations and Commentaries 17; 4 The Logical Textbooks and Topical Reasoning: Types of Argument 43; 5 The *Opuscula Sacra*: Metaphysics, Theology, and Logical Method 66; 6 The *Consolation*: The Argument of Books I-V.2 96; 7 The *Consolation*, V.3-6: Divine Prescience, Contingency, Eternity 125; 8 Interpreting the *Consolation* 146; 9 Boethius's Influence in the Middle Ages 164; Notes 183; Bibliography 219; Index Locorum 237; General Index 243-252.

    "As a translator, Boethius was extremely literal, sacrificing Latin style, of which the *Consolation* shows his mastery, to precision. So far as possible, he follows the word order of the Greek and tries to render each word, even the particles. The result, though grammatical, is often awkward and heavy, but it is accurate — although there are some cases where his choice of word and phrasing does betray his own, particular interpretation of the text. (6) He seems to have revised each of

his translations, and there is evidence of two forms for all of them except the *Sophistical Refutations*. (7)

As a commentator, again Boethius concentrated on logic, although he did apparently write some sort of glosses or commentary to Aristotle's *Physics*. (8)

His work as an exegete stretched less widely over Aristotelian logic than his translations: he provided, as already mentioned, two commentaries each for the *Isagoge* and *On Interpretation*, one (or perhaps two) for the *Categories*, a commentary on Cicero's *Topics*, 9) very probably a commentary on (Aristotle's) *Topics* and some glosses, at least, for the *Prior Analytics*. (10) He also wrote a set of logical monographs, mainly on different sorts of argument (see chapter 4).

Since Boethius's working life was unexpectedly and violently curtailed, his failure to complete his original plan cannot be taken as proof that he did not propose it in earnest. Still, he seems to have given logic the priority and was willing in this area to go beyond the project he had set out, writing double commentaries and logical monographs, rather than hurrying on to Aristotle's nonlogical works and to Plato."

(7) In the case of the *Categories*, the two versions that survive are Boethius's final version and a 'composite' version, which is probably an earlier draft by Boethius, improved by using the lemmata of his commentary (close to his final version of the translation); see Asztalos (1993) 371-72. There is a very clear summary of scholarship on Boethius's translations in Chadwick (1981) 131–41; the fundamental work was done by Minio-Paluello — see Minio-Paluello (1972) and the introductions to the *Aristoteles Latinus* editions (*Aristoteles Latinus*, 1961–).

(8) See Chadwick (1981) 139, who cites *2InDI* 190:13, 458:27 and *TC* 1152B.

(9) I discuss this commentary in chapter 4 below, because it is closely related to Boethius's treatise on topical reasoning.

(10) As Obertello (1974) 229 has noted, Boethius refers to a commentary by him on Aristotle's *Topics* in his *On Topical*

Differentiae, 1191A, 1216D. But none has survived. He also clearly refers to having expounded 'the *Analytics*' (cf. Obertello (1974) 229–30); Minio-Paluello has discovered marginal annotations in a medieval manuscript of the *Prior Analytics* which, he argues, are Boethius's: see *Aristoteles Latinus* (1961–) III.1–4, lxxix–lxxxviii and (for edition of the scholia) 295–372.

References

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Chadwick, H. (1981) Boethius. *The Consolations of Music, Logic, Theology, and Philosophy* (Oxford; Oxford University Press).

Minio-Paluello, L. (1972) *Opuscula: the Latin Aristotle* (Amsterdam; Hakkert).

Obertello, L. (1974) *Severino Boezio* (Genoa; Accademia Ligure di Scienze e Lettere).

22. ———. 2008. "Logic before 1100: The Latin Tradition." In *Mediaeval and Renaissance Logic*, edited by Gabbay, Dov and Woods, John, 1-63. Amsterdam: Elsevier.

See pp. 6-21: 2.2 Boethius 6; Boethius the Translator 7; The Neoplatonic Aristotelian Tradition 8; Boethius and the Commentary Tradition 9; Boethius's Logical Treatises 14; Boethius and Topical Argument 18; Boethian Logic and its Survival 20-21.

"Boethius is by far the most important figure in the ancient tradition of Latin logic, but it is important to realize that the Boethian Tradition was not the only ancient Latin one. The logic of the earlier Latin authors, along with, or transmitted by, later encyclopaedic accounts, provided a separate tradition, which would be the one on which, more than Boethius, medieval logic depended in the period up to the late tenth century. It is in the eleventh century that the Boethian Tradition begins to dominate (See §4 below). The twelfth

century was the Golden Age of Boethian Logic: the six works that formed the core of the logical curriculum were Boethius's monographs and his translations of the *Isagoge*, *Categories* and *On Interpretation*, which were taught making extensive use of his commentaries. And the *Prior Analytics* and *Sophistical Refutations*, also in his translation, began to be known.

As a result of the introduction of the whole range of Aristotle's writing and its adoption, by the mid-thirteenth century, as the Arts course in the universities, and with the development of the *logica modernorum*, branches of logic newly devised by the medieval logicians themselves, Boethian Logic became less important in the thirteenth and fourteenth centuries, although his translations continued to be used by all students of logic, and some outstanding theologians, such as Albert the Great, Aquinas and William of Ockham, made some use of his commentaries.

Moreover, *On Division* and *TD* [*De Topicis differentiis*] remained part of the standard university logical collections — and commentaries were even written on *TD* in the thirteenth century.

The monographs on categorical syllogisms were no longer useful now that the *Prior Analytics* itself was known, and the treatise on hypothetical syllogisms too was forgotten [see C. J. Martin. Denying Conditionals: "Abaelard and the Failure of Boethius' Account of the Hypothetical Syllogism", *Vivarium*, 45, 153-68, 2007.].

23. ———. 2008. "Logic at the turn of the Twelfth century." In *Mediaeval and Renaissance Logic*, edited by Gabbay, Dov and Woods, John, 65-81. Amsterdam: Elsevier.

"The model for the most widespread type, the 'composite' commentary, was provided by Boethius's commentaries, where each section of the text was discussed discursively, and problems were raised, explained and resolved.

(...)

Boethius, however, did not go in detail through every word of the text (although the elementary first editio on *On Interpretation* does from time to time gloss individual sentences). The twelfth century logicians added an element of literal, phrase by phrase commentary, quite often put in the first person, so that the commentator is speaking for Aristotle, Porphyry or Boethius, as if these authors were to have paused to explain their texts more explicitly and ponderously. In the other, slightly less common type, 'literal commentary', this very detailed commentary predominates, and discursive discussion is more limited. Literal commentaries are, then, distant formally

from the model of Boethius, and they are usually distant in content too, whereas some composite commentaries contain many passages borrowed from, or closely based on, Boethius. 'Literal' and 'composite' should not, however, be thought of as designating two completely distinct classes: literal commentaries contain some more discursive comments, and composite commentaries can have sections where the exegesis is merely literal. There were also 'problem commentaries' (the best known is Abelard's *Logica Nostrorum petitioni sociorum*), which concentrated on discussing the difficult issues, with very little or no literal commentary. None of these has been dated to before c. 1120, but they should be born in mind, since it will turn out that the chronology of the commentaries is far less fixable than has been believed." (pp. 66-67)

24. Martin, Christopher John. 1991. "The Logic of Negation in Boethius." *Phronesis* no. 36:277-304.

"Boethius' *de Hypotheticis Syllogismis* is by far the most extensive account of the conditional and its logic to have survived from antiquity. A rather obscure and tedious work, it has puzzled commentators from Peter Abaelard to Jonathan Barnes. Most of the difficulties that they have had in extracting the principles of Boethian logic seem to me to follow from the assumption that what he offers is an account of the application of propositional operators to propositional contents. Though generally not made explicit by modern historians, the concepts of propositional content and propositional operation are

nevertheless presupposed by the symbolic apparatus which they typically use to represent the claims of ancient and mediaeval logics. I will try to show that an examination of Boethius' theory of language forces us to give up the assumption that his logic is propositional and that when we do so his remarks on compound propositions turn out to be rather less mysterious than they have seemed." (p. 277)

25. ———. 1999. "Non–reductive Arguments from Impossible Hypotheses in Boethius and Philoponus." *Oxford Studies in Ancient Philosophy* no. 17:279-302.

    "While there seems to be no record of an ancient debate over the paradoxes of strict implication anticipating those of the twelfth and twentieth centuries, we can, I think, advance our understanding of ancient attitudes to conditionals with antecedents acknowledged to be impossible by considering some hitherto neglected remarks made by Boethius. I shall try to show in the present paper that at least in late antiquity some philosophers were happy to introduce acknowledged impossibilities as hypotheses and to draw inferences from them without any suggestion that there might be indefinitely inflationary consequences. By these philosophers at least, the conditional was understood relevantistically." (p. 281)

26. ———. 1999. *Theories of Inference and Entailment in the Middle Ages*.

    Unpublished dissertation available at ProQuest Dissertation Express ref. n. 9948627.

    Contents: Abstract III; Brunellus VI; Introduction VII; 1 The Logic of Negation in Boethius 1; 2 Thinking the Impossible 56; 3 Embarrassing Arguments and Surprising Conclusions 106; 4 The Logic of the Nominales 148; 5 Obligations And Liars 243; 6 Nothing Grows 310; 7 *Impossible Positio* and the Foundations of Metaphysics 344; Abbreviations 439; Bibliography 441-457.

    "Boethius provided the middle ages with much of its information about ancient logic and philosophical semantics and in chapter 1 I try to rescue his work from some of the false and misleading claims that have been made about it. I argue

that Boethius has no notion of propositionality in our sense and so no notion of a propositional operation and that this explains two peculiar features of his logic. First his apparent commitment to conditional excluded middle. Second the fact that rather than offering a single schema for a hypothetical syllogism and a rule of substitution he rings all the changes on the the various forms of premisses and conclusion. Boethius knows only how to negate categorical propositions and it is his application of predicate negation to conditional propositions which explains his account of their logical

relations. Once this is properly understood it is possible, as I show, to give a plausible reconstruction of his theory of the hypothetical syllogism. Boethius has been thought to be committed to the logical principles of what is now known as connexive logic. I argue that this is not true in the sense proposed but that he does accept and transmits to the middle ages an argument for 'connexivity' from the Prior Analytics which is crucial for the development of theories of the conditional in the twelfth century." (Introduction, pp. VIII-IX)

27. ———. 2009. "The Logical Textbooks and their Influence." In *The Cambridge Companion to Boethius*, edited by Marenbon, John, 56-84. Cambridge: Cambridge University Press.

"The time at which Boethius wrote was not a great one in the history of logic and he himself was certainly not a great logician. His importance lies rather in acting as an intermediary between the logicians of antiquity and the those of the Middle Ages. With his translations (1), commentaries (2) and independent logical works (3) Boethius provided mediaeval philosophers with most of what they knew about ancient logic and so with the foundations upon which mediaeval logic was built. The most important parts of those foundations were the metaphysics of substance and semantics of common names which could be extracted from Boethius' commentaries on the *Isagoge*, *Categories*, and *De interpretatione*, his account of conditional propositions in *De hypotheticis syllogismis*, and his treatment of topical argumentation in *De topicis differentiis*. Boethius' own peculiar contribution to the history of logic was an exposition of the hypothetical syllogism which, for the

reasons we will consider here, would play no role in the development of logic after the middle of the twelfth century." (p. 56)

(1) Boethius' translations of Porphyry's *Isagoge*, and Aristotle's *Categories* and *De interpretatione*, were known throughout the Middle Ages. His translations of the *Sophistical Refutations*, *Topics* and *Prior Analytics* were rediscovered during the first half of the twelfth century. Boethius' translation of the *Posterior Analytics* (if he made one) apparently did not survive into the Middle Ages.

(2) On the *Isagoge* (1IS, 2IS), on the *Categories* (CAT), on *De interpretatione* (1IN, 2IN), on Cicero's *Topica* (TC).

(3) On the categorical syllogism covering the material dealt with in *Prior Analytics* I.1–7 (ISC and SC), on topical inference (TD), on the hypothetical syllogism (SH), on division (D).

28. ———. 2011. "*De Interpretatione* 5-8: Aristotle, Boethius, and Abelard on Propositionality." In *Methods and Methodologies. Aristotelian Logic East and West, 500-1500*, edited by Cameron, Margaret and Marenbon, John, 207-228. Leiden: Brill.

"Boethius' commentaries on *de Interpretatione* provided the Middle Ages with their introduction to the theory of meaning. Boethian semantics is developed on the basis of the distinction made by Aristotle in *De Interpretatione* 1, between the signification of terms and that of affirmations and negations – defined, remember, as the species of simple assertions. On this account of them affirmations signify mental states in which the mental items signified by their component significant terms are combined and negations signify mental states in which they are separated. Missing in the theory is an account of compound propositions showing how their meanings are obtained from the meanings of their components. Such an account requires a notion of unasserted propositional content. With it we may also locate what is common to different speech acts and explain how it is that they differ. The relevant differences are the differences in what we now call their force." (p. 211)

29. Martin, John N. 1989. "A Tense Logic for Boethius." *History and Philosophy of Logic* no. 10:203-212.

    Reprinted as Chapter 5 in: J. N. Martin, *Themes in Neoplatonic and Aristotelian Logic. Order, Negation and Abstraction,* Aldershot: Ashgate, 2004, pp. 53-63.

    Abstract: "An interpretation in modal and tense logic is proposed for Boethius' reconciliation of God's foreknowledge with human freedom from *The Consolation of Philosophy,* Book V. The interpretation incorporates a suggestion by Paul Spade that God's special status in time be explained as a restriction of God's knowledge to eternal sentences. The argument proves valid, and the seeming restriction on omnipotence is mitigated by the very strong expressive power of eternal sentences."

30. McKinlay, Arthur Patch. 1938. "The *De syllogismis categoricis* and *Introductio ad syllogismos categoricos* of Boethius." In *Classical and Mediaeval Studies in Honor of Edward Kennard Rand: Presented Upon the Completion of His Fortieth Year of Teaching*., edited by Rand, Edward Kennard and Leslie, Webber Jones, 209-219. Freeport, N.Y: Books for Libraries Press.

31. Mignucci, Mario. 1989. "Truth and modality in late antiquity: Boethius on future contingent propositions." In *Le teorie delle Modalità. Atti del Convegno internazionale di storia della logica*, edited by Corsi, Giovanni, Mangione, Corrado and Mugnai, Massimo, 47-78. Bologna: CLUEB.

    Reprinted as Essay 11 in Andrea Falcon, Pierdaniele Giaretta (eds.), *Ancient Logic, Language, and Metaphysics: Selected Essays by Mario Mignucci,* New York: Routledge 2020.

    "Aristotle's analysis of future contingents in *On Interpretation* 9 has generated a great deal of discussion, ranging from the interpretation of his own words to the philosophical meaning and adequacy of the solution proposed by him. Unfortunately, the former question is entailed by the latter, and there is no agreement about the kind of answer that Aristotle gives to the question of determinism despite the astonishing quantity of

works dedicated to it. I do not want to involve myself in the problem of Aristotle's interpretation. My task here is to illustrate the meaning and relevance of Boethius' s analysis of future contingents, and I will consider his commentary on the *On Interpretation* for its own sake. In other words, I will not try to evaluate the adequacy of Boethius' s proposal with respect to Aristotle, even if, of course, he believed that his interpretation was faithful to the text of the *On Interpretation*. Nor will I try to compare Boethius's solution with other solutions that have been proposed by ancient and modern interpreters alike who have tried to

explain Aristotle's text. I will consider only one view other than that of Boethius because Boethius himself discusses it and his discussion is relevant to the understanding of his position." (p. 47, a note omitted)

32. Minio-Paluello, Lorenzo. 1942. "The Genuine Text of Boethius' Translation of Aristotle's *Categories*." *Mediaeval and Renaissance Studies* no. 1:151-177.

    Reprinted in L. Minio-Paluello, *Opuscula. The Latin Aristotle*, Amsterdam: Hakkert, 1972, pp. 1-27.

    "It is known that Boethius wished to make translations of all the works of Aristotle and to comment on them, (1) but fate brought him to imprisonment and death before he was able to carry out his plan. That he translated the works on logic is certain. True, some scholars have doubted whether he translated the *Analytics, Topics* and *Sophistici Elenchi,* (2) but no one disputes that he both translated and commented on the *Categories* and the two books *De interpretatione*. This can be established with certainty by the references he makes elsewhere to these works of his, (3) by the tradition which begins with Cassiodorus (4) and is thus contemporary, and by the unanimity of the manuscripts of the *Commentaries*. (5) All scholars agree, and rightly so, on this point.

    On another point, however, scholars have been entirely mistaken. They have held that the translation of the *Categories*, which from the tenth century onwards appears in innumerable manuscripts, now scattered over European and even American

libraries, is by Boethius. This is the text, often printed in the fifteenth and sixteenth centuries and also reproduced in the Patrologia Latina of Migne and in the editions of Notker's works. (6)

It is the objet of the present study to prove that this is a mistake and to make known the genuine translation of Boethius, which until a short time ago remained buried in a small number of manuscripts. It is hoped also to correct certain errors arising out of this mistaken attribution and thus to throw fresh light on the history of the study of the *Categories* and of the translations from the Greek in the tenth century." (pp. 151-152)

(...)

"To conclude, I hope I have made clear the following points:

(1) That a version of the *Categories*, whose author has hitherto not been recognized, is the work of Boethius;

(2) that the version, which up till now has been ascribed to Boethius partly belongs to the tenth century; and therefore

(3) that there is a mediaeval translation of Aristotle into Latin at a date much earlier than is commonly supposed." (p. 26)

I wish to thank Dr. Decima Douie for her help in translating this article, and the Editors of this Journal for their criticism and advice.

(1) 'Ego omne Aristotelis opus, quodcumque in manus venerit, in Romanum stilum vertens eorum omnium commenta latina oratione perscribam . . .' (*Comment. Second, in Arist. De interpret.* 79, 16 ff. Meiser). P. Mandonnet (*Siger de Brabant*, Fribourg 1899, xxiv f.) alone believes that Boethius had really translated all Aristotle, and quoting Migne (!) Sstates that 'on possède les commentaires de Boèce sur tous les livres de la logique'.

(2) E.g. M. Grabmann, *Gesch. d. schol. Meth.* II, 71. Even he, however, recognised the value of the references of Boethius to his translations (*In top. Cic.* PL 64 col. 1051; 1052; *De diff. top.* 1173; 1184; 1193; 1216). On the question of the authorship of the

translations of these works preserved under the name of Boethius, see B. Geyer, *Die alten lat. Uebersetz. d. arist. Analytik, Topik und Elenchik* (Philos. Jahrb. d. Görres-Gesellsch. 30 [1917] 25 ff.); C. H. Haskins, *Studies in the histiory of mediaeval science*, Cambridge Mass. 1927, p. 228 ff.; M. Grabmann, *Forsch, üb. d. lat. Arist.-Uebersetz. d. XIII. Jahrb*. (BGPM XVII, 5-6, p. 130); id., *Bearbeitungen u. Ausleg. d. arist. Logik aus d. Zeit v. Abaelard bis Petrus Hisp*. (Abh. Preuss. Akad. 1937), p. 10; E. Franceschini, *Aristotele nel Medio Evo latino* (Atti del IX Congr. naz. di filos., Padova 1934-35, p. 5 ff.).

(3) See S. Brandt, *Entstsehungsz. u. zeitl. Folge d. Werke von Boethius* (Philologus, N. F. 16 [1903] 141-154 and 234-275).

(4) Variae I 45, cap. 4 f. *Institut*. II 18 (p. 128 ed. Mynors, see Introduction xxviii); *Anecdoton Holderi* (ed. Usener), p. 4. On the question of Cassiodorus' testimony see below, Appendix.

(5) The incipit of the *Commentary to the Categories* in almost every manuscript is : 'Anicii Manlii Severini Boethii, viri clarissimi ex consulum ordinibus editio prima super Categorias a se verbum de verbo translatas e graeco in latinum'; and the incipits of the two *Commentaries on the De interpretatione* are nearly the same.

(6) At least 350 manuscripts of the *Categories* are till preserved. Not less than 24 editions were published in the 15th century (see *Gesamtkatal. d. Wiegendr*. nos. 2335-2342; 2390-2393; 2396-2400; 2406-2410; 4511-4512). In the Patrologia of Migne the translation is only printed as *lemmata* to the Commentary (voi. 64 col. 159-294). After editions by Graff and Hattemer, a critical edition of Notker's works was given by P. Piper (*Die Schriften Notkers und seiner Schule*, Freiburg 1882); the commented and translated text of the *Categories* is in vol. I, 367-495.

[Minio-Paluello published the critical editions of Boethius' translation of Aristotle's *Categories* in 1961 (*Translatio Boethii*).]

33. ———. 1945. "The Text of the *Categoriae*: The Latin Tradition." *Classical Quarterly* no. 39:63-74.

    Reprinted in L. Minio-Paluello, *Opuscula. The Latin Aristotle*, Amsterdam: Hakkert, 1972, pp. 28-39.

    "The Latin versions of Aristotle's *Categoriae* have never received much attention from the editors of the Greek text. J. Th. Buhle (*Arist. Op. Omn.* I, Bipont. 1791) and Th. Waitz (*Arist. Organ*, I, Lpz., 1844) availed themselves of Latin texts, but in a very unsatisfactory way; and since them the Latin field has remained unexplored throughout the last hundred years, in which both Hellenists and Orientalists have done much to increase our knowledge of the textual tradition of the *Categ*. It is the purpose of these pages to give a summary account of the Latin tradition and to contribute to a revision of the Greek text by a collation of Boethius' recently discovered translation with the best printed Greek and Oriental sources.

34. ———. 1957. "A Latin Commentary (? translated by Boethius) on the *Prior Analytics* and its Greek sources." *Journal of Hellenic Studies* no. 77:93-102.

    Reprinted in L. Minio-Paluello, *Opuscula. The Latin Aristotle*, Amsterdam: Hakkert, 1972, pp. 347-356.

    "Cod. Florence Bibi. Nazion. Centn Conv. Soppr. J.VI.34—formerly in Niccolò Niccoli's and St. Mark's libraries—written in a beautiful French hand of c. a.d. 1150-1200—contains the second edition of Boethius's translation of *Pr. An.* (1) Many scholia, written on the margins and between the lines by the same calligraphic hand which wrote the Aristotelian text or by a hand very similar to and contemporary with it, accompany the translation in this MS. They are mainly concentrated in about one-half of the work, viz. in book I.23 -30 (400-463) and book II (52a-70b); quite a few accompany I. 1,5-6,30-45 (24a, 27b-28a, 46a-50a) ; almost none is to be found in I.10-14,17-22 (30b7-33b25, 37a25-40b10). Arrangement and writing suggest that the scribe intended to give the reader Aristotle's text together with what was available to him of an authoritative commentary.

The scholia range, in nature and extent, from short glosses on single words or phrases and short summaries of sections of Aristotle's work to detailed explanations and doctrinal developments of important or difficult passages. Here and there carefully drawn diagrams illustrate logical rules and geometrical examples." (p.93)

(...)

"The Florentine MS. is quite unique among all the Latin manuscripts of *Pr. An.* It is the only one, out of about two hundred and seventy, that contains—and contained—only the *Pr. An.*; out of a hundred and twenty so far examined, it is the one which seems to contain the second, and very rare, edition of Boethius's translation in its purest form, and the only one which contains the 'corpus' of Greek scholia translated into Latin; (21) the paleographical characteristics—big letters throughout, even for the scholia, spaciousness, very careful transcription—suggest that we are in the presence of a library copy of an important text of the past.

The attribution to Boethius remains hypothetical; but the linguistic argument in its favour, if expounded in detail, might prove very strong; our other arguments strengthen it. No argument against this attribution has so far suggested itself." (p. 102)

(21) Only scanty fragments from the scholia are also preserved in two or three of the many manuscripts inspected. The only important exception is in the figure of the 'pons asinorum', which exists in most MSS.; but it is likely that Boethius ha included it in the text of Aristotle itself, as it appears in Greek copies of *Pr. An.* independently of any commentary or scholia.

35. Nikitas, Dimitrios Z. 2012. ""Exemplum logicum Boethii": reception and renewal." In *Greek into Latin from Antiquity until the Nineteenth Century*, edited by Glucker, John and Burnett, Charles, 131-144. London - Turin: The Warburg Institute - Nino Aragno Editore.

"In his essay (" Exemplum logicum Boethii : Reception and Renewal") D. Nikitas shows the extent and nature of Boethius's

reception of the exemplum logicum from a long tradition that goes back to Aristotle himself, as well as his innovations in this technique. As a member of the Aristotelian-Neoplatonic school of Alexandria, Boethius draws the material for his use of exempla logica from Greek and Roman sources and from his own contemporary environment. Nikitas analyzes numerous exempla translated by Boethius along with Aristotle's text, others in which Boethius's active intervention is clear, new exempla absent from Aristotle, and exempla drawn from other sources." (Ioannis Deligiannis, from the Review of *Greek into Latin from Antiquity until the Nineteenth Century*, Bryn Mawr Classical Review, 2012.)

36. ———. 2019. "The early literary construct of Boethius: *In Isagogen Porphyrii commenta*, editio prima." In *Aristotle and his Commentators: Studies in Memory of Paraskevi Kotzia*, edited by Golitsis, Pantelis and Ierodiakanou, Katerina, 107-130. Berlin: de Gruyter.

    "I wished to present above, in the most concise way the literary particularities of the dialogue *In Isagogen Porphyrii commenta, editio prima*. With this work Boethius, in the prime of his youth, begins to realize his authorial plan and his patriotic goals.

    In a time when the *urbs aeterna* has ceased to be the center of the World, he wishes to revive it with the fresh spring water of the Aristotelian Platonism of Alexandria.

    His two dialogues serve this purpose: his maiden commentary on Porphyry and his sublime allegorical Menippial satire, bound with his own blood. Boethius' considerable literary abilities, recognized in the *De consolatione Philosophiae*, can also be observed in his maiden Aristotelian dialogue which, true to the praecepta of the Neoplatonic school of Alexandria, contains literary embellishment. The "last of the Romans" in this "scholastic" treatise achieves the connection of specialized contemplation with literature, beauty and sweetness of word with the depth and preciseness of thought. Alexandrian Neoplatonism here embraces the Roman language and literary tradition while at the same time the Aristoteles Latinus, who

would decisively water the tree of European civilization, is formed." (pp. 129-130)

37. Pizzi, Claudio. 1977. "Boethius' Thesis and Conditional Logic." *Journal of Philosophical Logic*:283-302.

38. Prior, Arthur Noman. 1953. "The Logic of Negative Terms in Boethius." *Franciscan Studies* no. 13:1-6.

    "Historians of logic have recently been turning their attention to the *De Syllogismo Hypothetico* of Boethius, and have found in it a quite highly developed propositional calculus.(1) So far as we are aware, however, his *De Syllogismo Categorico* and his *Introductio ad Syllogismos Categóricos* have not yet been subjected to similar scrutiny; and in the latter work at least there are features of considerable interest.

    The *Introductio ad Syllogismos Categoricos* resembles the *De Syllogismo Hypothetico* in exhibiting a special interest in the results of attaching a negative particle to an element or to the elements of a proposition. Just as he gives in the latter work an exhaustive account of such varieties of the conditional proposition as 'If p then not q', 'If not p then q', 'If not p then not q', 'If p then if q then not r', and so on, so in the *Introductio* he considers the relations of opposition, entailment, and so on which hold between categorical propositions with and without negative (or as he calls them 'infinite') terms. In doing this he does not use variables such as 'a' and 'b' , but the concrete terms which he uses are selected on a definite principle, which we shall now illustrate." (p. 1)

    (1) See, in particular, K. Diirr, *The Propositional Logic of Boethius* (NorthHolland Publishing Co., 1951); R. van den Driessche, " Sur le 'de syllogismo hypothetico' de Boèce," Methodos Vol. I, No. 3; I. M. Bochenski, *Ancient Formal Logic* (North-Holland Publishing Co., 1951), pp. 106-109.

39. Reesor, Margaret E. 1972. "*Poion* and *Poiotes* in Stoic Philosophy." *Phronesis* no. 17:279-285.

    "The second category, *poia*, is the most puzzling of the four Stoic categories.' The general term *poion* (qualified) included the *koinos poion* (generically qualified) and the *idios poion*

(individually qualified), but the relationship between these two concepts is by no means clear. It is even more difficult to see how they were connected with the *idia poiotes* (particular quality) and the *koine poiotis* (common quality).

In order to explain how the four terms were related, I shall undertake in this paper as thorough an investigation as possible of a diaeresis described by Boethius in his Commentary on Aristotle's De Interpretatione." (p. 279)

(...)

"In this paper I have stated my reasons for believing that the *idios poion*, the *koinos poion*, the idia poiotes, and the *koine poiotes* all have a place in the second Stoic category and that the relationship of one term to another can be reconstructed from Boethius' diaeresis." (p. 285)

(1) For the fragments of the Old Stoa I have used H. von Arnim, *Stoicorum Veterum Fragmenta*, Berlin, 1905, and I have referred to them by the number of the book and fragment. The categories are listed by Simplicius (11.369), and Plotinus (II.371).

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History of Logic

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Bibliography on Boethius' logical works and Commentaries (Shi-Z)

Studies in English

1. Shiel, James. 1957. "Boethius and Andronicus of Rhodes." *Vigiliae Christianae* no. 11:179-185.

   "G. Pfligersdorffer has recently described the attitude of the ancient editor, Andronicus of Rhodes, towards the final notes in Aristotle's Categories on opposites, simultaneity, priority, motion and possession-what the medievals called the postpraedicamenta. (1)

   The scholar has based his intricate arguments on a passage of Boethius' commentary on the *Categories*, and as this passage in the printed editions (2) is syntactically unintelligible he has suggested an emended text of it." (p. 179)

   (...)

   "On the basis of the passage thus emended (...) the author argues that: (a) Andronicus does not imply that Aristotle was not the real author of the postpraedicamenta but only that Aristotle was not responsible for annexing them to the Categories; ..." (p. 180)

   (...)

   "I believe that the text of the Boethius passage can be more convincingly presented from a wider survey of the extant manuscripts of the *In Categorias*." (p. 181)

   (...)

"The text I have proposed will still support Pfligersdorffer's argument (a) noted above -- but none of the others." (p. 185

(1) G. Pfligersdorffer, "Andronikos von Rhodos und die Postpradikamente bei Boethius" (*Vigiliae Christianae* 7 (1953), 98-115).

(2) ed. Glareanus, Basel, 1546; reprinted (badly) in Migne PL 64 [263b].

2. ———. 1958. "Boethius' Commentaries on Aristotle." *Mediaeval and Renaissance Studies* no. 4:217-244.

   Revised version in: R. Sorabji (ed.), *Aristotle Transformed. The Ancient Commentators and Their Influence,* London: Duckworth, 1990, pp. 349-372 (Second edition New York: Bloomsbury 2016, pp. 377-402) also reprinted in: Manfred Fuhrmann und Joachim Gruber (Hrsg.), *Boethius,* Darmstadt: Wissenschaftliche Buchgesellschaft, 1984 pp. 155-186.

   Citations are from the reprint in Sorabji 2016.

   "It is recognised that Aristotelian logic, which was to become an integral part of medieval scholasticism, was first transmitted to Latin Christianity through the work of Boethius. But the way in which he set about his self-imposed task has never been determined in detail. (1) We know that he promised to translate and comment 'upon every single work of Aristotle I can lay hands on (*omne Aristotelis opus quodcumque in manus venerit*)'. (2) To form the idea was a silent judgment on the learning of his day; to realise it was more than one man could accomplish; but Boethius accomplished much.

   (...)

   The genuine texts of Boethius' versions of Aristotle (except that of the *Posterior Analytics*) have now been identified among the manuscripts and his distinctive method of translation firmly identified.(5) The present article therefore proposes to examine the other extant results of Boethius' promise, the commentaries and treatises. Are they really original or are they too translated from Greek?" (p. 377)

   (...)

"The general impression produced by this study is that Boethius in composing his commentaries on the *Organo*n translated Greek notes which he found added to his text of Aristotle. If this is true, it gives us new insight into the way Boethius worked.

From the beginning it is evident that he considered the works of the *Organon*, including Porphyry's *Isagoge* (which Neoplatonic schoolwork put on a par with Aristotle), as a united whole." (p. 398)

(...)

Cicero retired to his Tusculan study, Boethius to his 'study walls adorned with ivory and glass (*bibliothecae comptos ebore ac vitro parietes*)'. Our study of him as a translator emphasises anew his remarkable role of transmission: through him Aristotelian logic, the equipment of Neoplatonic paganism, is carried into the Christian Church to be eventually part of its armour of faith. (84)" (p. 401)

(1) M. Cappuyns, '*Boèce*', in *Dict. d'hist. et geog. eccles.* 9, Paris 1939, 367: 'The exact role of Boethius in the transmission of Aristotle's works is hard to disentangle at present.' This statement prompted the present enquiry. Dom Cappuyns' article is the best introduction to the subject. [Now however see the prefaces of *Aristoteles Latinus*, vols 1-6, and the supporting essays in L. Minio-Paluello, *Opuscula: the Latin Aristotle*, Amsterdam 1972.]

(2) *in Int.* II 79,16 Meiser.

(5) L. Minio-Paluello, 'The genuine text of Boethius' translation of Aristotle's Categories', in *Mediaeval and Renaissance Studies* (MRS), 1942, 151-77 (=*Opuscula*, 1-27) and 'The text of the *Categoriae*: the Latin tradition' in *Class. Quart.* 39, 1945, 63-74 (= *Opuscula*, 28-39).

(84) This illustrates a seasoned historian's judgment that 'ancient philosophies, rediscovered, are found to possess a disturbing vitality, even in modern times' (Hugh Trevor Roper, *Catholics, Anglicans and Puritans*, 1987, VII).

3. ———. 1974. "Boethius and Eudemus." *Vivarium* no. 12:14-17.

"In writing his explanation (1) of Porphyry's 'tree' Boethius inevitably encountered a subdivision of 'substance' where Porphyry has divided 'rational animate substance' into'mortal'and 'immortal'.

An immortal animate could only be a god, and, since 'animate' had already been classed under 'corporeal', this would be a corporeal god as described by the ancients who identified the world and the heavens with Zeus. Boethius does not quarrel with this doctrine. Only by abruptly detaching the reference to the ancients can Pierre Courcelle (2) see in it a Christian reservation voiced by Boethius himself.

Since similar philosophic reference to the ancient beliefis to be found in Greek (3) I believe that Boethius translated it from Greek. And the Greek he translated from was not the extant commentaryof Ammonius (4) on Porphyry." (p. 14)

(...)

"Now one cannot help noticing that Boethius has a somewhat more complex classification than Ammonius.

The latter includes no distinction for the two kinds of non-dialectical question. Besides, in place of 'non-dialectical' Ammonius has a more positive term, 'investigative' (*pysmatike*),which is not translated in Boethius. And whereAmmonius says "according to the ancients" Boethius has the more precise "according to the Peripatetics." All this should make one cautious of asserting that Ammonius is the exact source of Boethius.

What is more, Eudemus turns out to be the rightman. This is perfectly clear from a passage of Alexander's commentary on the *Topics* (8) where the Boethian classification is given with an explicit ascriptiono Eudemus. Boethius however does not seem to be translating Eudemus directly, for the Latin scheme is slightly more elaborate, especially as regards substantial definition. And of course it is only part of the larger classification "according to the Peripatetics."

And so I come back to the general conviction I have written about elsewhere, that Boethius translated his explanations from some Greek book later than Porphyry but anterior to Ammonius, and that in numerous cases one could visualise the exact Greek words he copied from. In the present case, as in that previous gloss on Porphyry's 'tree', a brief marginal scheme in Boethius' uncial Greek manuscript would have given him all the material he needed for his Latin.

It is rather a pity, then, that this Ammonius text does not work as evidence that Boethius received his education in the school of Ammonius at Alexandria. Nor does any similar text that I have so far been able to examine." (pp. 16-17)

(1) Boeth., in Isagogen 208.22 Brandt (PL 64.103ab).

(2) P. Courcelle, *La Consolation de Boèce dans la tradition littéraire* (1967) 341.

His suggestion and footnotes are appropriated by C. J. de Vogel, *Vivarium* 9 (1971) 59.

(3) Elias, *in Isagogen* 69.21 Busse.

As homage to Boethius I have transcribed the Greek into uncial type designed by my friend, Timothy Holloway, of St. John's College,Oxford. This I entrust to the elegant pages of *Vivarium*: *...in bibliotheca posui.*

(4) cf. Ammonius, *in lib de Interp.* (*20 b 22*) 361 Meiser (*PL* 64.572c).

(8) Alexand., *in Top.* (104a 8) 69.13-19,22-23 Wallies. See note 3.

4. ———. 1982. "A Recent Discovery: Boethius' Notes on the *Prior Analytics*." *Vivarium* no. 20:128-141.

"As a matter of fact all the genuine texts of Boethius' Aristotelian translations are recent discoveries. They were all out of reach thirty years ago and they have come to light only after the long and intricate labour involved in discerning and collecting the manuscrip tmaterial for *Aristoteles Latinus*. This is an edition, planned for thirty-three volumes, of all the Latin

versions of Aristotle surviving from the Middle Ages; each volume of the collection is devoted to a single Aristotelian work, gathering together the various translations of it so far identified. (1) The first six volumes cover the treatises on logic, collectively known to the tradition as the *Organon*: *Categories*, *De Interpretatione*, *Prior* and *Posterior Analytics*, *Topics* and *Elenchi*, together with Porphyry's *Isagoge*('Introduction'). In these volumes the pioneer translations done by Boethius have been edited for all of the treatises except the *Posterior Analytics*, of which the genuine Boethian version is still missing. (2)

The procedure by which these genuine versions were discovered may prove to be one of the most impressive feats of scholarly achievement in this century. (3)" (p. 128)

(...)

"But the *PriorAnalytics* is the most interesting in this regard.The copy of this work (*b*) which was inserted by Thierry of Chartres in his famous volume of the liberal arts was one of the very few which the *Aristoteles Latinus* editor found to be genuinely Boethian. (9) But he discovered another version (B), also of French provenance, in a manuscript at Florence, (10) and on examination this proved to have so much in common with Thierry's copy that it had to be regarded as a second draft by the same translator.(11) The most noticeable differences between the two drafts, *b* and B, occur in thefirst sixteen chapters of Book I and in chapters 17-20 of Book II.(12)" (p. 130)

(1) A brief description of the enterprise was given by me in *Medium Aevum,* 33 (1964), 61-64; 42 (1973), 147-152.

(2) AL I. I-V. 3 ed. L. Minio-Paluello, Bruges-Paris, 1961-1969; AL VI. 1-3 ed. B. G. Dod, Bruges-Paris, 1975.

(3) Many of the basic studies relating to the work of identification are collected in: L. Minio-Paluello, *Opuscula: the Latin Aristotle*, Amsterdam, 1972.

(10) *AL Codices* (and *Supplementum*) n. n.236 1412 (Firenze, Bibi. Naz. Centr. J. 6.34) (*Nn*).

(11) *AL* III, p. XI.

(12) *AL* III, p. XI-XVI.

5. ———. 1987. "The Greek Copy of Porphyrios' *Isagoge* used by Boethius." In *Aristoteles. Werk und Wirkung*. *Paul Moraux zum 65 Geburtstag gewidmet - Band 2: Kommentierung, Uberlieferung, Nachleben*, edited by Wiesner, Jürgen, 312-340. Berlin: Walter de Gruyter.

   "In this paper I wish to ask what type of Greek book Boethius possessed for his study of the *Isagoge*. He certainly did use a Greek book of some kind because although he based his first commentary (c) (1) on the Latin version or paraphrase already made by Marius Victorinus, for his *editio secunda* (C) he made his own translation (p) of Porphyry's work, which is a concise introduction to five basic Aristotelian terms: Genus, Species, Difference, Property, and Accident.

   Boethius' first commentary, c, opens with an experiment in the dialogue style that had been familiar to Latin authors from Cicero to Macrobius and Augustine. That such Platonizing dialogue might employ fictional elements is admitted by Macrobius (*Sat*. I 1), and it has been noticed that Augustine felt less than happy in using this Platonic mode. The characters here are Boethius himself and a possibly fictional Fabius whose total knowledge of the *Isagoge* seems to be confined to the Latin version made by Victorinus. Boethius at the outset (c 4,6) gives Fabius a Ciceronian promise (cf. *Cic.Top*. 1) of deeper instruction that he could have gathered from Victorinus alone. Boethius also admits that he will be transmitting this information from others, from the *introductorii commentarii* of learned masters, and he seems in fact to be actually consulting some such work (c 4,4: *super eisdem rebus meditantem*). A question may occur to the modern reader over these sources of his instruction. How is Boethius, so often praised for his originality of thought, in fact adapting or translating some earlier commentary, when he here undertakes in the best dialogue manner to convert *otium* into intellectual

negotium? A Latin source for his work would seem unlikely, for it appears from Cassiodorus (*Inst*. 2,3,18) that Victorinus had made only the Latin translation and not a commentary as well.

The extant Greek commentaries on the Isagoge have a special character because of the work's position at the beginning of the *Organon*, and therefore at the beginning of all Neoplatonic school-work in philosophy. They begin with lengthy sets of prolegomena, first on philosophy in general and then on the *Isagoge* itself. The general set adheres to a standard school order of topics for lectures (πράξεις): definitions of philosophy both theoretical and practical, and the subdivisions of these; then a further list of preliminaries (κεφάλαια, προλεγόμενα, προτεχνολογούμενα) which must be followed before beginning the study of any philosophic work.(2) The prolegomena proper to the *Isagoge* then apply these considerations, one by one, to the book itself." (pp. 312-313)

(1) For brevity of reference I employ these sigla, based on the usage of the Aristoteles Latinus (*AL*):

Π Porphyrii Isagoge, ed. Busse, CAG IV 1 (1887)

p Isagoge Porphyrii: translatio Boethii, ed. Minio-Paluello, AL I (1966) c Boethii in Isagogen, editio prima, ed. Brandt, CSEL 48 (1906)

C Boethii in Isagogen, editio secunda, ed. Brandt, *ibid*.

(...)

6. Solmsen, Friedrich. 1944. "Boethius and the History of the *Organon*." *American Journal of Philology* no. 65:69-74.

   Reprinted in F. Solmsen, *Kleine Schriften II*, Hildesheim: Olms, 1967, pp. 38-43 and in: Manfred Fuhrmann und Joachim Gruber (Hrsg.), *Boethius*, Darmstadt: Wissenschaftliche Buchgesellschaft, 1984, pp. 127-132.

   "Boethius had set himself the task of bringing into Latin the entire body of Plato's and Aristotle's writings. (1) What he actually accomplished, the translation of Aristotle's logical treatises, was a small part of this huge enterprise. There is, besides, his translation of Porphyry's *Eisagoge*.

The chronological order of these translations (and of the commentaries which accompany them) has been determined with reasonable certainty by two scholars, Samuel Brandt and Arthur P. McKinlay who, though differing in their method and criteria, have yet arrived at fundamentally identical results. (2) The sequence appears to have been as follows: Porphyry's *Eisagoge*, Aristotle's *Categories*, *Peri Hermeneias*, *Analytica Priora, Posteriora, Topica, Sophistici Elenchi*. It could not remain unnoticed that this sequence is identical with the order in which the original works are integrated in the standard collection of Aristotle's logical works commonly known as the *Organon*; in fact, Brandt (3) points out that Boethius simply followed the order which he found established in his Greek original. This suggestion is, as we shall see, perfectly correct; but a student of Aristotle will be aware that the existence of the *Organon* (or of any fixed order of these writings) by A. D. 500 has never been proved. (4) Shall we then say that the studies of Brandt and McKinlay have supplied the *terminus ante quem* for its existence which the students of Aristotle's own works have failed to find?

In a sense this is true, but if we wish to have the complete picture a few more facts must be taken into account.

Byzantine manuscripts of Aristotle's logic, which are very numerous, invariably have the writings in the "orthodox" order, given above. Just as invariably they include Porphyry's *Eisagoge* as the first item, i. e. preceding the *Categories*. (5) To most scholars these facts would indicate that there were one or more late ancient editions in which the works were thus arranged. I do not know whether anyone would be inclined to think of a Byzantine scholar as responsible for the arrangement, but if anyone did he would certainly find it very difficult to maintain this view against the witness of Boethius; for it is precisely here that Boethius' testimony becomes important." (pp. 69-70)

(1) *In librum peri hermeneias Comment., Secunda editio*, II, 3, p. 79, 16 Meiser.

(2) S. Brandt, *Philol*., LXII (1903), pp. 141-54, 234-79; A. P. McKinlay, *H. S. C. P*., XVIII (1907), pp. 123-56. See also E. K. Rand, *Jahrbücher f. class. Philol*., Supplem. XXVI (1901), pp. 428 ff.

(3) *Loc. cit*., p. 260. Aristotle (*A. Pr*. A4, 25 b 26) had made it clear that the *Analytica Posteriora* was to be considered a sequel to the *Priora*. Apart from this, he has nothing to do with the order sanctioned in the *Organon*. On the term *organon* and its application to Aristotle's logica, see e. g. Karl Prantl, *Geschichte der Logik im Abendland* (Leipzig, 1855), I, p. 532 (especially notes 4 and 5); see also W. Christ and W. Schmid, *Griechische Literaturgeschichte* (6th ed., Muenchen, 1920), I, p. 729, n. 3.

(4) W. D. Ross, *Aristotle* (3rd ed., London, 1937), p. 20, n. 6, suggests that the term "Organon" was in the sixth century applied to the collection of Aristotle's logical works.

7. Sorabji, Richard. 1998. "Boethius, Ammonius and their different Greek backgrounds." In *Ammonius on Aristotle On Interpretation 9 with Boethius on Aristotle On Interpretation 9*, edited by Blank, David and Kretzmann, Norman, 16-23. London: Duckworth.

"Ammonius, c. 435/445–517/526 AD, was taught by Proclus in Athens, took the Chair of the Neoplatonist school in Alexandria and had all the greatest sixth-century Neoplatonists as his pupils. His commentary on Chapter 9 of Aristotle's *de Interpretatione* is a treatise on ancient arguments for determinism. By determinism I mean the view that whatever happens has been inevitable or necessary all along. The famous Sea Battle argument for determinism, reported and attacked by Aristotle, was commonly presented in a new form in the Middle Ages(1) in terms of definite truth and definite falsity. Ammonius' was not the first such exposition, but it is the earliest detailed one to survive. It was almost immediately followed by the Latin exposition of Boethius, which uses the same idea, drawing independently on an overlapping set of Greek sources.(2) Boethius influenced the medieval Latin tradition, while the medieval Arabic was influenced by

Boethius' sources and by Ammonius possibly through the derivative commentary of Stephanus.(3)" (p. 16)

(1) 1. N. Rescher, in *Studies in the History of Arabic Logic*, Pittsburgh 1963, ch. 5, and in 'Truth and Necessity in Temporal Perspective', in R. Gale (ed.), *The Philosophy of Time: a Collection of Essays,* London 1968.

(2) Ammonius' sources are described by David Blank in the introduction to his translation in this series of Ammonius, *in Int. 1-8*. For Boethius' use of Alexander, Porphyry, and Syrianus see the index nominum in Meiser's edition of Boethius' two commentaries on *Int*. For Ammonius' use of these and of Iamblichus and Proclus as well, see the index nominum in Busse's CAG edition of Ammonius' commentary on *Int*. Ammonius declares himself particularly indebted to Proclus, 1,6-11; cf. 181,30-1, Boethius to Porphyry, *2nd comm. on Int*. 7,5-6; cf. 219,17.

Robert Sharples has found an attack on definite truth as incompatible with contingency as early as Alexander *Quaestio* 1.4, pp. 12-13, translated London and Ithaca N.Y. 1992, p. 35, n. 81, which updates his 'An Ancient Dialogue on Possibility: Alexander of Aphrodisias Quaestio 1.4', *Archiv für Geschichte der Philosophie* 64, 1982, 23-38. For the comment on this in Norman Kretzmann's 1987 paper at p. 67, corrected in the reprint below, see Chapter 2. [Ammonius on Aristotle *On Interpretation* 9 with Boethius on Aristotle *On Interpretation* 9]

3. Stephanus is suggested by F.W. Zimmermann, Al-Farabi's *Commentary and Short Treatise on Aristotle's de Interpretatione*, Oxford 1981, LXXX-XCVIII, at XCIV. William Charlton's translation of Stephanus will be appearing shortly in this series.

8. Speca, Anthony. 2001. *Hypothetical Syllogistic and Stoic Logic*. Leiden: Brill.

Contents: Acknowledgments VII; Abstract IX; Preface XI-XIII; 1. The Aristotelian Background 1; 2. The Greek Commentators on Aristotle 35; 3. Boethius: *On Hypothetical Syllogisms* 67; 4.

Boethius: *On Cicero's Topics* 101; References 135; General index 139; Index locorum 141.

Abstract: "Aristotle recorded his intention to discuss hypothetical syllogistic fully (*An. pr.* 50a39), but no such treatment by him has been available since at least a.d. 200, if even it ever existed. The contributions of his successor Theophrastus have also perished, as have those of his followers of the subsequent few centuries. At the same time, almost all of the surviving sources, especially the Greek commentators and Boethius, did not report hypothetical syllogistic accurately. Rather, they conflated it with Stoic logic, which it resembles in some respects, but from which it is significantly different. Modern scholars, who have not appreciated the nature or extent of this conflation, have unintentionally perpetuated the problem. As a result, the original form of hypothetical syllogistic has been misunderstood, and part of the influence of Stoic logic in late antiquity has remained unclear.

This book is an account of the conflation of hypothetical syllogistic and Stoic logic. The first chapter is a study of Aristotle's remarks on hypothetical syllogistic, which suggest that it was not a sentential logic such as the Stoics would develop. The second chapter details the conflation as it appears in the Greek commentaries on Aristotle, which consists principally in a confusion between the original Peripatetic division of hypothetical statements and syllogisms, whose criteria are semantic, and the Stoic division of complex propositions and inference schemata, whose criteria are syntactic. The third and fourth chapters focus on Boethius's *On hypothetical syllogisms* and *On Cicero's Topics*, in which even further conflation demonstrates that hypothetical syllogistic and Stoic logic had completely ceased to retain their distinct natures by the end of antiquity."

9. Stump, Eleonore. 1974. "Boethius "Works on the Topics"." *Vivarium* no. 12:77-93.

"The *De topicis differentiis* appears to be the mature product of an axcellent mind. It shows the same acumen, subtlety, and care as Boethius's other logical treatises; and it seems to build

on the training and insight Boethius manifested in his earlier treatises. (1) It is a complete study of the discipline for finding arguments, both dialectical and rhetorical. Boethius works his diverse material, from different traditions and from different disciplines, into one coherent and elegant system unequaled, as far as I know, in any of the material that has come down to us from antiquityand the early middle ages. (2)

(...)

But a thesis which runs counter to the common-sense view has been published; James Shiel in his article *Boethius' Commentaries on Aristotle* (4) has argued that Boethius's works on logic are not original compositions but are rather his translations of Greek Neo-Platonic scholia on Aristotle's *Organon*. His thesis seems to be gaining currency; two eminent scholars in the field, Minio-Paluello (5) and De Rijk, (6) accept or support it. In this article,after considering very briefly some treatment of Shiel's thesis in the literature, I want to discuss the thesis in detail as it applies to Boethius's work on the *Topics*. My main concern is to examine and discuss Shiel's evidence for his counter-intuitive theory; if it does not stand up under scrutiny, we are free to return to the common-sense view and to take Boethius's works on the *Topics*, at least, to be just what they appear to be -- his original compositions." (pp. 77-78)

(1) The *De top. diff.* is one of the last works Boethius produced. See L. M.De Rijk, On the Chronology of Boethius' Works on Logic II, *Vivarium* 2 (1964), 153-154 and 157-161.

(2) See the Introduction and Chapters I-III in my unpublished Ph.D. dissertation, *Boethius's De topicis differentiis*, Cornell University, 1975 [*now published*: Ithaca: Cornell University, 1978].

(4) *Mediaeval and Renaissance Studies* 4 (1958), 217-244.

(5) Cf. L. Minio-Paluello, Les traductions et les commentaires aristotéliciens de Boèce in: *Studia Patristica* II, fifth series, V. 9; 1957; pp.358-365.

(6) Cf. L. M. De Rijk, On the Chronology of Boethius' Works on Logic I and II, *Vivarium* 2 (1964), 1-49, 125-162.

10. ———. 1978. "Dialectic and Boethius's *De topicis differentiis*." In *Boethius's De topicis differentiis*, edited by Stump, Eleonore, 179-204. Ithaca: Cornell University Press.

    Contents: Abbreviations 11; Introduction 13; Part One. De topicis differentiis; Book I 29; Book II 43; Book III 63; Book IV 79; Notes to the Translation; Book I 97; Book II 110; Book III 128; Book IV 141; Part Two. Dialectic in Ancient and Medieval Logic Dialectic and Aristotle's Topics 159; Dialectic and Boethius's De topicis differentiis 179; Between Aristotle and Boethius 205; Peter of Spain on the Topics 215; Differentia and the Porphyrian Tree 237; Differentia 248; Bibliography 263; Indexes 275-287.

    "This book is a philosophical study of Boethius's treatise *De topicis differentiis*. It includes the first English translation of this historically and philosophically important text, as well as copious notes designed to make the text accessible to philosophers and scholars interested in the medieval period. Detailed philosophical analyses of the text and of important technical concepts, such as the concept of the predicables, are worked out in the chapters of Part II. Chapters on Aristotle's Topics and the treatise on dialectic in Peter of Spain's T*ractatus* explain the work of these philosophers on the Topics and explore the relationship of their views to those of Boethius. My principal aim is to make Boethius's treatise available and comprehensible to scholars for whom the technical Latin vocabulary and unfamiliar subject matter have made it inaccessible." (From the *Preface*)

11. ———. 1981. "Boethius' Theory of Topics and its Place in Early Scholastic Logic." In *Congresso Internazionale di Studi Boeziani (Pavia, 5-8 ottobre 1980): Atti*, edited by Obertello, Luca, 249-262. Roma: Editrice Herder.

    "Boethius's *De topicis differentiis* is a philosophically interesting and historically influential work having to do with the art of Topics (or *loci*), a branch of philosophy which antiquity bequeathed to the Middle Ages but which

philosophers of the scholastic period transformed almost past recognition. In this article, I want to explain briefly Boethius's theory of Topics and then discuss in some detail that of Abelard, which seems superficially quite similar to Boethius's but is in fact very different from it. As a result, I hope to make clearer both Boethius's theory of Topics itself and the significant role played by Boethian Topics in the history of twelfth-century logic." (p. 249)

12. ———. 1981. "Boethius and Peter of Spain on the Topics." In *Boethius and the Liberal Arts: A Collection of Essays*, edited by Masi, Michael, 35-50. Bern: Peter Lang.

    "Boethius's influence on later medieval philosophy is, of course, enormous, and his treatment of the Topics is no exception to that general rule. Later medieval philosophers had a strong interest in dialectic. The whole technique of the *disputatio*, for example, and the consequent literature on *obligationes* have their ultimate origin in dialectic; and the study of the Topics was considered a regular part of logic and treated in a section of its own in elementary logic texts. For a long time, Boethius was the most important, and sometimes the sole source for the study of the Topics, and his work remained an important indirect source even when it was superseded by later treatments of the subject. For example, three of the best known thirteenth-century logicians, William of Sherwood, Peter of Spain, and Lambert of Auxerre, all have a chapter on Topics in their introductory logic texts; and all three reproduce the Boethian list of Topics and the major Boethian categorizations or divisions of the Topics.

    For the sake of putting Boethius's work on the Topics into medieval perspective and of understanding the changes and developments in the Topics, it is useful to consider the treatments of the Topics among some of these later medieval philosophers. In particular, it is worthwhile examining the discussion of the Topics in Peter of Spain's *Tractatus*, (9) which was the most widely used textbook of logic on the Continent from the late thirteenth to the end id the fifteenth century (10). Its discussion of the Topics is very similar to discussions found in several of the scholastics contemporary with or earlier than

Peter. Besides being a representative and influential treatment of the Topics, Peter's discussion is heavily dependent (directly or, more likely, indirectly) (11) on Boethius's account. The chapter on dialectic in the Tractatus is like *De top. diff.* in organization. It begins with a series of definitions and then lists the Topics with a description and example of each. The definitions and the listing are those in *De top. diff.*, and in some places Peter's words are equivalent to a quotation from Boethius. (12) Consequently, comparison of Boethius and Peter is not difficult. Some of the recent literature has suggested that Peter's work on the Topics is simply a slightly varied compilation drawn from Boethius's *De top. diff.* Otto Bird, for example, who has published a number of very useful articles on the medieval Topics, says that Peter's discussion of the Topics "is little more than a summary of the first half of BDT [*De top. diff.*],"13 and that "Peter of Spain made a précis of it [*De top. diff*] (primarily of the second book) and provided additional Maxims in the fifth tract of his *Summulae* [*Tractatus*]." (14) But such a view shows a mistaken understanding of both Peter and Boethius. In what follows here, I will examine Peter's discussion of the Topics in considerable detail in order to exhibit with some accuracy a method for using Topics that, despite its apparent similarity to Boethius's method, is in fact very different from it; by doing so, I hope to show what Peter's method comes to and as a result to clarify the nature of the Boethian art of Topics." (pp. 37-38)

(9) Ed. L. M. De Rijk (Assen, 1972).

(10) Ibid., pp. XCV-C.

(11) Cf., *Tractatus*, p. XCIII, n. 5.

(12) Cf., for example, Peter, *Tractatus*, p. 55.17 and Boethius, *De top. diff.*, 1180C4-5, Peter p. 55.23 and Boethius 1183A9-10, and Peter p. 56.16-18 and Boethius 1184B13-C1.

(13) "The Tradition of the Logical Topics: Aristotle to Ockham", *Journal of the History of Ideas*, 23 (1962), p. 313.

(14) "The Formalizing of the Topics in Mediaeval Logic", *Notre Dame Journal of Formal Logic*, 1 (1960), 140. Jan Pinborg

echoes Bird's view of Peter. Cf. "Topik und Syllogistik im Mittelalter", in *Sapienter Ordinare: Festgabe für Erich Kleineidam*, ed. F. Hoffmann, L. Scheffczyk, and K. Feiereis (Leipzig, 1969), p. 164; and *Logik und Semantik im Mittelalter* (Stuttgart-Bad Cannstatt, 1972), p. 75. De Rijk, ed., *Tractatus*, p. XCIII seems to agree at least in part with Bird's view: "This tract [chap. V of *Tractatus*] is not a compilation from Aristotle's *Topica* but from Boethius' *De topicis differentiis* I and II, with some additions from Aristotle's *Topics*." He argues in note 5 on the same page that Peter's treatment is not taken directly from Boethius: rather, he says, it is "useful to point to the treatment of the loci in the *Logica Cum sit nostra*, pp. 438-445 or to that in the somewhat older work, *Dialectica Monacensis*, pp. 528-555." De Rijk's point is very likely right, but what can be inferred from the claim in the text and the note is that Peter's work on Topics amounts to an indirect compilation from Boethius's *De top. diff.*

13. ———. 1987. "Boethius's *In Ciceronis Topica* and Stoic Logic." In *Studies in Medieval Philosophy*, edited by Wippel, John F., 1-22. Washington: Catholic University of America.

    "But perhaps the most interesting unexplored section in *In Ciceronis Topica* is Boethius's presentation of Stoic logic, and that is the part I want to concentrate on in this paper. Rather than dwell on the main theme of *In Ciceronis Topica*, the art of discovery and its instruments, the Topics, I want to focus instead on just that small part of Boethius's commentary in which he relates the Topics to Stoic dialectic or logic and reveals his understanding of that part of Stoicism. We are beginning to understand the ancient art of discovering arguments, and it has garnered increasing attention among contemporary scholars. But as far as I know, Michael Frede(30) is alone among recent historians of philosophy in considering Boethius's contribution to our understanding of Stoic logic; and even he gives only a brief discussion of a small part of the relevant Boethian text. So in what follows I will concentrate on just the fifth book of *In Ciceronis Topica*, in which Boethius discusses the so-called undemonstrated modes or argument forms of the Stoics. I need to make plain here that my area of

interest and expertise is Boethius and not the Stoics; but I think that in *In Ciceronis Topica* Boethius sheds some light on a vexing problem which has troubled students of Stoic logic for some time." (pp. 6-7)

(30) Michael Frede, *Die stoische Logik* (Goettingen: Vandenhoeck and Ruprecht, 1974), pp. 148-53, 160-62.

14. ———. 1988. "Topics: Their Development and Absorption into the Consequences." In *The Cambridge History of Later Medieval Philosophy*, edited by Kretzmann, Norman, Kenny, Anthony and Pinborg, Jan, 273-299. Cambridge: Cambridge University Press.

"According to Boethius, who is dependent on both the Greek and Latin traditions,(8) two different sorts of things are Topics: a Topic is both a maximal proposition and the Differentia(9) of a maximal proposition. On Boethius' view, a maximal proposition is a self-evidently true, universal generalisation, such as 'Things whose definitions are different are themselves also different.' Boethian Topics of this sort probably have as their ancestors the Aristotelian Topics that are principles. Their official function, on Boethius' account, is to aid in the discovery of arguments; but in practice Boethius tends to use them to confirm arguments.(10) Differentiae are theoretically the differentiae dividing the genus maximal proposition into its subaltern genera and species, and in that capacity they do serve to classify maximal propositions into groups. Some maximal propositions have to do with definition, for example, and others with genus; so from definition and from genus are Differentiae. Much more important, however, is the role Differentiae play in Boethius·s method for the discovery of dialectical arguments. For the most part, Boethius thinks of dialectical arguments as having categorical rather than conditional conclusions, and he conceives of the discovery of an argument as the discovery of a middle term capable of linking the two terms of the desired conclusion. Boethian Differentiae are, for the most part, the genera of such middle terms. To find an argument, using Boethius' method, one first chooses an appropriate Differentia (criteria for appropriateness are left to the arguer's intuition). The genus of middle terms, determined by the Differentia

chosen, and the two terms of the desired conclusion then indicate the specific middle term of the argument and so indicate a dialectical argument supporting the conclusion. In Book II of *De topicis differentiis*, Boethius gives what he claims is an exhaustive list of Differentiae, taken from Themistius. These Themistian Differentiae or some subset of them constitute the core of most scholastic discussion of the Topics (except, of course, for scholastic commentaries on Aristotle's Topics)." (pp. 274-275)

(8) For a summary of the controversy over Boethius' sources, sec Stump 1974.

(9)) I am capitalising 'Diff'rentia' here to distinguish this technical usc of the word from its more ordinary use designating one of the predicables.

(10) a detailed analysis of oethius' usc and understanding of opics, see Stump 1978, especially pp. 179-204.

References

Stump, Eleonore (1974). 'Boethius's Works on the Topics', *Vivarium* 12:77-93.

_____ (1978). *Boethiu's De topicis differentiis*. Translated, with notes and essays on the text; Cornell University.

15. ———. 1989. *Dialectic and Its Place in the Development of Medieval Logic*. Ithaca: Cornell University Press.

Contents: Acknowledgments IX; Introduction 1; 1. Dialectic and Aristotle's *Topics* 11; 2. Dialectic and Boethius's *De topicis differentiis* 31; 3. Between Aristotle and Boethius 57; 4. Topics and Hypothetical Syllogisms in Garlandus Compotista 67; 5. Abelard on the Topics 89; 6. Logic in the Early Twelfth Century 111; 7. Terminist Logicians on the Topics 135; 8. Consequences and the Decline of Aristotelianism in Formal Logic 157; 9. William of Sherwood's *Treatise on Obligations* 177; 10. Walter Burley on Obligations 195; 11. Roger Swyneshed's Theory of Obligations 215; 12. Topics, Consequences, and Obligations in Ockham's *Summa logicae* 251; Index 271-274.

"Since 1975 my work in medieval logic has concentrated on dialectic. I have tried to trace scholastic treatments of dialectic to discussions of it in the work of Aristotle, the Greek commentators on Aristotle, and the Latin rhetorical tradition. But I have been especially interested in Boethius, whose discussions of dialectic were among the most important influences on scholastic treatments of that subject. Accounts of dialectic based ultimately on Boethius's views continued to play a fundamental role in philosophy through the fourteenth century. The earliest scholastic logician whose work we know, Garlandus Computista, devoted a great deal of attention to Boethian dialectic, and I have tried to follow the development of scholastic dialectic from Garlandus through various twelfth-century logicians (including Abelard) and the thirteenth-century terminists into the fourteenth century in the work of William Ockham." (p. 1)

16. Suto, Taki. 2009. "Logic and Grammar in Boethius: A Logical Analysis of the Parts of Speech." In *The Word in Medieval Logic, Theology and Psychology. Acts of the XIIIth International Colloquium of the Société Internationale pour l'Étude de la Philosophie Médiévale, Kyoto, 27 September - 1 October 2005*, edited by Shimizu, Tetsuro and Burnett, Charles, 65-80. Turnhout: Brepols.

    "There is no doubt that Boethius places Aristotle's *Peri hermeneias* and his commentaries in the field of logic. In chapter 1 (16a8-9) of the work, Aristotle famously reserves some matters for his work on the soul, considering them beyond the scope of the subject in discussion. In commenting on this reservation, Boethius claims that "it is one thing to dispute principally on thoughts (*intellectibus*) of the soul, but another to take them for disputation so far as they can pertain to logical knowledge," (1) thus holding the topic in discussion as that of logic.

    On the other hand, Boethius' discussions in the commentaries rely heavily upon the noun (*nomen*) and the verb (*verbum*), which we usually take as grammatical distinctions." (p. 65)

    (...)

"Although using the terminology employed by grammarians, Boethius sometimes contrasts his view with theirs. He claims that grammarians regard “garalus” (which is a not a real Latin word) as a noun but philosopher do not. (10) He also claims that a grammarian counts eight parts of speech, i.e., noun, pronoun, verb, adverb, participle, conjunction, preposition and interjection, but that a philosopher counts only two, that is, noun and verb. (11) Calling the holder of the view contrasted to that of a philosopher simply “a grammarian” (*grammaticus*), (12) Boethius never actually names any grammarians in his discussions. (13)

In this paper, by considering the question of how Boethius distinguishes logic from grammar, I will analyse the nature of Boethius’ investigation of logic in his commentaries. (14) Specifically, I will look at his division of the parts of speech and his notion of conjunction. The result of the examination will show that Ackrill’s criticism of Aristotle does not apply to Boethius." (p. 67)

(1) “Etenim aliud est principaliter de intellectibus animae disputare, aliud tantum sibi ad disputationem sumere, quantum ad logicae possit pertinere peritiam.” Boethius (A.M.T. Severinus), *In Peri hermeneias, Prima editio*, ed. C. Meiser in *Anicii Manlii Severini Boetii Commentarii in Librum Aristotelis Peri Hermeneias*, Leipzig 1877, 41.11-14. Hereafter *In PH I* refers to the first commentary and *In PH II* to the second commentary.

(10) Boethius, *In PH II*, ed. Meiser, 32.17-22.

(11) Boethius, *De syll. cat.*, in PL 64, 796C-D; *Introd. syll. cat.*, in PL 64, 766A-B (note 39).

(12) Note that a “grammarian” was a scholar engaged in the study broader than grammar in modern sense (including poetry especially): “Primus in eo qui scribendi legendique adeptus erit facultatem, grammatici est locus. Nec refert de Graeco an de Latino loquar, quanquam Graecum esse priorem placet: utrique eadem via est. Haec igitur professio, cum brevissime in duas partes dividatur, recte loquendi scientiam et poetarum

enarrationem, plus habet in recessu quam fronte promittit." (Qunitilianus, *Institutiones oratoriae* I c. 4 [1-2] in *The Orator's Education*, ed. and trs. D. Russell, Cambridge MA 2001. See also the appendixes of R. Kaster, *Guardians of Language: The Grammarian and Society in Late Antiquity*, Berkeley, 1988.

(13) We can find the names of Aristarchus and Donatus in Boethius' writings (Aristarchus: Boethius, *In Categorias Aristotelis = In Cat.,* in PL 64, 171D, 182C, 189C, 260A; Donatus: *In Cat*., 257D). Boethius mentions their names as examples of a grammarian and says nothing about their grammatical theories.

(14) There are only a few secondary writings on this topic: J. C. Magee, "Truth, Discourse and Mind in Boethius", Ph.D. dissertation, University of Toronto, 1986, chapter 2 and S. Ebbesen "Boethius on the Metaphysics of Words", in A. Galonnier ed. *Boèce ou la chaîne des savoirs*, 2003, 257-75.

17. ———. 2011. *Boethius on Mind, Grammar and Logic: A Study of Boethius' Commentaries on Peri Hermeneias*. Leiden: Brill.

Contents: Acknowledgements XI; Note to the Reader XV; Chart 1: Contents of Boethius' Two Commentaries on *Peri hermeneias* XVII; Chart 2: Chronology of Boethius' Works XIX; Chart 3: Chronology of Major Thinkers and Writers XXI; Chart 4: Relationships among Ancient Commentators XXIII;

Introduction 1; Part One. Boethius on Words and Minds. I. The Significatum of Spoken Words 17; II. Words as 'Notae' 43; III. Three Types of Speech 77; Part Two. Boethius on Logic and Grammar. IV. Nouns, Verbs, and Conjunctions 117; V. The Varieties of Speech 151; VI. The Verb 'To Be' 187; VII. General Conclusions 223; Bibliography 237; Index of Ancient and Medieval Texts 269; Index of Names (Ancient and Medieval Authors) and Subjects 285; Index of Modern Authors (Selective) 294-296.

"This work aims to be a study of his commentaries on Aristotle's *Peri hermeneias* (*De interpretatione*). For my discussion of these commentaries, I use Carl Meiser's edition,

which is the only critical edition currently available. Deviations from the critical edition are recorded in the footnotes of the quotations.

Boethius wrote two commentaries on *Peri hermeneias*. In Meiser's edition, the first commentary is only 195 pages while the second commentary is 502 pages, more than double the length of the first. Writing two commentaries on the same work was not unusual for him. He also wrote two commentaries on Porphyry's *Isagoge*, but the first commentary is three-fifths the length of the second commentary.(3) The striking difference in length between the two commentaries on *Peri hermeneias* reflects his careful planning of the role of each commentary: the first one to present basic lines of Aristotle's thought, the second one to provide much more detailed explanations.(4) In the second commentary, he often introduces past discussions of Greek commentators and notions that he does not mention in the first commentary. The fact that he purposely wrote two commentaries should be seriously taken into account in considering the apparent inconsistencies and contradictions between them.

This work is primarily devoted to the second commentary. I include the first commentary principally in the following two cases: First, I point out where his explanation significantly differs from that of the second commentary. His account in the second commentary can be mostly regarded as a development of the first, but the first commentary sometimes has explanations incompatible with those in the second commentary.(5) Boethius seems to make contradictory statements rather deliberately, intending to present simple interpretations in the first commentary, knowing that they are not the best.(6) Second, I refer to the first commentary when it illuminates or enhances his explanations in the latter.

I sometimes look at Boethius' other works, mainly logical ones, in relation to the main questions surrounding the second commentary.

Where the texts contribute to our understanding, I discuss them in the relevant sections. Otherwise, I refer to them in the

footnotes. For my interpretations of the commentaries, I have relied very little on his treatises on theology, liberal arts, and his renowned masterpiece, The *Consolation of Philosophy*. It is important to consider why the same individual wrote all these works in different disciplines. I would not deny that these independent treatises could illuminate his logical works. In fact, I believe they do, and I will argue so in the concluding chapter.

I find, however, that these independent treatises have many differences from his logical works. For an accurate interpretation of his logical works we should be very careful in relying on these treatises.(7)" (pp. 1-2)

(3) In Brandt's edition of Boethius' commentaries on Isagoge, the second commentary is 214 pages while the first commentary is 130 pages. Boethius does not allude to a second commentary in the first.

(4) In *PH1* 31.6-32.3; In *PH2* 186.2-9; 250.20-251.4; 294.5-8. For the dates of composition of these commentaries, see Chart 2, p. XIX.

(5) His distinction between simple and composite propositions, which I discuss in Chapter 5, is an example of this.

(6) Sten Ebbesen (*The Aristotelian Commentator* (2009): 49) points this out with textual evidence: In PH1 132.3 sqq. and In PH2 276.8 sqq.

(7) Scholars have pointed out this danger. Antony Lloyd (*The Anatomy of Neoplatonism* (1990): 2, n.2) cautions against cross-referencing Boethius' different works. Ebbesen says, "one should be cautious in assuming consistency between the doctrines of the Aristotle commentaries and that of *Consolation of Philosophy*" ("Review of J. Magee's *Boethius on Signification and Mind*." *Vivarium* 29, 1991, p. 153). Vincent Spade (*Boethius against Universals: Arguments in the Second Commentary on Porphyry*, 1996) criticizes Peter King's use of Boethius' *De trinitate* for understanding his second commentary on *Isagoge*.

18. ———. 2015. "From Analysis of Words to Metaphysical Appreciation of the World: the Platonism of Boethius." *Quaestio. Journal of the History of Metaphysics* no. 15:321-332.

    "Anicius Manlius Seuerinus Boethius has been regarded one of the major sources of Platonism in the Middle Ages(1). Many scholars have argued that Boethius was deeply influenced by Platonism, mentioning such Platonists as Apuleius, Plotinus, Porphyry, Iamblichus, Proclus and Ammonius. However, recent studies on Boethius have shown that Boethius was not influenced by those Platonists to the extent that some past studies had claimed(2). Furthermore, reading Boethius' Aristotelian commentaries casts a different light on his relationship with the Platonists and reveals his understanding of Aristotle's works, which is generally quite accurate.

    That said, I am not going to claim that Boethius is not a Platonist at all.

    Indeed, he is. Rather, I'd like to discuss in what ways and to what extent this Aristotelian commentator is a Platonist. To begin, I will look at different attitudes toward Plato in Boethius' works, first in his *Consolation of Philosophy* and then in his Aristotelian commentaries." (p. 321)

    (1) Gersh 1986 devoted one chapter to Boethius in his classical studies of Latin Platonism.

    (2) Magee 2010 and Suto 2012.

    References

    Gersh 1986 = S. Gersh, *Middle Platonism and Neoplatonism. The Latin Tradition*, vol. 2, Notre Dame University Press, Notre Dame 1986.

    Magee 2010 = J. Magee, *Boethius*, in L. Gerson (ed.), *The Cambridge History of Philosophy in Late Antiquity*, Cambridge University Press, Cambridge 2010, vol. 2, pp. 788-812.

Suto 2012 = T. Suto, *Boethius on Mind, Grammar and Logic: A Study of Boethius' Commentaries on Peri hermeneias*, E.J. Brill, Leiden 2012.

19. Sweeney, Eileen C. 2006. *Logic, Theology, and Poetry in Boethius, Abelard, and Alan of Lille: Words in the Absence of Things*. New York: Palgrave Macmillan.

    Contents: Abbreviations IX Acknowledgments *;* Introduction: Words in the Absence of Things 1; 1. Boethius: Translation, Transfer, and Transport 7; 2. Abelard: A Twelfth-Century Hermeneutics of Suspicion 63; 3. Alan of Lille: Language and its Peregrinations to and from Divine Unity 127; Conclusion: Language and the *Ascensus Mentis ad Deum* 177; Notes 185; Bibliography 213; Index 230-236.

    Introduction.

    "While Augustine is the source of what has aptly been called "the semiological consciousness of the Christian West," Boethius is the source of its technical vocabulary and academic form. (9) For the twelfth century as a whole, Boethius's logical commentaries and theological tractates are the standard works of reference and provide the technical vocabulary for new work. As we shall see, Abelard and Alan take up not just Boethius's vocabulary but his questions and issues in their accounts of language and theology. Moreover, they take up not just the logical and theological parts of Boethius's project but also the questions and themes of the Consolation in their poetry.

    Boethius's project was to translate, comment on, and transfer the language of philosophy into theology, to incorporate secular disciplines and texts into his own philosophical/theological vision. Boethius's imaginative world is one populated largely by other texts, and is notably different from Augustine's appropriation of secular texts in the more positive and autonomous place given to Aristotelian logic and pagan literature. The voices of these texts speak themselves in the work of Boethius." (p. 2)

    (...)

(9) Eugene Vance, “Saint Augustine: Language as Temporality,” in *Mervelous Signals: Poetics and Sign Theory in the Middle Ages* (Lincoln: University of Nebraska Press, 1986), p. 34.

Chapter 1.

"Although I do not pretend to have found the definitive solution to I he problem of interpreting Boethius, following the theme of language through the main parts of the corpus has yielded a stronger sense of the unity, autonomy, and originality of Boethius. One way to express it is in visual terms, terms suggested, I will show below, by the *Consolation* itself. (7) My contention is that Boethius’s innovation is the construction in some detail of multiple and correct, though limited, perspectives from which human understanding can view itself and the nature of reality. As we will see, the method of the Boethian project is linguistic: different perspectives are constructed by developing different vocabularies and different senses of the same terms. Then, the perspectives are arranged hierarchically, the lower encompassed by the higher.

The themes to which Boethius returns again and again in the logical commentaries are the distinction between the order of words and things and the conventionality of language. From this fundamental distinction between what is the case and what we say, it is only a short step to the elaboration and amelioration of this gap in terms of multiple senses of terms, multiple disciplines with distinct methods and terminologies, and even multiple ontologies which either describe the same reality in different terms and/or are true descriptions of different strata of reality. The conviction that motivates a good portion of the tractates is the view that disagreement and contradiction can be mediated by the creation of or the distinction between different vocabularies. And while it is true that the Consolation attempts to hierarchize the different perspectives on Boethius’s fate, it still gives voice to those “lower” perspectives through the voice of Boethius, the prisoner.

Boethius’s own use of language mirrors this multiplicity of meanings, methods, and rhetorics. He goes from close, careful

translation, paraphrase, and commentary designed to provide an introduction to the greenest of beginners, to the terse, esoteric, and technical language of the tractates, to the complex interweaving of poetic and philosophical language and allusions in the *Consolation*.

Boethius surely had important models for such multileveled and synthetic views in his Neoplatonic masters and contemporaries, who would have seen his stated plan to translate, comment on, and show the agreement between Plato and Aristotle as an understandable if bold undertaking. Boethius's vision differs from theirs both in being Christian and in being worked out in almost exclusively textual terms — in the mediation of texts in the translation and commentary, in the self-conscious production of new textual forms, and in the development of new vocabularies. Boethius both creates his own vocabulary in his translations and transfers it from its "proper" and original location to theological topics where it is radically reworked in the theological tractates. The same project continues in the *Consolation*'s attempt to ascend from the prisoner's worldly perspective to that of Lady Philosophy by means of the language and arguments of different philosophical schools.

I will trace the construction of this peculiarly Boethian textuality in Boethius's *Isagoge* and *Peri hermeneias* commentaries, theological tractates and *Consolation*. In all these texts, Boethius's most common methods are, first, the division or distinction, and second, the construction and relating of different perspectives. Following Boethius's own pedagogical plan, then, I begin with the logic commentaries." (pp. 7-8, notes omitted)

20. Thomas, Ivo. 1951. "Boethius' locus a repugnantibus." *Methodos* no. 3:303-307.

21. Thomsen Thörnquist, Christina. 2017. "Bridging the Beginner's Gap: Apuleius, Boethius, and Porphyry on the Categorical Syllogism." In *The Aristotelian Tradition: Aristotle's Works on Logic and Metaphysics and Their Reception in the Middle*

Ages, edited by Bydén, Börje and Thomsen Thörnquist, Christina, 228-248. Turnhout: Brepols.

"Between Boethius in the early sixth century and Abelard at the beginning the twelfth, Aristotle's *Prior Analytics* was lost to the Latin West and its content was known solely through indirect and fragmentary sources. Boethius' *De syllogismo categorico* held a key position in this initial stage of the medieval reception of the *Prior Analytics*,(1) but other Latin sources were also known, such as Apuleius's *Peri hermeneias*. The great number of striking similarities between Boethius's *De syllogismo categorico* and Apuleius's *Peri hermeneias*, taken together with their chronological interrelation, have often led scholars to believe that the former draws on the latter. This article will propose a different explanation and discuss its implications for previous theories on the possible sources and overall aim of Apuleius's work." (p. 228)

(1) For an overview of the influence of Boethius's *De syllogismo categorico* on medieval scholasticism, see Christina Thomsen Thörnqvist, *Anicii Manlii Severini Boethii De syllogismo categorico*: Critical Edition with Introduction, Translation, Notes, and Indexes (Gothenburg, 2008), xli-li.

22. Torrijos-Castrillejo, David. 2020. "Divine foreknowledge and providence in the commentaries of Boethius and Aquinas on the *De interpretatione* 9 by Aristotle." *Biblica et Patristica Thoruniensia* no. 13:151-173.

Abstract: "Boethius represents one of the most important milestones in Christian reflection about fate and providence, especially considering that he takes into account Proclus' contributions to these questions. For this reason, The Consolation of philosophy

is considered a crucial work for the development of this topic. However, Boethius also exposes his ideas in his commentary on the book that constitutes one of the oldest and most relevant texts on the problem of future contingents, namely Aristotle's *De interpretatione*.

Although St. Thomas refers to Boethius many times in his systematic works and even devotes two commentaries to two of his theological opuscules, it is of special interest that both authors composed a commentary on the above mentioned work by

Aristotle. The commentary of Saint Thomas does not interpret the whole book, but it does study the pages about future contingents in dialogue with Boethius. We will study such texts in our presentation. They constitute one of the greatest contributions

of Aquinas to the problem of necessity and contingency and therefore to the *vexata quaestio* of divine intervention in the world and particularly in human free will. Not only Augustin but also Aristotle (read by Boethius) and Nemesius of Emesa will be

decisive in Aquinas' perception of this matter."

23. Tweedale, Martin. 1976. *Abailard on Universals*. Amsterdam: North-Holland.

Chapter II: Boethius on Porphyry pp. 53-88. 1. orphyry's Doctrine: a.The Five Predicables; b. The Quidditative-Denominative Distinction; 2. Boethius' Statement of the Problem; (a) Interpreting Porphyry;, (b) Universal Can be Neither Single Nor Many; (c) But a Universal Must Be Something; (d) Alexander's Solution; (e) Uiversals Are "Likenesses"; 3. he Problem Restated.

"The previous chapter was an informal discussion of the origins and significance of the problem of universals in Plato and Aristotle. We now skip nine hundred years to discuss a passage in a commentary by Boethius (c. 480-524) on a work entitled *Isagoge* written two centuries earlier by the neo-Platonist philosopher Porphyry. During those eight centuries after Aristotle there was certainly a great deal of thought given by many men to the topic of universals, but we safely ignore this ill explored region of the history of philosophy since what the early scholastics knew of it was pretty much limited to what could be dredged from Boethius, and for the most part from

this single passage that we are about to study. And since we are now dealing directly with what Peter Abailard and his contemporaries considered not just a statement, but the statement of the problem of universals, we shall have to be much more precise in our analysis." (p. 53)

"I must warn the reader from the start that what we are about to examine is a confused, vague and disorderly piece of philosophical writing. Since it was in Abailard's day the only detailed discussion of universals bequeathed to the scholastics by antiquity, we shall be driven to the conclusion that the scholastics of that time had on this topic received no clear instructions at all from the classical authorities they so revered. Probably this was all to the good. Here was an area where the sharp minds of the twelfth century were almost totally unfettered by the tradition and could explore many different approaches.

But Boethius' text is far from worthless. It sets forth a terminology that was sufficiently vague to allow for use by almost any conceivable theory, but yet sufficiently meaningful to facilitate communication and argument. Furthermore, it related the rather battered remains of some ancient ideas on the topic, and these were still potent enough to excite intelligent people to construct their own theories around them.

A second warning is necessary. It is not at all clear that Boethius himself believes that what he is saying here has any more than provisional validity. At the very end he tells us that he has set forth the solution he gives not because he agrees with it but because it was Aristotle's and, after all, the reader is, presumably, preparing himself for the study of Aristotle's *Categories*. It is well known that Boethius himself was a Platonist, and thus it is not entirely surprising that his account of the Aristotelian view here is not very coherent and opens more questions than it answers. Perhaps Boethius himself intended it that way. With all this in mind let us examine the text in detail.

(a) Interpreting Porphyry

The passage from Porphyry that Boethius has translated from the Greek and is about to comment on runs as follows:

On the subject of genera and species I shall at present decline to say whether they subsist or are given in mere bare ideas, and whether as subsistents they are corporeal or incorporeal, and whether they are separate from sensible items or given in sensible items. For topics of this sort are very deep and demand a long inquiry.

Mox de generibus et speciebus illud quidem, sive subsistant, sive in soils nudis intellectibus posita sint, sive subsistentia corporalia sint an incorporalia, et utrum separata a sensibilibus posita: et circa haec consistentia dicere recusabo. Altis-simum enim negotium est hujusmodi, majoris egens inquisitionis.(11)" (pp. 63-64)

(11) Migne, *Pat. Lat.*, voL 64 82 A-B.

24. Wang, Qi. 2014. *Boethius and the Importance of Basic Logic and Mathematics for Philosophy*, Leiden University.

    Unpublished Ph.D. thesis availbale at Leiden University.

    "My dissertation has three main parts. The first part (Chapter II) focuses on Boethius' elementary disciplines, logic and mathematics. I will give a short introduction to these two disciplines and their roles in Boethius' whole knowledge; then I will point out applications of each one to the other. The second and third parts (Chapter III and Chapter IV) trace applications of mathematics and basic logic in Boethius' theological treatises and in the *Consolatio Philosophiae* respectively. Before the three main chapters, the background of Boethius will be introduced first. In this chapter, I will give a description of the curriculum before Boethius and an introduction toBoethius' curriculum on mathematics, logic, theology, and his *Consolatio Philosophiae*." (p. 3)

Études en Français

1. de Libera, Alain. 1999. *L'art des généralités. Théories de l'abstraction*. Paris: Aubier.

Chapitre II: *Boèce*, pp. 159-280.

"Médiateur quasi exclusif des doctrines porphyriennes, Boèce a également déterminé en profondeur l'interprétation du questionnaire de Porphyre : c'est donc lui qui, jusqu'au XIIe siècle, a aussi fourni aux Latini de quoi entendre et argumenter le « problème des universaux » enté par les commentateurs néoplatoniciens du VIe siècle sur le formulaire de Porphyre. Ce rôle massif, bien reconnu par l'historiographie, en dissimule cependant un autre, qui est demeuré inaperçu. On peut le résumer d'une phrase, dont les pages qui suivent apporteront la démonstration : dans son interprétation même de Porphyre, Boèce a assuré la pérennité, voire l'articulation même, de ce que nous avons appelé l'« épistémé alexandrinienne ».

C'est par Boèce, en effet, que les doctrines d'Alexandre, et plus encore ses concepts et ses théorèmes les plus fondamentaux, ont été connus, sans toujours être reconnus, par les Latins. Dans le naufrage global des sources littéraires de l'Antiquité tardive, qui impose à l'historien l'idée fausse d'une rupture entre le monde antique et le monde médiéval, l'oeuvre de Boèce est comme une Arche où survivent - pour la plupart anonymes - les théories, les débats, mais aussi les réseaux de concepts et d'arguments, tissés au long des siècles à partir des écrits d'Alexandre d'Aphrodise. Pour comprendre la pensée philosophique latine jusqu'à son accomplissement dans la figure préscolastique, gréco-latine, du savoir, qui se déploie au XIIe siècle chez Pierre Abéïard, le passage par Boèce est donc obligé. C'est par lui que, à leur insu, les médiévaux ont communiqué avec Alexandre, ses interprètes et ses critiques. L'*Aetas boethiana* a donc été aussi l'« époque » ou l'« ère » philosophique d'Alexandre, l'« âge » de l'Alexandre de Boèce (comme on dit le Socrate de Platon) : l'Alexandre des Q*uaestiones*. À partir du XIIIe siècle, le Moyen Âge en connaîtra un autre : celui d'un Alexandre commentateur des écrits naturels d'Aristote et théoricien de l'intellect - l'Alexandre d'Averroès, l'Alexandre arabo-latin (7). C'est au premier que nous nous intéresserons ici." (pp. 161-162)

(7) Sur cet autre visage d'Alexandre, le lecteur pourra consulter les notes que nous avons rédigées pour Averroès. *L'Intelligence et la pensée. Grand commentaire du De anima, III*. Trad., introd., bibliogr.,

chronologie, notes et index, Paris (GF, 974), GF-Flammarion, 1998.

2. Hadot, Pierre. 1959. "Un fragment du commentaire perdu de Boèce sur les *Catégories* d'Aristote dans le *codex Bernensis* 363." *Archives d'histoire doctrinale et littéraire du Moyen Âge* no. 26:11-27.

   Repris dans P. Hadot, *Plotin, Porphyre. Études néoplatoniciennes,* Paris: Les Belles Lettres, 1999, pp. 383-410 et dans P. Hadot, *Études de Patristique et d'histoire des concepts*, Paris: Les Belles Lettres, 2010, pp. 323-343.

   "En 1863, dans ses *Rhetores Latini Minores*(1), K. Halm publiait une suite d'*excerpta* contenue dans le Bernensis 363 (seconde moitié du IXe siècle), sous le titre, qu'il adopta dans son édition : *Ars rhelorica Clodiani de statibus*. Comme il le signalait dans sa préface(2), cette suite d'excerpta comprenait d'abord un emprunt à un ouvrage *de stalibus*, puis un extrait plus long emprunté à un commentaire sur les *Catégories*

   d'Aristote, enfin quelques lignes se rapportant au γνῶθι σαυτόν.

   Halm constata que l'extrait du commentaire sur les *Catégories* d'Aristote ne correspondait pas au commentaire de Boèce que nous connaissons. Mais il n'émit aucune hypothèse au sujet de l'origine de cet extrait. Or, il semble bien que nous soyons ici en présence d'un fragment de la seconde édition du commentaire de Boèce sur les Catégories(3). En effet, cè commentaire :

   1° se rapportant aux deux premières lignes des *Catégories* d'Aristote,

   2° utilise le commentaire de Porphyre sur ces mêmes *Catégories*, κατὰ πεϋσιν καἰ αποκρισιν qui nous a été conservé,

   3° utilise également le second commentaire {perdu) de Porphyre « à Gédalius », dont on retrouve les traces chez

Dexippe et Simplicius,

4° et enfin, pour différent qu'il soit du commentaire de Boèce que nous connaissons, contient néanmoins beaucoup de particularités de style, propres à Boèce."

(1) 1) C. Halm, *Rhetores Iatini minores,* Leipzig, 1863, p.560-592.

(2) Ibid., p. XIV.

(3) Sur ce second commentaire, aujourd'hui perdu, cf. plus bas, p. 23-24.

3. Tremblay, Bruno. 2005. "Boèce, *In Cat.* : proème et commentaire aux *antepraedicamenta*." *Carmina Philosophiae* no. 14:1-56.

"Le traité des *Catégories* occupe une place de choix et dans les étudesaristotéliciennes en général à travers les siècles, et dans l'école des commentateurs dits "néoplatoniciens" de la fin de l'Antiquité à laquelle

Boèce se rattache et pour laquelle le traité constitue un préambule à l'ensemble de la philosophie,(3) et dans l'oeuvre de Boèce lui-même, ne serait-ce que parce que son travail sur les *Catégories* constitue le premier pan de son projet gigantesque et bien sûr inachevé de traduire et de commenter tout Aristote et Platon.(4)

Une grande partie de l'intérêt que suscite ce petit ouvrage d'Aristote vient de sa difficulté d'interprétation. À cet égard, la plus importante des questions posées par sa lecture tourne sans doute autour de la détermination du sujet ou du propos de l'ouvrage, sur lequel Aristote donne peu d'indications explicites, ce qui a évidemment causé une grande diversité dans les vues des commentateurs.(5) La question est

d'autant plus sérieuse que c'est à la lumière de sa réponse qu'on se prononcera sur le caractère logique, métaphysique ou linguistique de l'oeuvre, ainsi que sur le rôle et l'unité réelle ou factice des trois parties

de l'ouvrage tel que l'édition ancienne nous l'a transmis : *antepraedicamenta* (chap.1-4), *praedicamenta* proprement dits (chap.5-9) et *postpraedicamenta* (chap.10-15).

Boèce lui-même rend bien compte dans son commentaire du caractère difficile de ce problème, puisque après y avoir répondu en disant que les sons vocaux qui signifient les choses ou les genres des choses, en tant qu'ils les signifient, constituent le sujet des *Catégories*, il s'empresse d'ajouter que la réponse qu'il a donnée ne vaut que pour les débutants, parce que la vraie solution, qui est de fait beaucoup plus subtile, demandera qu'on y revienne en un autre lieu et exigera la science pythagoricienne et un enseignement parfait (160AB). Quoi qu'il en soit de cette autre solution, peut-être contenue dans un deuxième commentaire, perdu, au traité des *Catégories*, la formulation du propos mentionnée et de fait l'ensemble du commentaire allaient être pris très au sérieux par les logiciens médiévaux." (pp. 1-2)

(3) Simplicius, *In Aristotelis Categorias Commentarium*, éd. C. Kalbfleish, CAG VIII (Berlin: Reimer, 1907), 1, 4-5. À partir de maintenant, je renverrai à cette oeuvre de la façon suivante: Simplicius, *In Cat*.

(4) Boèce, *Commentarii in librum Aristotelis Peri Hermeneias, editio secunda,* éd. K. Meiser (Leipzig: Teubner, 1877-1880), 79, 9-80, 9.

(5) Simplicius, *In Cat*., 9, 4-13, 18, nous donne une bonne idée de cette diversité.

Estudos en Español

1. Bertelloni, Francisco. 2012. "El resultado del conocimiento universal en el segundo comentario de Boecio a la *Isagogé* de Porfirio." *Scripta* no. 5:11-34.

   Resumen: "El autor trata tres temas presentes en el segundo comentario de Boecio a la *Isagogé* de Porfirio. El primero muestra que cuando Boecio argumenta contra el universal ontológico de Porfirio, lo hace en términos *cuantitativos;* por ello la argumentación de Boecio contra el realismo porfiriano es

diferente, por ej., de la argumentación que utiliza Abelardo en su *Logica Ingredientibus*. Mientras para Boecio *lo que es uno no puede ser simultáneamente múltiple* a causa de una imposibilidad cuantitativa, para Abelardo la misma imposibilidad resulta de una *reducción al absurdo*, pues la misma res universalis no puede ser racional en un sujeto e irracional en otro. El segundo tema es la distinción boeciana entre *modo de ser* y *modo de ser conocido*

del universal. El tercer tema es la posibilidad de aferrar el universal boeciano a través de una fórmula apta para tipificar ese universal que, según Boecio, sería deficiente si fuera solo gnoseológico o solo ontológico; esa fórmula debe poder dar cuentas, simultáneamente, de ambas dimensiones del universal, es decir, la dimensión real-ontológica y la intelectual-gnoseológica."

2. Correia, Manuel. 2007. "Los tratados silogísticos de Boecio: sus fuentes, historia e influencia en la cristiandad latina." *Teología y Vida* no. 48:131-140.

   Resumen: "En este artículo se describen los contenidos de un tratado sobre lógica aristotélica escrito por Boecio en el VI d. C., llamado por nuestras ediciones modernas *De syllogismo categorico* (=DSC). A través de sus contenidos, es posible mostrar: (i) la importancia de este tratado en el proceso de transmisión de la lógica de Aristóteles al medioevo latino; (ii) su relación con otro tratado monográfico similar, titulado por la crítica moderna *Introductio ad syllogismos categoricos* (ISC) y su relación temática con DSC; (iii) las fuentes más probables de ambos tratados; y, finalmente, (iv) su influencia en el medioevo latino. La hipótesis que se defiende en este artículo es que los contenidos lógicos de este tratado, en particular la clasificación de las proposiciones categóricas, contenida en el corazón del DSC, entregan no solo el objeto temático al tratado, sino también coherencia argumentativa y unidad. En especial, el estudio de esta clasificación permite demostrar la unidad de DSC y en particular que el segundo libro de DSC es genuino y no espurio como sostuvieron, no hace mucho, los estudiosos Murari y McKinlay; además, esta misma clasificación permite apreciar su diferencia con ISC, por el hecho de que este último

tratado posee una clasificación diferente a la de DSC. La base de la hipótesis propuesta se halla en que la clasificación mencionada es un intento por generar, a partir de los elementos proposicionales, las principales operaciones lógicas definidas por Aristóteles en sus escritos lógicos, asunto que en la revisión de De Rijk (1964) no quedó totalmente establecido."

Referencias

De Rijk L. M. (1964): *On the Chronology of Boethius' works on Logic (I and II)*, en *Vivarium*, vol. 2, parts 1 & 2, 1964, pp. 1-49 and 122-162.

McKinlay (1938): "The De syllogismis categoricis and Introductio ad syllogismos categoricos of Boethius", en *Classical and Mediaeval Studies in honor of E. K. Rand*, New York 1938, pp. 209-219.

Murari R. (1905): *Dante e Boezio*, Bologna 1905.

3. Ferreira, Paulo. 2021. "Sobre a tese de que a bivalência implica o determinismo causal, do estoicismo ao aristotelismo." *Journal of Ancient Philosophy* no. 15:173-189.

   Abstract: "According to Simplicius' commentary on Aristotle's *Categories*, the Platonic philosopher Claudius Nicostratus (fl. mid-2nd c. A.D.) challenges Aristotle's claim in the *Categories* to the effect that statements about future contingents are neither true nor false. I argue that Nicostratus' charge traces back to Chrysippus' argument for causal determinism in Cicero's *De Fato* and plays a significant role in motivating Ammonius' and Boethius' solution to the problem of future contingents."

4. Molina Cantó, Eduardo. 2001. "Traducción y comentario en le Medioevo temprano: Boecio y el *De interpretatione* 14." *Onomazein* no. 6:149-162.

   Resumen: "La traducción y el comentario al tratado *Sobre la interpretación* de Aristóteles, llevados a cabo por Boecio, son examinados en este artículo con el fin de discutir una tesis recientemente sostenida, según la cual la tarea de Boecio como comentarista del corpus lógico aristotélico se limitaría a una

traducción mecánica de glosas. Frente a esto, aquí se sostiene (1) que al examinar la labor como traductor de Boecio resulta más verosímil seguir adjudicándole la autoría intelectual de los comentarios y (2) que si se atiende al contexto de los comentarios del temprano medioevo, no cabe ir en busca de originalidad en un caso como este, sino de capacidad de asimilar y evaluar las discusiones y observaciones de que podía disponerse, cosa que puede afirmarse convincentemente de Boecio."

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History of Logic

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Medieval Theories of Supposition

Introduction

"Interest in medieval logic, and recognition of its significance as an original development of the formal logic founded by Aristotle, has arisen only within the past thirty-five years [*written in 1966*]. For more than three centuries it had been assumed, by logicians and historians alike, that medieval logic was no more than a scholastic trivialization of Aristotelian logic, its principal contribution being a fixation of terminology and invention of the mnemonic verse "Barbara", Celarent" etc., used in teaching the figures and moods of the syllogism. [...] The rediscovery of medieval logic had to wait on the rediscovery of formal logic itself [...] Frege's Begriffschrift appeared in 1879, but its significance was not appreciated until the beginning of the twentieth century when the Principia Mathematica of Whitehead and Russell gave the major impetus to the development of modern mathematical logic. On the contrary, the leaders of the new movement claimed that nothing had been done to advance the subject between the time of Aristotle and that of Boole, Peirce, Peano and Frege. Two developments which have taken place during the past thirty years have rescued medieval logic from oblivion and have stimulated a steadily increasing study of its content. First, the publication by Jan Łukasiewicz, in 1934, of a study which showed that the logic of unanalyzed propositions, on which modern mathematical logic rests as its most fundamental part, had been discovered in antiquity by the Stoics, led to the further discovery that the later medieval logicians, in their theory of Consequentiae, had independently developed this fundamental and non-Aristotelian part of logic. In the year 1935 J. Salamucha, a pupil of Łukasiewicz, published a detailed study of the propositional logic

of William of Ockham, and in that same year the present writer published (as his doctoral dissertation) the first modern study of Ockham's logical writings as a whole. A second development, which has taken place during the past thirty years within modern logic itself, has been the extension of logical investigations into the fields of semantics, modal logic, and philosophy of language, which turn out to be the areas in which the medieval logicians made their most interesting contributions. By reason of these developments, medieval logic has received increasing study since 1935 by historically minded logicians and by logically educated historians, and fragments of medieval logical doctrine have become part of the stock in trade, so to speak, of many contemporary logicians and philosophers of language.

"From "Ernest A. Moody, "The Medieval Contribution to Logic", *Studium Generale*, Jahr. 19, Heft 8, Heidelberg 1966, pp. 443-452; reprinted in: *Studies in Medieval Philosophy, Science, and Logic*, Berkely: University of California Press 1975, pp. 371-392.

"As the name implies, the theory of properties of terms is intended to provide an account of the different rôles that words can have when they appear as terms in propositions. As a matter of fact these terms are commonly distinguished in Mediaeval logic into such terms as have meaning in their own right (termini significativi) and such as are only significant when joined to terms of the first sort (termini consignificativi).

The former are also named categorematic terms (termini categorematici), the latter syncategorematic terms (termini syncategorematici). However, there seems to be some confusion in so far as syncategorematic terms may be discussed as determining to some extent the actual signification or denotation (=supposition) of the categorematic terms to which they are joined, rather than taken in their own right. It must be borne in mind, then, that when those terms were only taken in their function of determining categorematic terms, Medieval logicians used to deal with them in the tracts on the properties of terms (namely, in the tract De distributionibus).

Whenever they were taken as having some kind of meaning (con-significatio) of their own, or when were determinants (functors) of

phrases or of simple propositions, there were dealt with in special tracts, such as those entitled De syncategorematibus, and De consequentiis. Besides, there is another feature peculiar to the Medieval view of the properties of terms: Mediaeval logic apparently assumed that only those categorematic terms truly have significatio which signify forms (or: universal natures), either with the underlying substances of such forms or without. This assumption appears to have widespread in Medieval logic to such an extent, indeed, that the Medieval theory of the properties of terms was, in fact, reduced to a doctrine of significatio in its proper sense. This doctrine was concerned with significatio and its three functions: suppositio, appellatio, and copulatio." (pp. 513-514)

From Lambertus Marie De Rijk, *Logica Modernorum. A Contribution to the History of Early Terminist Logic*, Assen: Van Gorcum & Co., 1967, vol. II, Part one: *The Origin and Early Development of the Theory of Supposition*.

(to be continued...)

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History of Logic

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Bibliography of the Medieval Theories of Supposition: First part

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Studies in English A - Din

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   "This issue of *Topoi* centers on medieval supposition theory, with two new translations of original sources and six papers on

issues regarding the interpretation of the theory.(1)

Supposition theory came into full formulation sometime in the latter half of the 12th century, and flourished until sometime after the end of the 15th century. It was mostly discounted during Renaissance times, and mostly unknown from then until the second half of the 20th century.

Current scholars have become interested in supposition theory partly because some portions of it closely resemble twentieth century developments in semantics, including a recognition of quantificational phenomena that goes well beyond almost all other developments before Frege. In this introduction we explain briefly what supposition theory was, and we relate the translations and papers to issues in the development of the theory." (p. 1)

(1) The papers in this volume mostly developed out of a conference on “Signifier and Supposita” that was held at the University of California at Irvine in Spring 1996. We are grateful to the UCI Council for Collaborative Research in the Humanities for support for that conference.

2. Adams, Marilyn McCord. 1976. "What Does Ockham Means by 'Supposition'?" *Notre Dame Journal of Formal Logic* no. 17:5-37.

"Supposition theory is one of the most unique and important aspects of thirteenth and fourteenth century logic. The role played by the notion of supposition in medieval logic can be compared with the role of the notions of satisfaction and reference in modern logic. As the notion of satisfaction is introduced into modern discussions of truth, so supposition and truth are related in William Ockham's discussion, and their relation was debated by late fourteenth and early fifteenth century logicians.(1) And what little there is of a medieval attempt at developing a theory of quantification is imbedded in medieval discussions of the divisions of personal supposition. (2)

Despite the demonstrated importance of the notion of supposition, medieval logicians did not bother to make it very

clear just what it was for a term to supposit for something in a proposition. William Ockham's

general account of this at the outset of his discussion of supposition in the *Summa Logicae* I, c. 63, is among the fullest and, on the face of it, looks fairly explicit." (p. 375)

(1) Boehner, Philotheus, *Medieval Logic*, The University Press, Manchester (1952).

(2) Boehner, Philotheus, "Ockham's theory of supposition and the notion of truth," *Collected Articles on Ockham*, #16, The Franciscan Institute, St. Bonaventure, New York (1958), pp. 232-267.

3. Amerini, Fabrizio. 2013. "Thomas Aquinas and Some Italian Dominicans (Francis of Prato, Georgius Rovegnatinus and Girolamo Savonarola) on Signification and Supposition." *Vivarium* no. 51:327-351.

   Abstract: "Supposition is a controversial logical theory. Scholars have investigated many points of this doctrine such as its historical origin, its use in theology, the logical function of the theory, or the relationship between supposition and signification. In the article I focus on this latter aspect by discussing how some Italian, and in particular Florentine, Dominican followers of Aquinas—Francis of Prato (d. 1348), Girolamo Savonarola (d. 1498), and Georgius Rovegnatinus (d. after 1500)—explained the relation betviieen the linguistic terms' properties of signifying and suppositing, and hence the division of supposition. After sketching out Thomas Aquinas, Hervaeus Natalis, and William of Ockham's positions on the relationship between signification and supposition, I closely examine Francis's criticism of Ockham. Francis follows Walter Burle/s account of supposition and considers the statement that a term has simple supposition when (i) it Is taken not significatively and (ii) stands for an intention of mind as the weak point of Ockham's explanation of supposition. According to Francis, If this were the case, there would be no semantic basis for differentiating simple from material supposition. Francis is however hesitant about the full subordination of supposition to signification, especially witb regards to material

supposition, when a term, suppositing for itself, is taken to signify itself besides its meaning. More than one hundred years later, Girolamo Savonarola and Georgius Rovegnatinus have no doubt about the fact that terms may supposit only for what they signify."

4. Ashworth, Earline Jennifer. 1969. "The Doctrine of Supposition in the Sixteenth and Seventeenth Centuries." *Archiv fur Geschichte der Philosophie* no. 51:260-285.

   "It is often assumed that the logic of terms, including supposition theory, was despised and ignored by the logicians of the sixteenth and seventeenth centuries, in spite of the sophistication with which it had been developed during the later middle ages.

   (...)

   It is perhaps not surprising that when I looked at some eighty textbooks written during the period in question, I discovered that as many as twenty authors not only referred to the doctrine of supposition sympathetically, but usually went on to offer a detailed analysis which is neither a slavish nor an inept echo of what the mediaeval logicians had said." (pp. 260-271)

   (...)

   "The claim that with the end of the fifteenth Century all interest in the more sophisticated doctrines of the mediaeval logicians also came to an end, is clearly without foundation; and the practice of those writers I have examined clearly belies the humanist claim that past learning, other than classical, was no longer to be taken seriously." (p. 285)

5. ———. 1973. "Priority of Analysis and Merely Confused Supposition." *Franciscan Studies* no. 33:38-41.

   "In a recent article John J. Swiniarski discusses William of Ockham's use of merely confused supposition. 1 He claims that, in the case of universal affirmative propositions, Ockham's method of attributing merely confused supposition to the predicate accom- plishes much the same result as Peter Thomas Geach's method of attributing determinate supposition to the

predicate and using a priority of analysis rule, whereby the subject is always analysed first. However, he notes, Ockham's analytical procedures when ap- plied to particular negative propositions can lead to erroneous re- sults, which are only avoided by the adoption of a priority of analysis rule. Since such a rule renders merely confused supposition unnec- essary, he concludes that Geach was right and that Ockham ought to have employed only distributive and determinate supposition together with a priority of analysis rule in his treatment of standard categorical propositions. I do not wish to criticize what Swiniarski has to say about the interpretation of Ockham. Instead, I wish to make a few remarks about the use of merely confused supposition by sixteenth century logicians in order to show that it is not in ge- neral so easily dispensed with.(2)" (p. 38)

(1) Swiniarski, John J., "A New Presentation of Ockham's Theory of Sup- position with an Evaluation of Some Contemporary Criticisms, " *Franciscan Studies*, 30 (1970), 209-217. Those readers who are not familiar with supposition theory should be reminded that merely confused supposition involves an analysis into a disjunctive subject or predicate, whereas distributive supposition involves an analysis into a conjunction of propositions and determinate supposition involves an analysis into a disjunction of propositions.

(2) For further details about supposition theory in the sixteenth century, see my paper: " The Doctrine of Supposition in the Sixteenth and Seventeenth Centuries, " *Archiv für Geschichte der Philosophie*, 51 (1969), 260-285.

6. ———. 1978. "Multiple Quantification and the Use of Special Quantifiers in Early Sixteenth Century Logic." *Notre Dame Journal of Formal Logic* no. 19:599-613.

"I have three reasons for writing this paper. In the first place, I want to explain the early sixteenth century practice of using the letters 'a', 'b', 'c', and 'd' as special signs governing the interpretation of terms within sentences. In the second place, I want to investigate the analysis which logicians in the medieval tradition gave of such sentences as "There is somebody all of

whose donkeys are running", "Everybody has at least one donkey which is running", and "At least one of the donkeys which everybody owns is running".(2) In the third place, I want to show that, despite what Geach has suggested,(3 logicians in the medieval tradition were capable of offering good reasons for rejecting such inferences as "Every boy loves some girl, therefore there is some girl that every boy loves". My discussion will be based mainly on the work of a group of logicians who were at the University of Paris in the first two decades of the sixteenth century, in particular Fernando de Enzinas, Antonio Coronel, and Domingo de Soto." (p. 599 a note omitted)

(2) Cf. P. T. Geach, *Reference and Generality*, Ithaca, New York (1962), p. 15 ff.

(3) P. T. Geach, "History of a fallacy" in *Logic Matters*, Oxford (1972), pp. 1-13.

7. ———. 2010. "Terminist Logic." In *The Cambridge History of Medieval Philosophy*. *Vol I*, edited by Pasnau, Robert and Dyke, Christina van, 146-158. Cambridge: Cambridge University Press.

   Supposition theory pp. 152-158.

   "The vocabulary of supposition theory seems to be first found in the grammarians.

   Peter Helias, the twelfth-century commentator on Priscian, used the term suppositum semantically, to indicate the bearer of a form or property,(12) but, shortly afterwards, from the 1260s onward, grammarians also used the notion purely syntactically. The verb supponere meant “to put as a subject term,” and it was contrasted with apponere, “to put as a predicate term.”(13) The terminology made its way into logical treatises, and both uses are needed to make sense of thirteenth-century discussions, particularly of the questions whether supposition is only a property of substantival nouns, and whether supposition is only a property of grammatical subjects." (pp. 152-153)

   (12) e.g., Peter Helias, *Summa super Priscianum,* ed. Reilly, p. 891. For discussion, see Sten Ebbesen, “Early Supposition

Theory (12th–13th Century)," *Histoire Epistémologie Langage* 3 (1981) 35–48.

Cf. Aquinas, *Summa theol.* 3a 2.3c on why "this man" is called a suppositum.

(13) H. Kneepkens, "'Suppositio' and 'supponere' in 12th-Century Grammar," in J. Jolivet and A. de Libera (eds.) *Gilbert de Poitiers et ses contemporains: aux origines de la Logica modernorum* (Naples: Bibliopolis, 1987) 325–51. The passage about *supponere* and *apponere* frequently attributed to Peter Helias is a later interpolation (ed. Reilly, p. 448, apparatus).

8. ———. 2013. "Descent and Ascent from Ockham to Domingo de Soto: An Answer to Paul Spade." In *Medieval Supposition Theory Revisited: Studies in Memory of L. M. de Rijk*, edited by Bos, Egbert Peter, 385-410. Leiden: Brill.

   Also published as Volume 51, 1-4 (2013) of *Vivarium*.

   Acts of the XVIIth European Symposium for Medieval Logic and Semantics, held the University of Leiden, 2nd, 7th June. 2008.

   Abstract: "Paul Spade has attacked the theory of the modes of personal supposition as found in Ockham and Buridan, partly on the grounds that the details of the theory are incompatible with the equivalence between propositions and their descended forms which is implied by the appeal to suppositional descent and ascent. I trace the development of the doctrines of ascent and descent from the mid-fourteenth century to the early sixteenth century, and I investigate Domingo de Soto's elaborate account of how descent and ascent actually worked. I show that although Soto himself shared some of Spade's doubts, including those about the use of merely confused supposition, he had a way of reducing at least some propositions containing terms with such supposition to equivalent disjunctions and conjunctions of singular propositions. Moreover, he gave explicit instructions on how to avoid the supposed problem of O-propositions."

9. Bäck, Allan. 2013. "Avicenna's Theory of Supposition." *Vivarium* no. 51:81-115.

Abstract: "Although he does not have an explicit theory of supposition as is found in the works of Latin medieval philosophers, Avicenna (Ibn Sînâ) has two doctrines giving something equivalent: the threefold distinction of quiddity {*triplex status naturae*), corresponding to a division of simple, personal and material supposition, and his analyses of truth conditions for categorical propositions, where sentential context determines in part the reference of their terms. While he does address which individuals are being referred to by the universal terms used there, Avicenna concentrates more on the varied temporal durations of the predications being made. In Western terms, he has incorporated ampliation and restriction into the theory of supposition itself."

10. Barth, Else M. 1974. *The Logic of the Articles in Traditional Philosophy: A Contribution to the Study of Conceptual Structures*. Dordrecht: Reidel.

    Part Two. Historical Survey.

    Chapter IV. From the history of the logic of indefinite propositions 75-140; Chapter XII. Summary and conclusion 457-481.

    "In the entirely unoriginal albeit influential *Summulae logicales* by Peter of Spain (ca. 1205-1277; cp. de Rijk 1970), probably written around 1232, we find a division into four kinds of categorical proposition:

    “Propositionum categoricarum alia est universalis, alia particularis, alia indefinita, alia singularis” (Section 1.08). The author then gives an example of an indefinite proposition: “Indefinita est ilia in quia subicitur

    terminus communis sine signo, ut “homo currit”; vel aliter: propositio indefinita est quae significat inesse vel non inesse” (Section 1.09).

    This sentence, “homo currit”, we find in the theory of suppositio of William of Sherwood (1200/1210-1266/1271) as well in the theory of suppositio of Peter of Spain himself. This gives us sufficient reason to enquire into that theory. This famous scholastic theory of suppositio is a theory of the senses

of terms in different kinds of propositions. Since this theory starts out from and studies combinations of terms with other terms, Moody considers the doctrine of the suppositio of terms as a syntactic theory (1953/22). Geach, however, often translates “suppositio" by “mode of reference” (1968/56). We might speak of a syntactic theory of meaning. De Rijk holds that “the Mediaeval logicians based the suppositio on the capacity of a term, when used in a proposition, to be interpreted for one or more individuals” (1967/571). This capacity is the significatio of the term, not its suppositio. But in the opinion of de Rijk, there is, in the theories of authors like William of Sherwood and Peter of Spain, in fact no sharp difference between the significatio (being the first *proprietas termini*) and the suppositio of a given term." (pp. 79-80)

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Geach, P. T., 1968 [1962], *Reference and Generality. An Examination of Some Medieval and Modern Theories*. Revised edition. Ithaca, N.Y.

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11. Berger, Harald. 1991. "Simple Supposition in William of Ockham, John Buridan and Albert of Saxony." In *Itinéraires d'Albert de Saxe, Paris-Vienne au XIV Siécle*, edited by Biard, Joël, 31-43. Paris: Vrin.

    "My paper is based on the following two observations: (1) William of Ockham lays down a definition of simple supposition which reflects his anti-realistic stance; John Buridan, however, dispenses with this traditional kind of supposition altogether, whereas Albert of Saxony reintroduces it. In particular with respect to Albert, who is familiar with the doctrines of both Ockham and Buridan, the question, what Albert’s reasons are for his returning back behind Buridan,

suggests itself. (2) In modem interpretations concerning the theory of Ockham some immanent problems have been pointed out; some features of Buridan’s theory, in turn, have been drawn to attention which are apt to avoid Ockham’s problems. On this background I shall try to give an interpretation of Albert’s peculiar position. Thus my paper consists of three sections, one for each philosopher; in each of these sections I shall, firstly, present the supposition theory of each author briefly, and, then, I shall discuss some relevant issues. The title of my paper originates in the fact that the analysis of the traditional paradigm of simple supposition, viz. “homo est species”, exhibits the relevant differences of the authors in question, in particular on the level of mental language." (p- 31)

12. ———. 2016. ""Sortes differt ab omni homine". A Tension in Albert of Saxony's Concept of Merely Confused Supposition." In *Formal Approaches and Natural Language in Medieval Logic*, edited by Cesalli, Laurent, Goubier, Frédéric and Libera, Alain de, 283-302. Barcelona - Roma: Fédération Internationale des Instituts d’Études Médiévales.

    "In his Logica, Albert of Saxony defi nes merely confused supposition thus, that a descent under the general term to the singular terms can be done by way of a sentence with a disjunct extreme, but not by way of a disjunctive sentence or a conjunctive sentence, that is in scholastic terms, a descent can be done disiunctim, but not disiunctive nor copulative:(1)

    (...)

    He then adds a longer passage in which he criticizes the view of «some» who add to this defi nition «vel copulatim», that is, that the relevant descent can be done by way of a sentence with a disjunct extreme or with a conjunct extreme. This addition, however, is superfl uous according to Albert(2).

    This view criticized here by Albert is clearly that of Thomas Maulfelt who defi nes merely confused supposition thus, that a descent can be done by way of a sentence with a disjunct (and conditionalized) extreme or with a conjunct extreme. (The clause «condicionatim = de condicionato extremo» need not concern us here.) Thomas for his part states that the definition

which only comprises a descent by way of a sentence with a disjunct extreme is insuffi cient, indeed false(3)." (pp. 283-284)

(1) Albert von Sachsen, *Logik, Lateinisch – Deutsch, übersetzt, mit einer Einleitung und Anmerkungen* hg. v. H. Berger, Meiner, Hamburg 2010, ch. II.3, pp. 262-264 (Philosophische Bibliothek, 611). Cf. also rule 11 in ch. II.6, ibid., pp. 310-312. On this regula antiqua 'Quidquid mobilitat immobilitatum, hoc immobilitat mobilitatum' see, e.g., F. Schupp, *Logical Problems of the Medieval Theory of Consequences. With the Edition of the Liber consequentiarum*, Bibliopolis, Napoli 1988, pp. 161-162 (History of Logic, 6).

(2) Albert von Sachsen, *Logik*, op. cit., pp. 264, 266 and 268. The rejection is on pp. 266 and 268, «Breviter dico, quod non oportet addere [...] propter hoc tamen non sequitur, quod supponat confuse tantum».

(3) Thomas Maulfelt, *Suppositiones,* Ms Erfurt, Universitätsbibliothek, Dep. Erf., Cod. Amplon. Q. 271, f. 45r-v. Cf., e.g., S. Read, «Thomas of Cleves and Collective Supposition», Vivarium, 29 (1991) 50-84, at p. 71 and n. 66.

13. Biard, Joël. 2021. "John Buridan and Natural Supposition: From the Semantics of Names to Atemporal Propositions." *Medioevo* no. 44:123-140.

"John Buridan's adoption of natural supposition is surprising, and it has been seen as such. The concept of natural supposition was originally tied to the positing of a common nature as that which is signified by a common term, a theory which Buridan rejects in its various versions in his *Questions on the Metaphysics*. It would obviously not be sufficient to say that his *Summulae logicae* take as its guide a reworked version of Peter of Spain's *Tractatus*, which divide supposition in general into natural supposition and accidental supposition,(1) for it is clear that on many points Buridan does not hesitate to depart from the text that he uses both as manual and as material for his commentary. Moreover, he adopts and uses the concept of natural supposition in several other works. It is therefore necessary to understand the reasons internal to

Buridan's system that not only make this adoption possible, but even require it.

This task will be made easier if we recall that in the 13th-century natural supposition was not connected only, or even primarily, with the question of universals, but also with the question of the temporal determinations entailed by the way a general term is used in a proposition. Of course, the two issues are related, since singulars cease to be while the universal remains; however, even if common natures are rejected, there remains the question of the indexing of a proposition to a certain temporal determination.

The question arises when one has to specify the conditions of utterance of a necessary truth, at least if necessity is tied to omnitemporality.

Such truths pertain to propositions such as 'Every human being is an animal', but also – especially – those used in the sciences, in particular the natural sciences, in which there is an unavoidable tension between the contingency of things on the one hand and the necessity of its propositions on the other. This is why natural supposition will be called "demonstrative supposition". (pp. 123-124)

(1) Peter of Spain (Petrus Hispanus Portugalensis), *Tractatus called afterwards Summule logicales,* VI, 4, ed. L.M. De Rijk, Van Gorcum, Assen 1972, 81.

14. Boehner, Philotheus. 1946. "Ockham's Theory of Supposition and the Notion of Truth." *Franciscan Studies* no. 6:261-292.

Reprinted in: P. Boehner, *Collected Articles on Ockham,* Louvain: E. Nauwelaerts, 1958, pp. 232-267.

"Our discussion of Ockham's theory of signification,[(b)] though limited to essentials, has prepared the way for an understanding of his theory of supposition and, consequently, of the notion of truth. This ingenious medieval theory of supposition, which unfortunately is much neglected by modern schoolmen and even misunderstood by historians of Medieval Philosophy, will finally answer the question: What is truth or falsity as applied to a proposition? For truth is given when and

only when the subject and predicate of the same proposition stand or supposite for the same thing. To be sure, suppo¬ sition is not truth, but supposition enters the definition of truth, at least if we are interested in a semantic definition of truth (sometimes called logical truth) and if we are not to indulge in vague circum¬ locutions about the relation of correspondence between a proposition and a state of affairs, which relation of correspondence in a general way characterizes every scholastic theory of truth. As we have shown in our first study o.n the notion of truth, a semantic elucidation of the notion of truth seems to have been attempted by almost all the scholastics. That Ockham did the same can hardly be called an innovation; that he made a more careful analysis than others before him, is his distinct contribution to scholastic philosophy. In order to show that, we must first acquaint ourselves with Ockham's theory of supposition, and then show its bearing on the notion of truth." (pp. 232-233 of the reprint)

(b) Cfr. the preceding art. in the present volume. [*Okham's theory of signification* (1946), pp. 201-232]

15. ———. 1958. "A Medieval Theory of Supposition." *Franciscan Studies* no. 18:240-289.

"Supposition, on the other hand, is, in a strict sense, the property of a term that belongs to it as subject; thus tracts on supposition, in this narrower sense, analyze the significative function of the subject as it is determined by the context of the proposition. In a broader sense, however, the name 'supposition' is applied to both supposition in this narrower sense, and to appellation. Ockham, in his *Summa logicae* takes supposition in this broader sense and deals in one tract, *De Suppositione*, (p. I, c. 63 - 77) with all the problems which are connected with appellation as well.(2)

In the following we are going to take supposition in this broader sense and bring in discussions of the other properties at their proper places. However, our discussions will not follow a strictly historical order. Two reasons discourage this order. First, the material is so vast even in spite of the fact that most of the logical writings are still in manuscript form, that it is

impossible to give a faithful historical account in a limited space. Secondly, there is a general agreement on the main teachings of this theory among all the scholastics, certainly of the 14th and 15th centuries, which warrants the presentation of one theory and by calling attention occasionally to differences in opinion on minor details." (pp. 249-250 of the reprint, anoter omitted)

(2) It is interesting to note that Burleigh in his *De puritate artis logicae*, written after and against Ockham' s *Summa*, has fundamentally the same position: Suppositio communiter accepta est proprietas termini ad alium terminům in propositione comparati. Et isto modo convenit suppositio tam subiecto quam praedicato quam etiam verbo seu consignificatis ipsius verbi. Et isto modo . . . accepta est in plus quam appellatio, quia suppositio competit tam subiecto quam praedicato, et appellatio competit praedicato tantum. Suppositio proprie dieta est proprietas termini subiecti ad praedicatum comparati ... *Op. cit.*, [*Tractatus Longior*] Tr. I, p. i, c. 1; p. i s.

16. Boh, Ivan. 1965. "Paul of Pergola on Supposition and Consequences." *Franciscan Studies* no. 25:30-89.

"Although Paul of Pergula's *Logica* is primarily a summary of various logical topics designed to help students to learn the subject quickly and painlessly, its six tracts and their arrangement reflect rather accurately the state of logic in the early fifteenth century.(1) In fact, this is one of the basic reasons for studying it; the other is the intrinsic interest of the content.

The tracts comprising the work are the following: (i) the summulae, i. e. subjects of the On Interpretation, Categories and Porphyry, Prior Analytics, and Boethius, together with an introductory enumeration of the transcendentals (23 pages in the modem edition); (2) on suppositions (21 pages); (3) on examination of terms, i. e. those terms which enter propositions as form-determining elements either because they are syncategorematics or because they are used syncategorematically (41 pages); (4) on consequences (14

pages); (5) on obligations, i. e. rales for consistent disputations (32 pages); and (6) on insolubles (14 pages). In an introductory remark Paul promises the seventh tract,dealing with objections against the first, second, and fourth tract, but this part has not yet been found either in manuscripts or in early printed editions. There is, however, in several editions an additional short work, “On the Composite and the Divisive Sense” in which nine rules are given to deal with difficulties arising from the presence of certain syncategoremata and intentional functors in propositions. (2)

Comparing the subjects and the amount of space given to their discussion with those of most textbooks on traditional logic current today, we find striking differences. Most of the materials found in our textbooks belong to Paul's first tract; they are accompanied, however, with many epistemological, ontological, and even psychological problems, irrelevant to logic considered as a science of form or structure or syntax. The distinctions between various kinds of terms other than those of structure, between various kinds of definition, between realism and nominalism, and especially between major and minor logic, are for the most part non-logical in character; some of them would be such even if one granted that logic is to be understood in a broader sense, i. e. that it is not to deal merely with the syntactical, but also with the semantic and the pragmatic dimensions of language." (pp. 30-31)

(1) Cf. statement made by the editor of the *Logica* Sister Mary Anthony Brown, O.S.F. in the introduction to the work: "The *Logica* should be regarded, not as an innovation, but rather as a mosaic of the treasury of logic known at that time." *Logica and Tractatus de Sensu Composito et Diviso*, St. Bonaventure, 1961, p. viii. It is on the basis of this work that the translations given below were made, and all the references made in the commentary to the text are, unless otherwise noted, to this edition. P. Boehner, speaking of the rules of consequences, views Paul’s work in much the same way: "Wir müssen . . . hervorheben, daß all diese Regeln nur die Frucht einer fast 200 jährigen Arbeit der mittelalterlichen Logiker sind.” Cf.

"Bemerkungen zur Geschichte der DeMorganschen Gesetze in der Scholastik" in Archiv für Philosophie 4 (1951), p. 199.

(2) Sister Mary Anthony points out that this tract is usually appended to the printed editions of Paul's *Logica* and adds that "the manuscript tradition testifies that this is certainly an authentic work of Paul of Pergula" (cf. her edition of Paul's *Logica*, p. ix). There is, moreover, at least one explicit claim even in a printed work that a tract by this name was written by Paul and was later commented upon by others, namely by Antonius Francantianus, *Quaestiones de sensu composito et diviso Pauli Pergulensi et in consequentiis Strodi* (Venice, 1494).

17. ———. 1966. "Propositional Connectives, Supposition and Consequence in Paul of Pergola." *Notre Dame Journal of Formal Logic* no. 7:109-128.

"Studying the rules of those consequentiae the validity of which depends on the internal structure of propositions, one quite often comes across Paul's remarks on various suppositions of terms; an understanding of his supposition theory is therefore essential for understanding such rules.

However, reading of the tract on supposition itself presupposes a grasp*

(a) of propositional connectives 'or', 'and', and 'if;

(b) of modal determinations;

and (c) of the validity-conditions of consequence in general;

and (d) of some specific rules of consequence.

The propositional connectives mentioned under (a) have been discussed by Paul in his *Summulae*,(1) a tract which treats of the topics of the *logica vetus* and the *logica nova*; and the modal functors were at least enumerated in the same tract.(2) His discussion of consequence and of the rules of consequences, however, follow the tract on supposition and should not have been used at this stage. But Paul can be excused from the charge of assuming a knowledge of what he will discuss later on the ground that even the *logica nova*

should give the reader an idea of 'logically following from' and of the validity conditions for an inference." (p. 109)

* Paul of Pergola was born in the end of the 14th or the beginning of the 15th century, probably in Italy, and died in 1451. He studied under Paul of Venice (d. 1429) who lectured at the Universities of Padua and Siena. Paul of Pergola was a successful teacher of philosophy; although a member of the order of Augustinian Hermites, he was a publicly paid lecturer in Venice. His numerous works include *Logica*, found in at least 10 mss. and 8 printed editions; *De sensu composito et diviso*; *Dubia super consequentiis Strodi*; and his commentaries on the insolubles and the sophismata of Heytesbury. Cf. the introduction to his *Logica* by the editor Sister Mary Anthony Brown, ofm, pp. v-xiii, published by The Franciscan Institute, St. Bonaventure, N.Y., 1961.

(1) This tract forms the first part of Paul's manual *Logica*, edited by S. M. Anthony Brown, OSF, St. Bonaventure, New York, 1961. All the references to Paul of Pergola are to this work in its modern edition.

By the subjects of the *logica vetus* are meant such topics as are discussed in *On Interpretation*, *Categories, Isagoge*, and in Boethius' logical works; the subjects of *logica nova* contain, in addition to the above, the remaining portions of the *Organon,* and Gilbert de la Porre's *Liber de sex principiis*. The collective name for both, the l*ogica vetus* and the *logica nova* was *logica antiqua*, which was opposed to *logica moderna*; the latter includes the typically medieval logical topics, in particular the syncategoremata, properties of terms, consequences, obligations, and sophismata and insolubilia.

(2) "Modi sunt sex: Possibile, Impossibile, Necessarium, Contigens, Verum, Falsum". *Logica*, 11.

18. Boler, John. 1985. "Connotative Terms in Ockham." *History of Philosophy Quarterly* no. 2:21-37.

"The problem with Ockham's treatment of connotative terms is that he seems to do just what such a system should avoid. For example, his exposition of sentences containing connotative

terms suggests that the expounded form is semantically primary. More importantly, however, even when he brings propositions with a connotative term under the common rubric where the predicate term stands for the same thing as the subject term does, Ockham spells that out in a special way. The import of "Sortes is white," he says, is that there is a whiteness in the same thing the subject term stands for.(47) It should be clear, I think, that if signifying is something Ockham thinks that both absolute and connotative terms do, it is not something which is explained by their being both categorematic terms. There is a fairly common perception among recent Ockham commentators that we lack a definitive interpretive theory about just what supposition is supposed to do in Ockham's system. I trust it will not be thought a purely negative contribution to suggest that we are not altogether better off when it comes to signification." (p. 33)

(47) *Expositio in Librum Porphyrii de Praedicabilibus*, ch. 1, # 6 (O. Ph., II: 25/ 57-65).

19. Bos, Egbert Peter. 1978. "Mental Verbs in Terminist Logic (John Buridan, Albert of Saxony, Marsilius of Inghen)." *Vivarium* no. 16:56-69.

"This essay deals with the field of medieval logic and semantics, especially that part which is usually designated as terminist logic or *logica modernorum*. It was here that, among other things, the theory of supposition— which originated in the theory of fallacies and twelfth-century grammar— was developed.(3)

The theory of supposition is a theory of the use of terms. In fourteenth-century logic (the period of our inquiry) supposition of terms occurs in propositions.(4)

(...)

"Supposition theory first and foremost is a theory of the reference of terms to individual things; the propositions are analysed primarily as to whether the constituent terms refer to individual things in the external world, in terms of which they

are verifiable. Fourteenth-century logic is directed extensionally.(6)

In this paper I intend to present a survey and analysis of the behaviour of so-called intensional verbs and of the terms that are constructed with these verbs. I mean verbs like ‘intelligere’, ‘cognoscere’ , ‘appetere’ , ‘promittere’, i.e. verbs signifying a mental act . It appears, in medieval as well as in modem logic, (7) at the reference of the terms constructed with intensional verbs, is often not very transparent.(8)" (pp. 56-57)

3 L. M. de Rijk, *Logica Modernorum. A Contribution to the History of Early Terministic Logic*, 2 Vols. , Assen 1962-7.

4 L. M. de Rijk, *The Development of "Suppositio naturalis” in Medieval Logic* (I and II), in: Vivarium, 9 (1971). P- 91-107: 11 (1973). P- 43-9. especially p. 37ff. of the second part.

8 J. Pinborg, op. cit. (cf . note 1), p. 127.

7 See section 4, p. 60.

8 The term ‘transparent’ , of course, is Quine’s. See e.g., his *Word and Object*, Cambridge (USA), 160 ; for this term and related notions and for the problem as such, esp. ch. 6.

20. ———. 1997. "Speaking About Signs. Fourteenth-century views on suppositio materialis." *Amsterdamer Beiträge zur älteren Germanistik* no. 48:71-86.

"The principal questions in my paper are the following: How did the medieval semanticists indicate the autonymous use of words? Does the subject term in such a proposition express a linguistic item (itself, or its likes) because of the determination by the predicate? Or is it dependent on the will or intention of man, the *voluntas utentium*, as Ockham calls it?

Or is it a convention that determines the use of terms? Is a *signum materialitatis* (a sign, or mark, indicating material supposition) necessary? To what extent do the Medievals distinguish the autonymous use of language from other uses? Or is this kind of language meaningless?

There is hardly any secondary literature on this subject. (*)" (p. 75)

(*) M. Bochenski, *Formale Logik* (München 1970 (1956). 188-193; CA. Dufour, *Die Lehre der Proprietates Terminorum. Sinn und Referenz in mittelalterlicher Logik* (München/Hamden/Vv'ien 1989). 172-188. (Dufour tries to reconstruct the medieval theory of the properties of terms with the help of modern formal logic. This very interesting study did not obtain the attention it deserves, I feel). E. Karger, '*La supposition matérielle comme supposition significative: Paul de Venise, Paul de Pergola*', in *English Logic in Italy in the 14th and 15th Centuries. Acts of the 5th European Symposium on Medieval Logic and Semantics*, Rome, 10-14 november 1980, ed. by A. Maierù (Napoli). 331-342. In a penetrating analysis, Karger discusses the difficulties arising from the 'mentioning' of terms in relation to the general semantical theory of a philosopher.

21. ———. 2007. "Richard Billingham's *Speculum puerorum*, Some Medieval Commentaries and Aristotle." *Vivarium* no. 45:360-373.

    Abstract: "In the history of medieval semantics, supposition theory is important especially in the twelfth and thirteenth centuries. In this theory the emphasis is on the term, whose properties one tries to determine. In the fourteenth century the focus is on the proposition, of which a term having supposition is a part. The idea is to analyse propositions in order to determine their truth (probare). The Speculum puerorum written by Richard Billingham was the standard textbook for this approach. It was very influential in Europe. The theory of the probatio propositionis was meant to solve problems both in (empirically oriented) scientific propositions such as used by the Oxford Calculators, and theological propositions, especially those about the Trinity. The book is original, concise, but not clear in every respect. Studying medieval commentaries may help us to understand Richard's book. In the present paper three commentaries are presented. The commentators discussed problems about the status of Richard's book, and about its doctrine: what is the relation between probatio and

truth, what is the relation between probatio and supposition, what exactly are mediate and immediate terms (e.g.is the pronoun 'this' mediate or immediate?). The commentators sometimes criticize Richard. For example, one of them argues, against Billingham, that the verb 'can' ampliates its subject term and is therefore mediate."

22. ———, ed. 2013. *Medieval Supposition Theory Revisited: Studies in Memory of L. M. de Rijk*. Leiden: Brill.

    In Collaboration with H.A.G. Brakhuis, W. Duba, C. H. Kneepkens, and C. Schabel.

    Acts of the XVIIth European Symposium for Medieval Logic and Semantics, held the University of Leiden, 2nd, 7th June. 2008.

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"From June 2nd to June 7th, 2008, the XVIIth European Symposium for Medieval Logic and Semantics was held at the University of Leiden, The Netherlands.

The present volume contains the papers presented at the symposium by scholars from all over the world (the European Symposium extends beyond Europe in terms of its participants).

The general theme of the symposium was 'The Rise and Development of Supposition Theory'. It seemed appropriate

that a symposium in Leiden, held about 50 years after the publication of L.M. de Rijk's *Logica Modernorum* (Assen 1962-1967), emeritus professor of the University of Leiden, should be devoted to medieval supposition theories. On June 30, 2012, De Rijk died at the age of 87 years." (Preface, p 1)

23. Braakhuis, Henk A.G. 1999. "Scientific knowledge and contingent reality. Knowledge, signification and (natural) supposition in Buridan's Questions on *De generatione et corruptione*." In *The Commentary Tradition on Aristotle's De generatione et corruptione: Ancient, Medieval, and Early Modern*, edited by Thijssen, J. M. M. H. and Braakhuis, Henk A.G., 131-161. Turnhout: Brepols.

    "In view of the above, it will not come as a surprise to see that in the beginning of John Buridan's Questions on *De generatione et corruptione*, the problem of the possibility of scientific knowledge of beings coming into being and passing away is brought into sharp focus. Whereas in the commentaries of both Giles of Rome and Giles of Orleans, the problem is discussed under two headings, namely by asking whether there can be scientific knowledge of corruptible things and whether, if something has passed away, there can remain scientific knowledge of it,(4) John Buridan devotes the first three questions of his commentary to this problem. Two questions which resemble those discussed by Giles of Rome and Giles of Orleans are here followed by a third question which asks whether a word signifies the same irrespective of whether the thing it signifies exists or has already passed away (*utrum vox significet idem, re existente et corrupta*). By introducing, into this context, a semantical issue which had been eagerly discussed in the late thirteenth century, namely whether a word can lose its signification, Buridan makes it clear that for him, the problem of scientific knowledge has an essentially semantic character.

    In the present contribution, I shall discuss these first three questions of Buridan's *Questions on De generatione et corruptione*(5) Although it will become apparent that Buridan's views as expressed in these three questions do not differ considerably from those offered in similar questions to be

found in his other works,(6) the questions he discusses here nevertheless add to a better understanding of his views and form a further testimony to the importance he attached to the semantic aspect of problems of scientific knowledge and to the role he assigned to a correct analysis of the propositions in which we express our scientific knowledge." (pp. 132-133)

(4) Cf. Aegidius Romanus, *Commentaria in libros De generatione et corruptione* (Venezia, 1505), fols. 2va-3vb and Aegidius Aurelianensis, *Quaestiones super De generatione et corruptione* (Kuksewicz), pp. 3-12.

(5) For a complete list of the questions of Buridan's commentary, see the Appendix 1.

(6) These questions are mainly: (1) Johannes Buridanus, *Quaestiones super decem libros Ethico-rum Aristotelis ad Nicomachum* (Paris, 1513) VI, 6 , fols. 121vb-123rb: utrum omne scibile sit etemum. There is a translation of most of the text in Hyman e.a. *Philosophy in the Middle Ages*, pp. 705-710. (2) Johannes Buridanus, *Summulae De suppositionibus* (Van der Lecq), 4.3.4: *De divisione suppositionis communis in naturalem et accidentalem,* pp. 45-49. This new edition differs in important points from the older one in Reina, "Giovanni Buridano," pp. 206-208. There is a translation of this text in J*ean Buridan"s Logic* (King), pp. 125-128. For a study of both these texts cf. in particular Scott, "John Buridan," passim and De Rijk, "The Development," pp. 47-68. (3) Johannes Buridanus, *Questiones longe super librum Perihermeneias* (Van der Lecq), I, qu. 2: utrum omne nomen significat aliquid, pp. 728-1438.

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_____ . *Questiones longe super librum Perihermeneias*. Ed. R. van der Lecq. Nijmegen, 1983.

M. E. Reina, “Giovanni Buridano: Tractatus de suppositionibus.” *Rivista critica di storia della filosofia*, 12 (1957), 175-208 & 323-352.

Logica Modernorum. A Contribution To The History of Early Terminist Logic. Ed. L. M. de Rijk. Vol. II, 1: *The Origin And Early Development Of The Theory Of Supposition*, II, 2: Texts and Indices. Assen, 1967.

24. Brown, Stephen F. 1972. "Walter Burleigh's Treatise *De Suppositionibus* and its influence on William of Ockham." *Franciscan Studies* no. 32:15-64.

"In the present article we will edit and study Burleigh's earlier treatise on supposition. Certainly it is the work of Burleigh. This is witnessed by the explicits of both manuscripts which contain it.(5) Also, as Boehner indicated, it has large parts in common with the *De puritate*. Furthermore, Burleigh in the *De puritate* speaks of an earlier treatise with its manifold divisions of supposition, and the *De suppositionibus* lives up to that description. It is most probably a very early work of Walter Burleigh. As both Boehner and Weisheipl indicated, unlike the *De puritate* it shows no sign of attacking Ockham at all.(6) Also in the *De puritate* Burleigh himself speaks of an earlier treatise on supposition as "written in my youth."(7) Finally, in the manuscripts it is located beside works written in 1301 and 1302, shortly after Burleigh became a Master in the Arts Faculty. We conclude therefore that it is certainly the work of Burleigh and most probably was written about 1302." (p. 16)

(5) London, British Museum, Royal 12 F XIX, f. i33va : " ...Et ideo valet quia arguitur a pluribus determinatis ad unum determinatum. Expliciunt suppositions datae a M. W. de Bourť. " Cambridge, Gonville et Caius 434/434, f. I9ra : " Et non, quia arguitur a pluribus determinatis ad unum determinatum. Expliciunt suppositiones datae a Magistro Waltero de Burley. "

(6) Walter Burleigh, *De puritate...*, XIII-XIV ; J. Weisheipl, "Ockham and Some Mertonians" in *Mediaeval Studies,* XXX

(1968), 179.

7) 7 Walter Burleigh, *De puritate...*, 2 : " Plurimas divisiones suppositionis in iuventute mea memini me scripsisse...".

25. ———. 1993. "Medieval Supposition Theory in Its Theological Context." *Medieval Philosophy and Theology*:121-157.

In appendix: *Walter Chatton: Lectura in I Sent.* 4.1.1-2 (pp. 135-157).

"In brief, although modern students of medieval supposition theory have, for the most part, based themselves on medieval logic treatises, there is a rich parallel source for studying the development of the theory of the supposition of terms to be found in theological writings.

For, especially in dealing with the Trinity and the Incarnation, theologians had to clarify their statements, explaining in each case whether they were speaking about the divine essence or about all or one of the divine persons, or whether they were speaking about Christ as God or Christ as man. Did they develop a certain consistency in their theory of reference or supposition? Did they find some logical principles that governed their use of language and could be applied to each proposition dealing with the Trinity? If they did, would such a theory also be applicable in statements concerning the Incarnate Son, where one is dealing with only one person, but a person with a divine and a human nature?"

(...)

"Our present task is a much more modest one. We are writing this essay as an introduction to a particular text of Walter Chatton. We will be looking at one particular theological case and showing how a small number of Chatton's predecessors dealt with that case and how they tried to develop a theory of supposition to handle it. The particular theological case is found in Lombard's *Sentences* 1.4 where, picking up the Alberic-Abelard debate of 1121]*], the *Magister Sententiarum* examines the truth of the proposition "Deus genuit Deum."

Since the *Sententiae* of Lombard became the official theology textbook at Paris and Oxford before the middle of the thirteenth century, and every medieval baccalareus had as one option to present a commentary on Lombard's work as a partial requirement for becoming a Master of Theology, the commentaries baccalarii wrote on distinction 4 contain an alternate source for their theories of supposition.(9)" (pp. 113-114)

[*] Peter Abelard *Historia calamitatum* (Monfrin [Paris: Vrin 1967] 84-765-85.769).

(9) For an introduction to the development of the theory of the supposition of terms in the medieval period according to logical works, see Brown, "Walter Burleigh's Treatise De suppositionibus and its Influence on William of Ockham," *Franciscan Studies* 32 (1972): 15-64.

26. ———. 2009. "Gerald Odonis' *Tractatus de suppositionibus*: What is *suppositio communicabilis?*" *Vivarium* no. 47:205-220.

    Abstract: "The *Tractatus de suppositionibus*, which is cited by Gerald Odonis in his commentary on the *Sentences*, probably dates from ca. 1315-25. In the *Sentences* commentary he refers to his treatment of 'suppositio communicabilis' and its species, indicating a type of supposition whose language seems new. This article attempts to find a source for it in contemporary authors and arrives at the conclusion that 'communicabilis' is simply a synonym for 'personalis', the most common form of supposition according to Odonis."

27. ———. 2020. "Praepositinus of Cremona and William of Auxerre on *Suppositio*. Their Influence on the Summa Halensis." In *The Summa Halensis: Sources and Context*, edited by Schumacher, Lydia, 235-250. Berlin: de Gruyter.

    Abstract: "Early medieval discussions of supposition begin with reflections on an early passage of the first chapter of St Augustine’s *De Trinitate*. Here Augustine is criticizing Sabellius and his followers who claimed that the Father had begotten himself, i. e. God begets deity, which gave rise to a kind of

modalism. These words of Augustine show up in Peter Lombard's *Sentences*, Book I, Distinction 4, and gave rise to a larger debate about the words that can properly apply to God which engaged the minds not least of Abelard and Alberic of Reims, culminating in Gilbert of Poitiers.

Praepositinus (1135–1210) and William of Auxerre (1140–1231) are the sources of a new trajectory in interpreting the supposition of the name 'God', which directly influences the *Summa Halensis*. This paper examines the nature of that influence and provides a translation of brief texts from Prepositinus and William that form its background."

28. Brumberg-Chaumont, Julie. 2013. "The Role of Discrete Terms in the Theory of the Properties of Terms." *Vivarium* no. 51:169-204.

    Abstract: "Discrete supposition occurs whenever a discrete term, such as 'Socrates', is the subject of a given proposition. I propose to examine this apparently simple notion. I shall draw attention to the incongruity, within a general theory of the semantic variation of terms in a propositional context, of the notion of discrete supposition, in which a term usually has a single semantic correlate. The incongruity comes to the fore In those treatises that attempt to describe discrete supposition as a sort of personal supposition, although the same term cannot be in simple supposition in another propositional context, because it has no significate distinct from its suppositum. This shows a fundamental link between common signification, simple supposition and predicability, three notions that rely on the existence of a significate distinct and Independent from the suppositum of the term. The connection is to be seen especially in William of Sherwood's *Introductione*s, the only author of a terminist Summa who recognizes the existence of simple supposition for discrete terms."

29. Buridan, John. 1966. *Sophisms on Meaning and Truth*. New York: Appleton - Century - Crofts.

    Translated and with an introduction by Theodore Kermit Scott.

Introduction; V. Buridan's Theory of Language. B. Supposition, 29-42.

"The theory of supposition is the core of terminist logic.(54) Signification is a function of terms and concepts taken in isolation, but supposition is a function of the predication of terms and concepts.(55) In at least one of its aspects, supposition differs from signification as using a term differs from knowing how to use it. It is treated as a property of terms, but only as they occur in propositions, and it is used both as the basis for a theory of truth and as a tool for the purely syntactical analysis of propositions.

It is this double function of supposition that has led astray most attempts to give a general characterization of the theory. It is in fact, not one theory, but two, and they require separate treatments. (56) The first, which can be called simply the doctrine of supposition proper, is a set of rules governing the reference of terms in propositions and is the basis of a theory of truth. The second, which I call the doctrine of modes of supposition, has no effect on the reference of terms, but is a set of rules for the syntactical analysis of propositions containing quantifying words and is thus the quantification theory of terminist logic." (pp. 29-30)

(54) The use of the term *suppositio* stems from the use of the verb ("to place under" or "to stand in place of") made by both classical and medieval grammarians. The habit of grammarians of using the notion of standing for primarily in connection with pronouns helps explain the adaptation, for considerations of pronominal reference are inseparable from considerations of occasions and contexts of use, which is just what distinguishes supposition from signification in terminist logic. For a brief account of the history of the use of the term and of the doctrine, see Mullally, op. cit., [*The Summulae Logicales of Peter of Spain* (Notre Dame, Indiana, 1945)] pp. xlvi-xlvii.

(55) As in the case of signification, the supposition of a concept always matches that of the corresponding term, so that discussion can be confined to the supposition of terms.

(56) Whether Buridan is himself fully aware of the distinction is uncertain.

In his only general definition of “supposition,” at Chapter III, Remark i, he takes account of only one of the theories. But he does separate the two in practice, devoting the first six sophisms of Chapter III to the first and the last four to the second.

30. Burton, Patricia Shelby. 1990. *"Suppositio Naturalis" and the Truth Conditions of the Propositions of Demonstrative Science*, The University of Texas at Austin.

    Available at ProQuest Dissertation Express. Order number: 9105524.

31. Cesalli, Laurent. 2013. "Richard Brinkley on Supposition." *Vivarium* no. 51:275-303.

    Abstract: "This study comments on six *notabilia* found in the general observations (*praemittenda*) with which Brinkley begins his treatise on supposition in his *Summa logicae*: i) the logico-metaphysical explanation of the distinction between *significatio* and *suppositio*, ii) the ontic division principle of supposition, iii) the relationship between *supposita* and truth-makers, iv) what seems to be a late (and English) resurgence of natural supposition, v) a pragmatic suspension of the *regula appellationum* and vi) Brinkley’s apparently incompatible claims that there are communicable things and that there are only singular things, a position that is a medieval form of immanent realism. Based on the two manuscripts that contain the treatise on supposition, an appendix offers a provisional edition of part of Brinkley’s *Summa*, a collaboration between the author and Joël Lonfat."

32. Cesalli, Laurent, and Goubier, Frédéric. 2018. "Anton Marty on Naming (Nennen) and Meaning (Bedeuten): a Comparison with Medieval Supposition Theory." In *Modern Views of Medieval Logic*, edited by Kann, Christoph, Loewe, Benedikt, Rode, Christian and Uckelman, Sara L., 29-54. Leuven: Peeters.

33. Cocchiarella, Nino. 2001. "A Logical Reconstruction of Medieval Terminist Logic in Conceptual Realism." *Logical*

Analysis and History of Philosophy no. 4:35-72.

Abstract: "The framework of conceptual realism provides a logically ideal language within which to reconstruct the medieval terminist logic of the 14th century. The terminist notion of a concept, which shifted from Ockham's early view of a concept as an intentional object (the *fictum* theory) to his later view of a concept as a mental act (the *intellectio* theory), is reconstructed in this framework in terms of the idea of concepts as unsaturated cognitive structures.

Intentional objects (*ficta*) are not rejected but are reconstructed as the objectified intentional contents of concepts.

Their reconstruction as intentional objects is an essential part of the theory of predication of conceptual realism. It is by means of this theory that we are able to explain how the identity theory of the copula, which was basic to terminist logic, applies to categorical propositions. Reference in conceptual realism is not the same as supposition in terminist logic. Nevertheless, the various "modes" of personal supposition of terminist logic can be explained and justified in terms of this conceptualist theory of reference."

34. Conti, Alessandro D. 2013. "Semantic and Ontological Aspects of Wyclif's Theory of Supposition." *Vivarium* no. 51:304-326.

Abstract: "The relationship between thought and reality was a focal point of Wyclif's reflection.

On the one hand, Wyclif believed that thought was linguistically constrained by its own nature; on the other hand, he considered thought to be related to reality in its elements and constitution. Hence he deemed language, thought, and external reality to be of the same logical coherence. Within this context, the theory of supposition was intended to explain the different roles that terms can have in relation to language and the extramental world when they appear as extremes in propositions. Characteristically, his theory of supposition provides an account not only of the truth-values of a sentence, but also of its meaning; it is not therefore simply a theory of reference, but a sort of complex analysis of language viewed as

a semiotic system whose unique interpretative model was reality itself. It gives clear evidence of Wyclif's realist stance and of his conviction that any kind of linguistic and semantic features must be grounded on ontological structures."

35. Corcoran, John, and Swiniarski, John J. 1978. "Logical Structures of Ockham's Theory of Supposition." *Franciscan Studies* no. 38:161-183.

    "There are two pervasive themes in this article. In the first place this article is a defense of Ockham against a baseless charge oferror, which, if left unanswered, might tend to diminish Ockham's reputation as a technically competent logician. Study of the sources of the charge reveal that two recent commentaries each attribute ingenious and interesting logical structures to Ockham's thought on supposition. Comparison of these two structures with each other and with Ockham's writings yields three results: first, that the two structures, though separately consistent, are inconsistent with each other; second, that neither of them square with Ockham's own statements and, third, that Ockham's thought does have a logical structure which, in several respects, is even more ingenious. Thus, the second theme of this article involves an attempt to articulate the logical structure of Ockham's theory of supposition and to compare this structure with two others that have been proposed." (p. 161)

    (...)

    "It is important to realize that this article in no way impugns either the Loux interpretation or the Priest-Read formalization. In regard to Loux's work, this article refutes two inferences made in the exposition of Ockham's theory but it in no way criticizes the interpretation on which the exposition is based. The interpretation contains several worthwhile observations. Moreover, the Priest-Read formalization per se is not criticized at all. This article implies, however, that the Priest-Read formalization is not a formalization of Ockham's theory and that it is not a formalization of the Loux exposition either. We should acknowledge that without the clarity and precision provided by the Priest-Read formalization the results of this

article would have been much more difficult to obtain. Thus it can be said that this article builds on the works of Loux and of Priest and Read." (p. 163)

References

Loux, Michael J. [1974], *Ockham's Theory of Terms: Part I of the Summa Logicae*, translated and introduced by M. J. Loux, University of Notre Dame Press, Notre Dame and London.

Priest, Graham and Stephen Read [1977], "The Formalization of Ockham's Theory of Supposition," *Mind*, 86, 109-113.

36. Courtenay, William. 1984. "Force of Words and Figures of Speech: The Crisis over *Virtus Sermonis* in the Fourteenth Century." *Franciscan Studies* no. 44:107-128.

"On the Friday after Christmas in 1340 the Arts Faculty at the University of Paris, during the rectorship of Alain de Villa Colis, enacted a statute listing propositions and types of argumentation that should not be used in the schools by any master, bachelor, or scholar under pain of expulsion from the faculty forever.(1) Most of the articles in that statute concerned arguments employing the phrase *de virtute sermonis,* to the effect that propositions taken from authoritative sources should not simply be called false, *de virtute sermonis*." (p. 107)

(...)

"As far back as 1946 Boehner attempted to erase many of the misunderstandings about the meaning of the expression de *virtute sermonis* and shed light on Ockham's use of it.(5) The persuasiveness of his analysis was handicapped by his need for brevity (it was given as an aside in the context of another article), by a few unfortunate mistakes, and probably by the ad hominem assumption by many that Boehner had a vested interest in freeing Ockham from the taint of heresy. Yet when Boehner's analysis is considered on its own merits, it is essentially correct. It is only insufficient in the degree of attention given to the pre- and post-Ockhamist history of the phrase *de virtute sermonis* and the limitation of discussing it only in the context of supposition theory, leading to the mistaken inference that the expression *de virtute sermonis* was

equivalent to and interchangeable with proper supposition, as opposed to improper supposition, or *ex usu loquendi*." (p. 108)

(1) *Chartularium Universitatis Parisiensis,* ed. H. Denifle and E. Châtelain, Vol. II (Paris, 1891), 505-07, n. 1042, henceforth cited as CUP.

(5) Boehner, [*Ockham's Theory of Supposition and the Notion of Truth*, (1946) pp. 232-267, in] *Collected Articles*, 248-53.

37. Crimi, Milo. 2014. "Significative Supposition and Ockham's Rule." *Vivarium* no. 52:72-101.

    Abstract: "Paul Spade argues that there is a tension between Ockham's descriptions of the various types of supposition at Summa Logicae (sl) I.64 and a rule he provides at sl I.65. In later papers, Spade proposes a solution: a term supposits significatively (i.e., personally) just in case it supposits for everything it signifies. I evaluate Spade's proposal and explore some of its implications. I show that it successfully resolves the tension and that it suggests a way to more precisely describe material and simple supposition. I argue furthermore that Ockham is committed to the proposal by showing that uncontroversial features of his theory imply it. In doing so, I raise and refute three potential objections. Finally, I highlight and discuss a controversial result: self-signifying conventional terms can supposit materially. I argue that this result makes for a more satisfying theory."

38. ———. 2013. "Logic in Salamanca in the Fifteenth Century. The *Tractatus suppositionum terminorum* by Master Franquera." *Vivarium* no. 51:427-463.

    Abstract: "This paper looks into the contents of the *Tractatus suppositionum terminorum* by Master Franquera, in the context of the teaching of logic in Salamanca (and elsewhere in Spain) in the fifteenth century. Franquera's work is characterised by its explicit realist bias and its rejection of Ockhamist theses, i.e., by its recognition of the existence of a *natura communis* or a *universale in re*, which is evident in all discussions related to *suppositio simplex* and the theory of *significatio*. But, apart from this, Franquera's discussion of the

theory of s*uppositio* stands out as a strange mixture of different doctrines: some of them are derived from thirteenth-century (or earlier) analyses, others from fourteenth-century developments; realist goals are reached by means of instruments that, while not being nominalist, are definitely inspired by terminism. While upholding the theses of realist schools, Franquera adopts the definitions and rules of nominalist authors."

39. Dinneen, Francis P. 1990. "*Suppositio* in Petrus Hispanus. Linguistic Theories and Models." In *De Ortu Grammaticae. Studies in Medieval Grammar and Linguistics Theory in Memory of Jan Pinborg*, edited by Bursill-Hall, Geoffrey L., Ebbesen, Sten and Koerner, Konrad, 69-85. Amsterdam, Philadelphia: John Benjamins.

    "Hispanus opposes Signification and Supposition much like sense and reference. Each is a technical term. For Hispanus, term *(terminus*) itself is a technical term. It is distinguished from word (*dictio*), locution (*vox*), or part of speech (*pars orationis*) because those expressions are appropriate when discussing multiple ordinary or grammatical functions, while term is reserved for discussing only two logical functions that a grammarian's word, locution, or part of speech may serve: that of being relatable to another term as subject or predicate oí a.proposition.

    Hispanus is quite clear about this.

    (...)

    Hispanus is less clear in his definitions of Signification and Supposition as properties of a term. Technical terms should be precisely defined. But there are at least two different kinds of precision. One lists elements of composition positively, another indicates function or distinction negatively or relationally. Signification is positively defined as "conventional representation of a thing by a locution" (VI.2); Supposition as "acceptance of a substantive term for something" (VI.3). They are relatively defined because Supposition presupposes Signification: "Supposition and Signification differ because Signification is the imposition of a locution to signify a thing,

but Supposition is the acceptance of that term, already significant of a thing, for something" (ibid.). Both are subcategorized and related, but the chief interest is in the sense and reference of common nouns, discussed as the Signification and Supposition of common terms. (pp. 70-71)

Digital Quadrivium Project



History of Logic

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Bibliography of the Medieval Theories of Supposition: Second part

Bibliography

Studies in English Dut - Kay

1. Dutilh Novaes, Catarina. 2000. *A Study of William of Ockham's Logic - From Suppositio to Truth Conditions*, , University of Amsterdam.

   Available at the University of Amsterdam.

   Abstract: "This work is the result of my attempts to combine my Philosophy background with the Mathematical Logic inclinations of the institution within which this research was developed. In fact, this twofold character is noticeable in many features thereof; I shall now outline some of them.

   The project has two main purposes: the less risky one is to provide an account of William of Ockham's logical thinking, with focus on its aspects which bear a relation with the contemporary issues of intensional logics and possible-world semantics. The more risky one consists of investigating the possibilities of developing a purely extensional treatment of intensional contexts, such as tense and modalities. For the latter, some other extensional/nominalistic systems could have played the role of `experimental sample', but there seemed to be something intriguing about Ockham, as one wonders whether a philosopher from the XIVth century would have

something relevant to add to our present logical issues. Moreover, he is considered to be the founder of nominalism, so the historical interest of such enterprise was self-evident - therefore, the legitimacy of the first purpose.

I shall try to comply with two very distinct kinds of expectations: those which are the desiderata for a History of Philosophy work, and those of logicians, who are interested in the formal correcteness of the system hereby presented. The criteria of excellence of these two lines are almost incompatible, and one wonders if it is not a suicidal enterprise to try to combine them. On the one hand, an Ockham scholar may be discontent with the absence of a few important aspects of Ockham's logic, since I deliberately priorize those related to contemporary logic. On the other hand, a logician may be bothered by the presence of too many `antiquities', perhaps hindering logical clarity. So, at the risk of displeasing everybody, I nevertheless maintain that such a combination may turn out to be fruitful and informative to both sides.

Chapter 1 will display some fundamental aspects of Ockham's logic and semantics, in a rather historical approach. However, even this part is developed taking into account what I later shall want to establish as my version of an `ockhamist system'. I consider it to be the flaw of many such reconstructions that they do not undertake a serious analysis of the underlying concepts; alternatively, some which did rely on such an analysis have reached very interesting results.

Chapter 2 relates some apparently less central (when compared to supposition theory, for example) issues of Ockham's theory to relevant topics of Contemporary Philosophy, such as possible worlds, designation, demonstratives etc... In this chapter I also introduce conceptual tools which I will make use of for the reconstruction undertaken in chapter 3. Finally, Chapter 3 is an attempt to provide truth conditions for quantified, modal and tense propositions, based on the truth of singular propositions.

I hereby hope to reach a rather broad account of Ockham's thinking, even though my main target is to build a coherent and

correctly structured reconstruction of his theory of propositions."

2. ———. 2004. "The Buridanian Account of Inferential Relations between Doubly Quantified Propositions: a Proof of Soundness." *History and Philosophy of Logic* no. 25:225-243.

   Abstract: "On the basis of passages from John Buridan's *Summula Suppositionibus* and *Sophismata*, E. Karger has reconstructed what could be called the 'Buridanian theory of inferential relations between doubly quantified propositions', presented in her 1993 article 'A theory of immediate inference contained in Buridan's logic'.[*]

   In the reconstruction, she focused on the syntactical elements of Buridan's theory of modes of personal supposition to extract patterns of formally valid inferences between members of a certain class of basic categorical propositions. The present study aims at offering semantic corroboration—a proof of soundness—to the inferential relations syntactically identified by E. Karger, by means of the analysis of Buridan's semantic definitions of the modes of personal supposition. The semantic analysis is done with the help of some modern logical concepts, in particular that of the model. In effect, the relations of inference syntactically established are shown to hold also from a semantic point of view, which means thus that this fragment of Buridan's logic can be said to be sound."

   [*] in: Klaus Jacobi (ed.), *Argumentationstheorie. Scholastische Forschungen zu den logischen und semantischen Regeln korrekten FolgernsI,* Leiden: Brill 1993, pp. 403-429.

3. ———. 2007. "Theory of Supposition vs. Theory of Fallacies in Ockham." *Vivarium* no. 45:343-359.

   Abstract: "I propose to examine the issue of whether the ancient tradition in logic continued to be developed in the later medieval period from the vantage point of the relations between two specific groups of theories, namely the medieval theories of supposition and the (originally) ancient theories of fallacies. More specifically, I examine whether supposition theories absorbed and replaced theories of fallacies, or whether

the latter continued to exist, with respect to one particular author, William of Ockham. I compare different parts of Ockham's *Summa Logicae*, namely III-4 (on fallacies), and the final chapters of part I and first chapters of part II (on supposition). I conclude that there is overlap of conceptual apparatus and of goals (concerning propositions that must be distinguished) in Ockham's theories of supposition and of fallacies, but that the respective conceptual apparatuses also present substantial dissimilarities. Hence, theories of supposition are better seen as an addition to the general logical framework that medieval authors had inherited from ancient times, rather than the replacement of an ancient tradition by a medieval one. Indeed, supposition theories and fallacy theories had different tasks to fulfil, and in this sense both had their place in fourteenth century logic."

4. ———. 2007. *Formalizing Medieval Logical Theories: Suppositio, Consequentiae and Obligationes*. New York: Springer.

   Contents: Introduction I-XII; 1. Supposition theory: algorithmic hermeneutics 7; 2. Buridan's notion of *Consequentia* 79; 3. *Obligationes* as logical games 145; 4. The philosophy of formalization 215; Conclusion 293; References 301; Index of names and topics 310.

   "From a modern perspective, the medieval writings in logic are incomprehensible. Not only is the language (Latin) a barrier; medieval logic was embedded in a complex conceptual framework, with constant use of highly technical jargon. But the most serious obstacle may be the modern tendency to express logical theories in especially devised notations, and with a certain axiomatic structure, which are not to be found in the medieval writings. Either way, it is clear that one way of establishing such a dialogue between these two traditions is to formalize fragments of medieval logic. And this is precisely what I set out to do. In particular, the objects of formalization in the present study are three topics from medieval logic, namely *supposition*, *consequentia* and *obligationes*; each can be seen as a case study demonstrating the fruitfulness of formalizing medieval logic." (pp. 2-3)

(…)

"The concept of supposition was already the topic of my master thesis, where I dealt with Ockham's truth conditions for the main propositional forms, leaving aside the different kinds of supposition that are my concern here. Besides, supposition is a crucial concept in the medieval semantic framework, so it seemed appropriate to treat of it in the present context – even more so since supposition remains an unfinished topic within medieval scholarship. My main tenet is that, contrary to the accepted view, theories of supposition should not be compared to modern theories of reference.

Within the modern framework, they are best seen as theories of meaning, more specifically as theories for the algorithmic generation of the meanings that a certain body of propositions may carry. This insight came to me from a switch of perspective: theories of supposition should not be seen as static, but rather as procedural, in a sense that has recently become influential in logic." (p. 5)

5. ———. 2008. "An Intensional Interpretation of Ockham's Theory of Supposition." *Journal of the History of Philosophy* no. 46:365-394.

"I have argued elsewhere that there are significant dissimilarities between theories of supposition and theories of reference, to the extent that the assimilation of the former to the latter becomes unfounded and misleading.(3) In fact, attributing the title of 'theory of reference' to any pre-Fregean theory is, to say the least, debatable.

Here, I argue that, if supposition theories are to be compared to a group of modern theories at all, it seems to be more fruitful to view them as theories of (propositional) meaning—insofar as they aim at the generation of the possible readings of (certain) propositions—and that this is true in particular of William of Ockham's theory of supposition. To be sure, I am not contending that supposition is not fundamentally a property of terms in propositions; rather, what I claim is that, by establishing the possible supposita (i.e., the object[s] it may stand for) of a term in a proposition, Ockham intended to

generate the possible meanings of the proposition in question. In other words, Ockham's supposition theory does indeed concern this particular property of terms, their supposition, but it is in fact part of a larger program of propositional hermeneutics.

The conclusion I will draw from the textual, historical, and conceptual analysis to follow is that Ockham's theory of supposition can be seen as a formal method for the semantic analysis of (certain) propositions, generating their possible readings. That is, the theory as formulated by Ockham is essentially intended to interpret propositions; it is a project of hermeneutics, but not in the sense that it relies on the subjective skills of the interpreter. Rather, it contains a set of rules that could be applied mechanically, in some senses resembling what is now known as computational semantics. Very important for this interpretation of supposition theory is its procedural nature, as these rules are viewed as a set of instructions to be carried out." (pp. 365-366, some notes omitted)

(3) C. Dutilh Novaes 2005, Formalizing Medieval Logical Theories—*Suppositio, Consequentia and Obligationes* [Formalizing] (Berlin: Springer, 2007), ch. 1.

6. ———. 2008. "Logic in the 14th Century after Ockham." In *Handbook of the History of Logic Vol. 2: Mediaeval and Renaissance Logic*, edited by Gabbay, Dov and Woods, John, 433-504. Amsterdam: Elsevier.

"This chapter is meant to complement the previous chapter on Ockham's and Buridan's respective semantic systems, and the chapters on modalities, on self-referential paradoxes and on supposition in this volume. Here, I intend to cover for as much as possible the important material from the 14th century that is not covered by these other chapters."

(...)

"As any list of 14th century authors and texts (such as in [Spade, [*Thoughts, Words and Things*. Available at www.pwspade.com[1996, 329]) will show, the main logical

topics treated in that period were: insolubilia (paradoxical propositions); modal propositions; supposition; the analysis ('proof') of propositions; obligations; and consequence."

(::.)

"As for the first two topics of this list, insolubilia and modal propositions (two of the main topics in 14th century logic), they are treated in detail elsewhere this volume, so I will not approach them here. We are thus left with the other four prominent logical genres in the 14th century: supposition, the analysis ('proof') of propositions, obligationes, and consequence. Indeed, this chapter is composed of three main parts, each of them dedicated to one of these topics – under the common heading of 'semantics', I treat supposition and, briefly, the theory of proofs of propositions. But before I move to the study of these three topics, in a preliminary section I give an overview of names, dates and places, so as to provide the reader with some of the historical background before we proceed to the conceptual analysis. The reader may also choose to turn directly to the thematic sections, if the historical aspects are not her main interest." (pp. 433-434)

7. ———. 2011. "Ockham on Supposition and Equivocation in Mental Language." *Proceedings of the Society for Medieval Logic and Metaphysics* no. 3:47-64.

   Abstract: "In my previous work on Ockham's theory of supposition, I have argued that it is best understood as a theory of sentential meaning, i.e., as an apparatus for the interpretation of sentences. In this paper, I address the challenge posed to this interpretation of Ockham's theory by the (presumed) existence of different kinds of supposition in mental language through the lenses of Ockham's theory of angelic communication. I identify two potentially problematic implications of Ockham's account of mental language as allowing for different kinds of supposition: the existence of non-significative supposition In mental language; and the possibility of ambiguous mental sentences. I then turn to angelic communication and examine these two issues from that point of view, concluding that there cannot be non-significative

supposition in mental language, but also that there may still be room for sentential ambiguity in mental language."

8. ———. 2012. "Ockham on Supposition Theory, Mental Language, and Angelic Communication." *American Catholic Philosophical Quarterly* no. 86:415-434.

   Abstract: "In my previous work on Ockham's theory of supposition, I have argued that it is best understood as a theory of sentential meaning, i.e., as an apparatus for the interpretation of sentences. In this paper, I address the challenge posed to this interpretation of Ockham's theory by the (presumed) existence of different kinds of supposition in mental language through the lenses of Ockham's theory of angelic communication. I identify two potentially problematic implications of Ockham's account of mental language as allowing for different kinds of supposition: the existence of non-significative supposition in mental language; and the possibility of ambiguous mental sentences. I then turn to angelic communication and examine these two issues from that point of view, concluding that there cannot be non-significative supposition in mental language, but also that there may still be room for sentential ambiguity in mental language."

9. ———. 2012. "Form and Matter in Later Latin Medieval Logic: The Cases of *Suppositio* and *Consequentia*." *Journal of the History of Philosophy* no. 50:339-364.

   "Here, I would like to focus on a particular aspect of the Aristotelian metaphysical framework and its logical applications, namely uses of the form vs. matter distinction in logic. It is well known that Aristotle does not apply the form vs. matter distinction anywhere in his logical writings; in this respect, there is only a brief passage in *Physics* 195a18–19, and an almost identical passage in *Metaphysics* 1013b19–20. There he observes without much elaboration (in the context of a discussion of the four causes) that the premises (hypotheses) are matter for the conclusion (of an argument) “in the sense of ‘that from which,’” which is a familiar formulation for the notion of material cause. At first sight, this may seem surprising for two reasons: firstly, Aristotle applies the form vs.

matter distinction in a wide variety of contexts, but not with respect to logic; secondly, subsequent traditions have made extensive use of this distinction in logic, so much so that the hylomorphic terminology is still ubiquitous in current (philosophy of) logic.

I shall focus on two specific Latin medieval applications of hylomorphism in logic: to the concepts of supposition and consequence. Significantly, these are among the most important topics of the *logica modernorum* tradition, and this lends support to the main thesis of the present contribution, namely that the assimilation of some elements of Aristotelian metaphysics into logic is a significant factor in the development of this tradition." (p. 340, a note omitted)

10. ———. 2013. "The Role of 'Denotatur' in Ockham's Theory of Supposition." *Vivarium* no. 51:352-370.

    Abstract: "In the scholarship on medieval logic and semantics of the last decades, Ockham's theory of supposition is probably the most extensively studied version of such theories; yet, it seems that we still do not fully understand all its intricacies. In this paper, I focus on a phrase that occurs countless times throughout Ockham's writings, but in particular in the sections dedicated to supposition in the *Summa logicae*: the phrase 'denotatur'.

    I claim that an adequate understanding of the role of the concept of *denotatur* within Ockham's supposition theory shall yield a deeper understanding of the theory as a whole. Here, I first examine a few uses of the term 'denotatur' and its variants by other authors. I then turn to Ockham: first I briefly mention some uses of the term in contexts other than his theory of supposition. Following that, I focus on his supposition theory, in particular on how 'denotatur' allows him to deal with two crucial puzzles, namely the supposition of empty terms and the supposition of terms in false affirmative propositions.

    The treatment of these two puzzles suggests that Ockham's theory of supposition must be understood as a theory chiefly intended for the generation of the meanings of propositions."

11. ———. 2015. "The Formal and the Formalized: The cases of Syllogistic and Supposition Theory." *Kriterion* no. 131:253-270.

    Abstract: "As a discipline, logic is arguably constituted of two main sub-projects: formal theories of argument validity on the basis of a small number of patterns, and theories of how to reduce the multiplicity of arguments in non-logical, informal contexts to the small number of patterns whose validity is systematically studied (i.e. theories of formalization). Regrettably, we now tend to view logic 'proper' exclusively as what falls under the first sub-project, to the neglect of the second, equally important sub-project. In this paper, I discuss two historical theories of argument formalization: Aristotle's syllogistic theory as presented in the "Prior Analytics", and medieval theories of supposition. They both illustrate this two-fold nature of logic, containing in particular illuminating reflections on how to formalize arguments (i.e. the second sub-project). In both cases, the formal methods employed differ from the usual modern technique of translating an argument in ordinary language into a specially designed symbolism, a formal language. The upshot is thus a plea for a broader conceptualization of what it means to formalize."

12. ———. 2018. "Ockham's Supposition Theory as Formal Semantics." In *Modern Views of Medieval Logic*, edited by Kann, Christoph, Loewe, Benedikt, Rode, Christian and Uckelman, Sara L., 85-110. Leuven: Peeters.

    "In what follows, I intend to show that William of Ockham's theory, besides concerning the interpretation of propositions, is also essentially formal: it provides a procedure for the analysis of propositions that could be mechanically applied by anybody (or even by a machine), always yielding the same results. In this sense, his theory contrasts with traditional hermeneutical methods, which typically rely on the subjective skills of the interpreter. Moreover, Ockham's supposition theory abstracts from the specific content of each particular proposition (since the meaning of propositions is precisely what is to be established), as it is based on a finite, small number of propositional schemata; what determines the schema to which

a given proposition belongs – and thus the reading(s) it allows for – are (quasi-)formal features such as the semantic kind of its terms and the presence/absence of syncategorematic terms5, and not the particular meanings of its terms.

In order to spell out the formal, algorithmic character of Ockham's supposition theory, I present here a non-symbolic reconstruction of it. Elsewhere(7), I have outlined this aspect of the theory by means of a formalization. But symbolization and formalization are not pre-conditions for formality: as I hope to show here, the formal character of Ockham's theory can also be captured in 'plain' words. This reconstruction presents the theory as a formal procedure to generate the possible readings of some propositions, based on the relation between words and what they stand for." (pp. 85-86, som notes omitted)

(7) 7Part 1 of Dutilh Novaes (2007a). See also Parsons (2014) for a more recent formal treatment of medieval logical theories.

References

Dutilh Novaes, C. (2007a). *Formalizing Medieval Logical Theories: Suppositio, Consequentiae and Obligationes*. Springer, Berlin.

Parsons, T. (2014). *Articulating Medieval Logic*. Oxford University Press, Oxford.

13. ———. 2020. "Supposition Theory." In *Encyclopedia of Medieval Philosophy: Philosophy Between 500 and 1500. Second Edition*, edited by Lagerlund, Henrik, 1819-1827. Dordrecht: Springer.

Abstract: "Supposition theory is one of the most important later medieval semantic theories (in the Latin tradition). Supposition is the property of terms (occurring in propositions) of standing for things, so that these things can be talked about by means of propositions, and supposition theory (in its different versions) is a theory codifying the different uses of terms in propositions, based on the idea that one and the same term can stand for different things when occurring in different propositional contexts. The different kinds of supposition are attempts to

capture the phenomenon of semantic variation prompted by different propositional contexts.

The theory emerged in the twelfth century, and the two main traditions contributing to its development were the tradition of commentaries on Aristotle's *Sophistical Refutations* and the tradition commenting on the fourth-century grammarian Priscian. Supposition theory acquired its first mature form in the thirteenth century, with the terminist/summulist tradition (in the works of William of Sherwood, Peter of Spain, Roger Bacon, and Lambert of Lagny/Auxerre), and was further developed in the fourteenth century by authors such as Walter Burley, William of Ockham, and John Buridan."

14. Ebbesen, Sten. 1979. "The Dead Man is Alive." *Synthese* no. 40:43-70.

"One of the thirteen fallacies treated by Aristotle in the *Sophistici Elenchi* turns on "something being said absolutely or in a certain respect" (in Latin: secundum quid et simpliciter). The false move in paralogisms falling under this fallacy consists in neglecting the difference between a qualified predicate and the same predicate unqualified.

In a short late 13th century Latin companion to the *Elenchi* we read(1) : "Secundum quid et simpliciter [. . .] The first mood of this fallacy is when there is an oppositio in adiecto, as in 'dead man'". The sophism referred to runs 'This is a dead man, therefore this is a man'. It is not mentioned in the *Elenchi* but Aristotle briefly alludes to it in *De Interpretatione* c. 11 21a21 which Ackrill (1963) translates: "When in what is added some opposite is contained from which a contradiction follows, it is not true but false (e.g. to call dead man a man)"." (p. 43)

(...)

"The 13th century knew two fundamentally different approaches to logical semantics, one concentrating on deducing the meaningof a sentence from the meaning of its terms. Roughly speaking this approach leads to intensional semantics. The other approach leads to an extensional semantics concentrating on the kind of meaning of a sentence that

consists in its method of verification. Starting from the observation that people will and can communicate facts about the world to each other and do so by means of sentences consisting of words, the logician who chooses this approach studies the way this is conventionally done striving especially to discover the formal devices by means of which people indicate which comer of the world they are speaking about. Having formulated his discoveries in rules the logician is able for every" actual sentence to explain where one ought to look for verification of falsification of it."

(...)

"The notion of supposition is a genuinely Western invention. It has no counterpart in Greek scholasticism, although a series of Stoic problems which had been treated or mentioned by Porphyry in his major commentary on the *Categories* and which had passed from there into works the Westerners knew, viz. Boethins' commentary on the *Categories* and "Alexander's" on the *Elenchi,* played an important role in stimulating this kind of approach to logical semantics.(9)" (p. 46)

(1) Anonymus Bavaricus, Comm. in *SE*, f. 6vA: "Secundum autem quid et simpliciter [. . .] est primus modus quando est oppositio in adiecto, ut 'homo mortuus' vel quando est determinatio deminuens de ratione entitatis, ut 'opinabile' deminuit de entitate."

(9) For exatnple, the Stoic sophisms of the type called 'outis' passed through Porphyry and 'Alexander' to the West. Cf. Ebbesen (1976a, p. 155).

Refeences

Aekrill, J.L.: 1963, *Aristotle's Categories and De lnterpretatione*. Translated with Notes, Clarendon Press, Oxford.

Ebbesen, S.: 1976a, 'Anonymus Aurelianenis II, Aristotle, Alexander, Porphyry and Boethius. Ancient Scholasticism and 12th Century Western Europe', Universitéde Copenhague. Cahiers de l'lnstitut du Moyen-Age grec et latin 16.

15. ———. 1981. "Early Supposition Theory (12th-13th Century)." *Histoire, Épistémologie, Langage* no. 3/1:35-48.

    Reprinted in: S. Ebbesen, *Topics in Latin Philosophy from the 12th-14th Centuries. Collected Essays Volume 2*, Aldershot, Ashgate, 2009, pp. 1-14.

    "The theory of supposition with the associated theories of *copulatio* (sign-capacity of adjectival terms), *ampliatio* (widening of referential domain), and *distributio* constitute one of the most original achievements of Western medieval logic. There is nothing really similar in any ancient text the medievals knew -though surely some Stoic writings once contained investigations of the problems these theories deal with -- nor had contemporary Byzantium anything similar.

    The twelfth century produced a considerable harvest of rules about the referential range of terms in various contexts. When the 13th century arrived, a standard terminology had prevailed with such names as *suppositio confusa* and *suppositio determinata* for some particularly important types of referential range and a chapter on supposition had become a standard feature of Introductions to Logic *(summulae)*. But then the development of the theory stopped. It appears that at least on the Continent, the chapter on supposition in the *summulae* became one that young students would be taught very early in their career, perhaps before entering university; and then forget all about through the rest of their student career.

    In this paper I shall refrain from listing treatises 'de suppositionibus'; I shall on the whole refrain from following the developments of terminology and systematics. The spade-work in those fields has been done by De Rijk in his *Logica Modernorum*.

    I will try to point to and explain some characteristic features of 12th and early 13th speculation about supposition without going into details and without paying much attention to the opinions of individual authors, not even when they protest they disagree with something I say they thought. I am not looking

for the particular, but for general attitudes and patterns of thought underlying their investigation of *suppositio*." (p. 2 of the reprit)

16. ———. 2013. "Early Supposition Theory II." *Vivarium* no. 51:60-78.

    Abstract: "In 1981 I published an article called *Early Supposition Theory*.[*] Then as now, the magisterial work on the subject was L.M. de Rijk's *Logica Modernorum*, and then as now any discussion of the topic would have to rely to a great extent on the texts published there.

    This means that many of the problems that existed then still remain, but a couple of important new studies and several new texts have been published in the meantime, so it may be time to try to take stock of the situation. I will first look at the origin of the term suppositio and then at the chronology of our source texts. " (...)

    "Conclusion

    A host of questions concerning the dates of the relevant texts remain unresolved, but this is what I think the available evidence points to at this moment:

    The main outlines of the story about supposition remain as in 1967, but the dates change. First, the birth of supposition theory took place in the very late twelfth century. The first signs of what was to come appear in the 1170s, but in logic centered round the notion of appellation, while supposition was becoming a key notion in theology.(43) A stage with a fairly developed terminology for types of supposition is not reached till about the 1190s, when also *suppositio* begins to outmanoeuvre *appellatio*, though this was to be a slow process. The majority of our early texts that teach or employ supposition, English and continental alike, were composed in the thirteenth century.

    Finally, I think that although some authors may have had very clear ideas of which of the many uses of *supponere* was relevant in each particular context, they would generally be influenced both by the grammatical 'putting as a subject'- tradition, the

logical one of saying that what may be subsumed under a term supponitur under it, and the metaphysical thesis that bearers of forms *supponuntur* under their forms." (pp. 72-73)

(43) I am inclined to think that the *Summa Zwettlensis* is a work from about the 1170s. Häring's date 'before 1150' rests on his very doubtful attribution of the work to one Peter of Poitiers/Vienna. See Valente (2008a), 25. If I am right, the *Summa* is approximately contemporary with Peter of Poitiers' *Sententiae*, in which *supponere* is used in a relevant way, but without any developed system of types of supposition.

References

[*] Ebbesen, S. (1981), 'Early Supposition Theory (12th-13th cent.)', in: *Histoire épistémologie langage* 3, 35-48 (repr. in Ebbesen (2009)).

Ebbesen, S. (2009), *Topics in Latin Philosophy from the 12th-14th centuries: Collected Essays of Sten Ebbesen, II* (Aldershot 2009)

Valente, L. (2008), *Logique et théologie. Les écoles parisiennes entre 1150 et 1220* (Sic et non; Paris 2008)

17. Eco, Umberto. 1984. "Signification and Denotation from Boethius to Ockham." *Franciscan Studies* no. 44:1-29.

"*Prima facie*, Ockham has little to say about the tortured story of the term "denotation." Baudry's *Lexicon* does not mention it. As far as I know- and in any case in his crucial texts on signification and supposition, Ockham does not use "denotation" but at most "denotari," in the passive form. However in this paper I shall try to provide some evidences for a further history of the term "denotation" and I shall suggest that this term started to shift from the intensional side to the extensional one just with or after Ockham." (p. 1)

(...)

"In its more mature formulation, supposition is the role played by a term, when inserted into a proposition, in order to refer to extra- linguistic things. From the first vague notions of "suppositum" to the most elaborate theories, such as the one of

Ockham, the way was a long one, and there is a consistent literature on this topic (see de Rijk 1967 and 1982).(8) With the theory of supposition, the cognitive approach was overwhelmed by the extensional one and "reference and denotation was far more important than the more abstract notion of signification. What is primarily meant by a term is the concrete individual object the term can be correctly applied to" (de Rijk 1982:167)." (p. 12)

(8) It would be interesting to follow step by step the rise of a different idea of the relationship between a term and the external thing, where the notion of signification (as the relationship between words and concepts, or species, or universais, or definitions) becomes less and less important. See for instance in de Rijk (1982:161 ff.) how the followers of Priscian spoke of names as signifying a substance together with a quality, where the latter was undoubtedly the universal nature of the thing, but the former was the in- dividual thing (163): "so we find as early as the twelfth century 'supponere' (to supposit) as an equivalent for lignificare substantiam,' i.e. to signify the individual thing" (164). It is true that authors as William of Conches insist that names do not signify substance and quality but only the universal na ture and not the actual existence (168), and that during the whole twelfth century there is still a constant distinction between signification (of concepts and species) and nomination and appellation (denotation of concrete individual things- see for instance the *Ars Meliduna*).

References

De Rijk, L. M., ed., 1967. Logica modernorum, II,1. Assen: Van Gorcum.

De Rijk, L. M., 1982. "The Origins of the Theory of the Property of Terms." In N. Kretzmann et al., eds., *The Cambridge History of Later Medieval Philosophy*. Cambridge: Cambridge U. P., 1982.

18. ———. 1989. "Denotaton." In *On the Medieval Theory of Signs*, edited by Eco, Umberto and Marmo, Costantino, 43-77. Amsterdam: Benjamins Publishes.

"Semioticians, linguists and philosophers of language frequently meet the term 'denotation'. Denotation (along with its counterpart, 'connotation') is alternatively considered as a property or function of (i) singular terms, (ii) declarative sentences, (iii) noun phrases and definite descriptions. In each case one has to decide whether this term has to be taken intensionally or extensionally: is 'denotation' tied to meaning or to reference? Does one mean by 'denotation' what is meant by the term or the named thing and, in case of sentences, what is the case.

As far as 'connotation' is concerned, if denotation has an extensional scope, it becomes the equivalent of intension, that is, of meaning as opposed to referent. If on the contrary denotation has an intensional scope, then connotation becomes a sort of further meaning depending on the first one." (p. 43)

(,,,)

"In the course of this paper I am interested in: (i) ascertaining what happened to the term *significatio*; (ii) when *denotatio* (along with *designatio*) occurs in connection with *significatio* and when it occurs as opposed to it.

As far as *denotatio* is concerned I am interested in registering its occurrence in one of the following three senses: (i) strong intensional sense (denotation is related to meaning); (ii) strong extensional sense (denotation is related to things or states of affairs); (iii) weak sense (denotation remains uncommitted between intension and extension with good reasons to take it intensionally).

We shall see that the weak sense predominates at least until the fourteenth century." (p. 49)

19. Fitzgerald, Michael Joseph. 1978. "Ockham's Implicit Priority of Analysis Rule?" *Franciscan Studies* no. 37:213-219.

"Some philosophers have doubted that Ockham intended his logical descent to singulars to be an analysis of quantified propositions.

Matthews has argued that fully descended propositions do not entail undescended ones because certain scope problems arise for the quantifiers when O propositions are analyzed.(1) Swiniarski has even provided us with a counterexample to descent as analysis.(2)"

(...)

"It is important to note, however, that neither Swiniarski nor Matthews has provided any textual support from Ockham's writings to show that he would allow the process of descent to begin with the predicate term prior to the subject term.

Now it seems to me that there are two distinct issues which are being blurred in their discussion of descent. The first issue is whether or not Ockham intended his descent to singulars to be an analysis of quantified propositions, snd the second is whether or not Ockham would allow the process of descent to begin with the predicate term.

Only if the process of descent begins under the predicate term, prior to the subject term, d o scope difficulties and possible counterexamples arise. Now, if it can be shown that Ockham would have rejected a case where descent begins with the predicate term, then the scope difficulties and counterexamples would not arise. If these scope difficulties do not arise, then one has no reason not to suppose that Ockham intended descent to be an analysis of quantified propositions.

What I would like to argue is that Ockham did intend for descent to be an analysis of quantified propositions, but he did not intend to allow descent to begin with the predicate term." (pp. 213-214)

(1) G. B. Matthews, "Supposition and Quantification in Ochham," *Nous,* VII (1973) 1 3-23.

(2) John Swiniarski, "A New Presentation of Ockham's theory of Supposition with an Evaluation of Some Contemporary Criiticism," *Franciscan Studies*, 30 (1970), 181-217.

20. ———. 1982. *Supposition and Signification: An Examination of Ockham's Theory of Reference*, Rutgers University.

Unpublished Ph.D thesis, available at ProQuest Dissertation Express. Order number: 8221663.

21. ———. 1984. "An Interpretative Dilemma in Burlean Semantics." *Franciscan Studies* no. 44:181-192.

    "In his discussion of the debate between Walter Burley and William of Ockham, concerning the theories of signification and supposition, P. V. Spade has left us with a dilemma in interpreting Burlean semantics. Spade claims that the semantic relations between the notion of signification and the notion of supposition, in Burley's writings, clearly reflect the theory of cognition of the Arab-Aristotelian tradition where "understanding is of universals and sensation is of particulars." (1)

    St. Thomas subscribed to such a theory, and argued that the intellect has an indirect knowledge of sensible particulars via a process he calls 'abstraction'." (p. 181)

    (...)

    "More precisely, Spade's dilemma can be formulated as follows:

    1) If Burley allows simply supposing terms to indicate species, then he accepts the abstraction theory of cognition; and if he allows for a direct cognition of particulars by the intellect, then his epistemological theory does not reflect his semantic theory of proper supposition.

    2) Either Burley allows for simply supposing terms to indicate species, or he allows for a direct cognition of particulars.

    3) Therefore, either Burley accepts the abstraction theory of cognition, or his epistemological theory does not reflect his semantic theory of proper supposition.

    This paper will undertake to grab this "bull" by the horns, and show the conjuctive premiss of the dilemma to be false. Burley does allow for the direct cognition of particulars by the intellect, yet simply supposing terms, for him, indicate species. Further, even though he allows for the direct cognition of particulars by the intellect, it does not follow that his

epistemology is not reflected in his semantic theory of proper supposition." (pp. 182-183)

(1) Paul Vincent Spade, "Some Epistemological Implications of the Burley-Ockham Dispute," *Franciscan Studies,* 35 (1975): 221.

22. ———. 2012. "Unconfusing Merely Confused Supposition in Albert of Saxony." *Vivarium* no. 50:161-189.

    Abstract: "In this essay I argue that Albert would reject the need for a separate fourth mode of common personal supposition, and that his view of merely confused supposition has not been fully explicated by modern scholars. I first examine the various examples of conjunct descent given by modern scholars from his *Perutilis logica*, and show that Albert clearly adopts it in resolving the sophistic examples involved. Second, I explicate the view of merely confused supposition that Albert defends in his *Sophismata*, and then attempt to answer the question: which view of merely confused supposition was his final view, the view articulated in the Perutilis logica or the view in the *Sophismata*? I conclude that based upon his *Sophismata* view of merely confused supposition, Albert came to realize the logical strength his revised theory of personal supposition afforded, and consequently, that he is one of the earliest 14th-century logicians to adopt conjunct terminal descent to resolve various sophisms, a move which gave his theory of personal supposition a logical symmetry having two sorts of propositional descents to singulars, and two sorts of terminal descents to singulars."

23. Freddoso, Alfred J. 1979. "O-Propositions and Ockham's Theory of Supposition." *Notre Dame Journal of Formal Logic* no. 20:741-750.

    "In their recent article "The Formalization of Ockham's Theory of Supposition" Priest and Read [4] make the following two claims:

    1. In propositions(1) of the form of '$(\exists x)(P_1x \ \& \sim P_2x)$' the predicate term, in this case P, has merely confused supposition,

although Ockham mistakenly thought it to have confused and distributive supposition.

2. Contrary to the opinion of those who, like Geach, maintain that merely confused supposition is superfluous, there is at least one type of propositions (viz., negative indefinite exclusive propositions such as 'Only pigs don't fly') in which both the subject and the predicate have merely confused supposition, and in dealing with them the notion of merely confused supposition is ineliminable.

I will try to show in what follows that both of these claims are false.

Further, in my discussion of the first claim I will construct an alternative, though Ockhamistic, account of the supposition of the predicate in a particular negative proposition (O-proposition). I will then use this account in constructing an explication of negative indefinite exclusive propositions without recourse to the notion of merely confused supposition. Since my purpose is not explicitly to discuss or evaluate the formalization of Ockham's theory proposed by Priest and Read, I will make use instead of the sort of schematization employed by Loux in "Ockham on Generality" ([3], pp. 23-46). Thus, '{*AD/'A*'}' will stand for the appellative domain of *A*, i.e., for all those things which *A* can supposit for in a present-tense non-modal proposition. Also, the symbol v will be used as both a terminal and propositional connective, with the context of its occurrence making clear which use is intended. Finally, although I agree with Priest and Read that an adequate formalization of Ockham's theory must be given in an infinitary language, that issue is not germane to the points I wish to make here. So I will simplify the following discussion by treating the appellative domains of general terms as finite." (p. 741)

References

[3] Loux, M. J., ed. and trans., *Ockham's Theory of Terms*, University of Notre Dame Press, Notre Dame, Indiana, 1974.

[4] Priest, G. and S. Read, "The formalization of Ockham's theory of supposition," *Mind*, vol. 86 (1977), pp. 109-113.

24. Geach, Peter Thomas. 1956. "The doctrine of distribution." *Mind* no. 65:67-74.

    "The doctrine of distribution occupies a peculiar position in logic.It is integral to the ' Aristotelian,' doctrine of categoricals and syllogisms; but it was quite unknown to Aristotle. Aristotle never uses rules like the modern rules about distribution to determine the validity of conversions and syllogisms; his whole procedure is different." (p. 67)

    (...)

    "We need only look at the traditional doctrine with a little carein order to see its deficiencies." (p. 67)

    (...)

    "The traditional doctrine is naturally popular; it is easy to apply mechanically, and it sounds intelligible. But we cannot really understand it without first reconstructing the logical edifice in which it is at home-- as it is not in contemporary class-logic.

    We have already looked at one foundation of the edifice; we have seen how general terms are taken to be names, indeed as similated to proper names. (" Man " would then be a name of each man, not of the class of all men.) Another foundation is the identity theory of predication: viz. that in an affirmative categorical we have two names joined by a sign of identity, the predication being true if one and the same thing does indeed bear the two names. In " a dog is white ", " a dog " stan~s for ,a dog, " white " stands for something white, " is " is a sign of identity, and the whole is true if indeed one and the same thing is called both" a dog" and "white ".-Now the name-theory of general terms and the identity theory of predication are easily accepted even when they are explicitly formulated; still more so, when they are tacitly assumed.

    In the Middle Ages many logicians explicitly held these two ·theories. Starting out from such simple-minded assumptions, they had to devise a complicated technical apparatus in order to fit the facts. This apparatus was the doctrine of *suppositiones* of terms. They were too acute to explain the varying inferential

force of categoricals by the same term's signifying different objects - -"man" e.g. signifying now all men, now only some men -- -so they assumed instead variations in the *modus significandi* of a term, in what they called its *suppositio*." (pp. 70-71)

25. ———. 1962. *Reference and Generality: An Examination of Some Medieval and Modern Theories*. Ithaca: Cornell University Press.

    Second emended edition 1968; third revised and expanded edition 1980.

    "The medieval term for what I call the mode of reference of a referring phrase was" suppositio". Apparently in origin this is a legal term meaning "going proxy for"; Aquinas and Ockham say quite indifferently that a term has *suppositio* for (*supponit pro*) and that it stands for *(stat pro*) one or more objects. In paraphrasing medieval writers I shall quite often tacitly use "mode of reference" for their" suppositio"." (p. 84 of the third edition)

    (...)

    "The medievals called the mode of reference of "any A" *confused* and *distributive*, that of "some A" *determinate*.

    The point of the second epithet is that "*f*(some dog)" will be true iff some determinate interpretation of "*x*" in "*f(x)*" as the name of a dog makes "*f(x)"* true; a blurred awareness of this was what led to the untenable views that we studied in Chapter One, about the reference of "some man" to some man. For the epithet "confused and distributive" I shall generally substitute "distributive".

    The doctrine of distributed terms is in fact originally a muddled memory of the mcdieval *suppositio confusa et distributiva*.

    Distributive *suppositio* was called "confused and distributive" because of a supposed resemblance to another mode of reference (which we shall come to presently) called "merely confused"; but since I can see no specially important feature common to these two modes of reference rather than any other

two, I shall for simplicity just call them the *distributive* and the *confused* mode of reference or *suppositio*." (p. 90)

(...)

"This concludes my treatment of the doctrine of *suppositio*.

The reader may well suppose that, in spite of the errors of detail into which Russell and the medievals fell, the theory must be essentially sound -- that something on these lines is needed, to deal with definite fallacies. I shall now try to show that the doctrine of *suppositio* is radically inconsistent, though less obviously so than the doctrine of distribution, and that we need to start all over again on new lines. Of course the fallacies which the doctrine of *suppositio* tried to eliminate are fallacies, and we shall have to give some account of them; but this no more justifies the doctrine of *suppositio* than the fallaciousness of syllogisms with an 'undistributed middle' is a ground for accepting the doctrine of distribution." (p. 104)

26. ———. 1976. "Distribution and *Suppositio*." *Mind* no. 84:432-435.

"The doctrine of distribution is historically a simplified, indeed muti-lated, form of the medieval suppositio theories; in these theories the maindivision is made not between distributed and undistributed terms, butbetween confused and determinate *suppositio*." (p. 433)

(...)

"Some recent articles betray a confusion of mind as to the relation between medieval *suppositio* theories and the doctrine of distribution.

What is distinctive of the latter doctrine is its making fundamental the division between distributed and undistributed terms; in modern presentations of the doctrine, the terms possessing (to use medieval language) determinate *suppositio* and *suppositio confusa tantum* are indiscriminately called undistributed terms. In medieval theories, on the other hand, the main division is between *suppositio confusa* and determinate s*uppositio*, and terms that are said to be

distributed form one sub-class of terms having *suppositio confusa*: technically, they have *suppositio confusa et distributiva mobilis*. In 'Every nobleman possesses a dog', the prenex 'every' would be held to exert the power of giving confused suppositio (*vim confundendi)* as regards both following terms: the second has *suppositio confusa tantum,* the first has *suppositio confusa et distributiva mobilis*. Though it is not quite clear what common feature of terms *suppositio confusa* is here supposed to be, this doctrine is manifestly different from the doctrine of distribution in its standard modern presentation; and that doctrine is not to be read back into medieval authors merely on the ground that *terminus distributus* in medieval syllogistic rules extensionally coincides with the modern distributed term so far as terms occurring in ordinary syllogisms are concerned." (pp. 433-434)

27. Gordon, Alec. 2008. "Philosophical Translation, Metalanguage, and the Medieval Concept of Supposition." *Medieval Philosophy* no. 14:45-71.

    Abstract: "In his Welcome Message for the XXII World Congress of Philosophy hosted by Seoul National University in August 2008 the President of the International Federation of Philosophical Societies (FISP), Peter Kemp, said that—inter alia—it will be an occasion “for rethinking the great philosophical questions.” Amongst there questions how we in the present understand the philosophical past is surely a perennial query before us. In this short paper I will refer to the endeavor of understanding past philosophical thought on its own terms or as presented in a current idiom as “philosophical translation.” The latter can take three forms: logical, analytical, or hermeneutic. This paper will briefly discuss all three forms vis-à-vis modern attempts to understand the medieval concept of “supposition” with special regard to the role metalanguage plays in philosophical translation."

28. Goubier, Frédéric. 2017. "The Role of the Speaker in Roger Bacon and William of Ockham's Supposition Theories: A Contrast." In *The Language of Thought in Late Medieval Philosophy: Essays in Honor of Claude Panaccio*, edited by

Pelletier, Jenny and Roques, Magali, 169-182. Cham, Switzerland: Springer.

"While supposition theory is perhaps the closest thing medieval logicians have to a formal approach to semantics, it grants speakers a role. This role varies in importance from one logician to another. If we were to place the different positions on an axis stretching from the most semantic to the most pragmatic, William of Ockham and Roger Bacon would likely occupy the two extremes. On the semantic side, we would find William of Ockham and his apparent willingness to propose a system that seeks to determine sentences' truth conditions as formally as possible.

On the pragmatic side and a few decades before Ockham, we would find Roger Bacon and his attempt to translate supposition theory into an intensional semantics of signification, so that the central importance of speakers is better described. This paper will rely on Claude Panaccio's work on Ockham's semantics and attempt to show that, in spite of the considerable differences that oppose the two theories, they share some fundamental ideas about the speakers' involvement in the semantic processes."

29. Goubier, Frédéric, and Perini-Santos, Ernesto. 2015. "When the World is Not Enough: Medieval Ways to Deal with the Lack of Referents." *Logica Universalis* no. 9:213–235.

    Abstract: "According to several late medieval logicians, the use the universal quantifier 'omnis' creates the requirement that the sentence refers to at least three items—the principle of *sufficientia appellatorum*. The commitment is such that, when the quota is not fulfilled, one has to import the missing items from the realm of the nonexistent. While the central argument for this principle, whose origin is Aristotle's *De Caelo,* stems from the contrast between unrestricted universal quantifiers and binary quantifiers, the discussion is often mixed with another issue, concerning the requirement of a plurality of referents for universals. In this paper, we try to distinguish those different issues and map the reactions of xiiith authors to the principle of *sufficientia appellatorum*."

30. Henry, Desmond Paul. 1963. "The Early History of *Suppositio*." *Franciscan Studies* no. 23:205-212.

    "The origins of the doctrine of suppositio are "shrouded in darkness" (BML p. 27) and it has not hitherto been possible to trace the details of its development (KDL p. 246). In BML (p. 27), however, the late Fr. Philotheus Boehner did conjecture that its roots might well stretch back to St.Anselm, but he added no further detail, the note accompanying this remark merely referring the reader to MSL, which contains no mention of St. Anselm. Hereunder, by selecting certain aspects of the Burleigh-Ockham debate on suppositio it is shown not only that the same issues were being debated by Anselm in the eleventh century, but also that they were being resolved by means of distinctions in ways of signifying, thereby confirming Fr. Boehner's conjecture. The sigla used are detailed at the close of this paper." (p-205)

    Sigla

    BML = Ph. Boehner, *Medieval Logic,*1952.

    KDL = W. & M. Kneale, *Development of Logic,* 1962.

    MSL = J. P. Mullally, *The Summulae Logicales of Peter of Spain*, 1945.

31. ———. 1964. "Ockham, *Suppositio*, and Modern Logic." *Notre Dame Journal of Formal Logic* no. 5:290-292.

    "In a discussion (*Philosophical Review*, Jan. 1964) of the alleged difficulties of rendering the *descensus* of Ockham's *suppositio*-doctrine in terms of modern logic, G. B. Matthews is concerned with the inferences corresponding to the following theses:

    .1 If some man is animal, then this man is animal or that man is animal or

    .2 If all men are animal then each man is either this animal or that animal or

    .3 If some man is animal then some man is this animal or some man is that animal or

.4 If all men are animal then this man is animal and that man is animal and

.5 $(3x)(Fx \,.\, Gx) \supset (Fx_w \,.\, Gx_q \,.\, v\, Fx_2 \,.\, Gx_2 \,.\, v\ldots\ldots)$

It will be more convenient to continue the discussion in terms of such theses, rather than in terms of the corresponding inferences, but this, of course, has no material effect on the points at issue. The first of these is

whether (as alleged by P. Boehner in his Medieval Logic)(5) is a proper modern logical rendering of the form of .1 as understood by Ockham. That it cannot be is then shown by pointing out that the consequent of .5 would also have to be the prima facie modern rendering of the consequent of .3, thereby missing Ockham's point that there is a difference here. More complex renderings in terms of predicate calculus enriched by identity are suggested, but rejected on account of their involving double quantification over nominal variables and a "wastage of disjuncts" (or conjuncts) in that a consequent such as that of .5 must range over all the all the x's and not just all the men, as does the consequent of .1. The second issue is whether Boehner's reason for alleging that modern logic and Ockham's part company because the former has nothing parallel to .2 is adequate; the conclusion reached, after an attempt to render the consequent of .4 in terms similar to those earlier applied in respect of that of .3, is that in all the cases in question, i.e. .1 to .4, the basic trouble is that "Ockham quantifies over terms, whereas modern logicians quantify over variables"; ergo modern logic is here inadequate." (p. 290)

32. ———. 1981. "*Suppositio* and *Significatio* in English Logic." In *English Logic and Semantics from the End of the Twelfth Century to the Time of Ockham and Burleigh*, edited by Braakhuis, Henk A.G. and Kneepkens, Corneille Henry, 361-387. Nijmegen: Ingenium Publishers.

"It is well-known(1) that there is a difference of opinion between Walter Burleigh and William of Ockham on the subject of *suppositio simplex*. Both agree that a term having *suppositio personalis* stands for individual objects,(2) and that, for example, in "Homo est species" the "homo" is a term having

suppositio simplex.(3) Their disagreement centres on Ockham's in effect making *suppositio personalis* the model for his basic sense of *significatio*.(4) For him terms having *suppositio personalis* are used significatively: they then stand for (*supponunt pro*) what they signify, whereas terms having s*uppositio simplex* do not do so; they stand for mental concepts.(5)

Burleigh, on the other hand, is clearly attempting to avoid a sense of "signify" which amounts to "standing for" in the *suppositio personalis* manner: contrary to Ockham he holds that s*uppositio personalis* does not involve a term's standing for what it signifies. He is, however, prepared to say that this "standing for what it signifies" occurs when a term has *suppositio simplex*.(6)

It all depends, of course, on what is meant by "signify"." (p. 361)

(1) BML pp. 48-9, KDL pp. 267-272, SEI, SOS, SAC, HES, HL § 3.4.

(2) O I, Ch. 64, 69, B p. 3.

(3) O I, Ch. 64, 68, B p. 7.

(4) O I, Ch. 33.

(5) O I, Ch. 64, 68.

(6) B p. 3, p. 7; cf. HES pp. 205-7, HL § 3.40.

Sigla

B = Burleigh, W., *De Puritate Artis Logicae* (ed. P. Boehner, 1955)

BML = Boehner, P., *Medieval Logic* (Manchester U.P. 1952)

HES = Henry, D.P., "The early History of Suppositio" (*Franciscan Studies* 23, 1963)

HL = Henry, D.P., *The Logic of St. Anselm* (Oxford, Clarendon 1967)

KDL = Kneale, W. and Kneale M., *The Development of Logic* (Oxford, Clarendon 1962)

0 I = Ockham, Wm. of, *Summa Logicae*, Pars Prima (ed. P. Boehner 1957)

SAC = Spade, P. V., "Ockham' s Distinction between Absolute and Connotative Terms" (*Vivarium* XIII, 1975)

SEI = Spade, P.V., "Some Epistemological Implications of the Burley Ockham Dispute" (F*ranciscan Studies* 35, 1975)

SOS = Spade, P. V., "Ockham' s Rule of Supposition: Two Conflicts in his Theory" (*Vivarium* XII, 1974)

33. Hoenen, Maarten J.F.M. . 2022. "Grammar, Logic, and Cognition: Magnus Hundt (1449-1519) and the Notion of Material Supposition." *Mediaevalia. Textos e estudos* no. 41:73-92.

    Abstract: "In a number of late medieval treatises, the question is raised whether material supposition should be treated in logic or in grammar. Traditionally, this kind of supposition was dealt with in logic. However, some late medieval authors argued that it should rather be treated in grammar. At first glance, this debate may seem to be a fruitless scholastic exercise. Upon closer inspection, however, this issue sheds fundamental light on the different ways in which late medieval scholastics understood the relationship between thoughts, terms, and things.

    In my paper I will focus mainly on the position of Magnus Hundt, who taught the arts at the University of Leipzig towards the end of the fifteenth century. He is not often mentioned in the modern literature. His position, however, is highly remarkable. As will become clear, Hundt’s rejection of material supposition as belonging to the field of logic is illustrative of his strategy of separating logic from grammar, in order to bring it closer to the science of metaphysics."

34. Hülsen, Reinhard. 2000. "Understanding the Semantics of "Relativa Grammaticalia". Some medieval logicians on anaphoric pronouns." In *Reference and Anaphoric Relations*,

edited by Heusinger, Klaus von and Egli, Urs, 31-46. Dordrecht: Kluwer.

"When in the early nineteen-sixties Geach presented his by now well known theory of the semantic roles of anaphoric pronouns, he did something quite unusual in those days: time and again he critically referred to certain medieval approaches to the same subject. He thought, apparently, that these sophisticated approaches showed the enormous difficulties a coreferential approach was bound to lead into. Geach (1960) even went so far as to claim sweepingly that "the medievals who discussed relativa - pronouns with antecedents - were groping in the dark despite all their ingenuity." It is one of the ironies of the history of philosophy that one such medieval theory - to be found in the fourteenth-century philosopher Buridan and his pupils (though foreshadowed a century earlier) - has now raised his head again in the work of Gareth Evans - this time against Geach.

Geach was mainly thinking of logicians and philosophers working in the thirteenth and fourteenth centuries (virtually all the names he drops are from this period). However, interest in relativa grammaticalia - this is the complete title for expressions called "anaphoric" nowadays to separate them from "logical" relatives, expressions such as 'father' and 'master' - can be found already in twelfth-century writers such as Peter Abelard, William of Conches or their pupil John of Salisbury." (p. 31)

35. Ile, Vlad-Lucian. 2016. "Some Remarks on Peter of Spain`s Theory of *Suppositio*." *Philobiblon* no. 22:75-92.

Abstract: "The present paper aims to reconsider our approaches to the suppositio theory (in the particular case of Peter of Spain’s Summaries of logic) in light of a new hypothesis of the double nature[1] of medieval logic. Starting from the existing points of view, i.e. the theory of suppositio as a theory of reference and suppositio as a theory of an untranslatable, this paper will examine their underlying commitments to the nature of medieval logic. Such an analysis will entail for the former approach a commitment to a formal nature, while for the latter to a non-formal one. The possibility

of a new approach emerges when both natures can be traced in Peter's theory."

36. Kann, Christoph. 2016. "Supposition and Properties of Terms." In *The Cambridge Companion to Medieval Logic*, edited by Novaes, Catarina Dutilh and Read, Stephen, 220-244. Cambridge: Cambridge University Press.

    "Probably the most prominent among the new topics were the doctrines of the so- called properties of terms (*proprietates terminorum*), which are generally considered the basis for later medieval semantic theorising and adjacent issues.

    Terms (*termini*) in the technical sense presupposed here (and pointing to the "terminist" tradition) are descriptive words which function as subject or predicate in a proposition. The basic idea of the "properties" (or terministic) approach is that an analysis of the semantics of (compound) linguistic expressions should proceed by analysing the semantic properties of the terms occurring in it.

    In handbooks of logic from the later Middle Ages, the treatment of the properties started with signification *(significatio*), the capacity of terms to function as signs; supposition (*suppositio*), the property

    of terms functioning as subject or predicate in propositions, was its centrepiece, but the framework also covered related properties like copulation, appellation, ampliation, restriction, and distribution." (p. 220)

37. Karger, Elizabeth. 1984. "Modes of Personal Supposition: The Purpose and Usefulness of the Doctrine within Ockham's Logic." *Franciscan Studies* no. 44:87-106.

    "The so-called "theory of modes of personal supposition," in particular Ockham's version of it, has been a recurring source of perplexity to recent commentators. One especially persistent worry has been that of determining whether and how the doctrine could be reformulated in *modem* logic." (p. 87)

    (...)

"However no textual evidence was offered in favor of the basic hypothesis that the purpose of TM [theory of modes] is to operate such wholesale reductions of general sentences. For my part, I have been unable to discover a text which would confirm it. Consequently proposed "formalizations' of TM so interpreted ought, I think, be regarded with some suspicion, it being far from established that what has been formalized should be identified with TM at all." (p. 88)

(...)

"I conclude that the contribution which TM makes to Ockham's logic as a whole is a major one: although, by lack of the required concept of sentential form, Ockham himself would not have described the matter in such terms, TM alone provides the means of dealing, albeit in a limited way, with the logic of categorical sentences other than A-O form sentences. It must not be forgotten however that TM is essentially a semantical doctrine lacking a syntactical foundation, such as an adequate analysis of categorical sentences, leading to an enumeration of the logical forms involved, would have provided. Where such a basic requirement fails to be met, the doctrine is unavoidably imperfect, and the existence of such flaws as those we drew attention to in a footnote 25 should come as no surprise. What is surprising rather is that the doctrine nevertheless works as well as it does." (p. 106, notes omitted)

38. ———. 1993. "A Theory of Immediate Inferences Contained in Buridan's Logic." In *Argumentationstheorie. Scholastische Forschungen zu den logischen und semantischen Regeln korrekten Folgerns*, edited by Jacobi, Klaus, 407-429. Leiden: Brill.

"Within scholastic logic however these rules [of subalternation and conversion] are derivable from more general rules or principles, capable of determining which inferences are formally valid within a much more inclusive set of inferential forms, forming thereby a more powerful theory. Let us call this theory "the generalized theory of subalternation and conversion", for short "the generalized SC-theory". This is a theory which requires the apparatus of' "modes of personal

supposition", the purpose of which, as I have argued elsewhere, (2) it reveals.

Among the logicians in whose writings this theory is to be found is Buridan. The principles in which the theory consists are formulated, more or less completely, in different places, notably in his *Tractatus de Suppositionibus* (hereafter "De Suppositionibus"), in his *Sophismata* and in his *Tractatus de Consequentii*s (hereafter "De Consequentiis"), Book 1, Chapter 8, where they form the 9th, l0th and 11th "conclusion".

(...)

"This paper falls into four parts, two of which are preliminary to its main task. In part I, the framework within which the generalized SC-theory will be reconstructed is defined and the basic concepts introduced which the theory requires. Part II provides, within this framework, syntactical characterizations of the modes of personal supposition. In part III the principles of the generalized SC-theory are represented within the same framework and examples are given demonstrating the scope of their application. In part IV a parallel is drawn between the theory thus reconstructed and the logic of doubly quantified sentences." (pp. 407-408)

(2) Cf. E. Karger, "Modes of Personal Supposition: the purpose and usefulness of the theory within Ockham's Logic", *Franciscan Studies* 44, 1984, 87-106. I am indebted to Ned Markosian, a student of Gareth Matthews, for a very lucid criticism of that paper which has in part motivated the present reworking of the theory of immediate inferences based on the doctrine of modes of personal supposition, cf. Ned Markosian, "On Ockham's Supposition Theory and Karger's Rule of Inference", *Franciscan Studies* 48, 1988, 40-52. I would recommend any reader of the earlier paper to substitute the rule labelled here " P2" for the rule referred to in that paper as the "non-reciprocal TM rule" -Cf. also the article by Paul Spade on the subject of the theory of modes of personal supposition: "The Logic of the Categorical: The Medieval Theory of Descent and Ascent", in *Meaning and Inference in Medieval*

Philosophy, ed. N. Kretzmann, Dordrecht: Kluwer, 1988, 187-224.

39. ———. 1997. "Some 15th and Early 16th Century Logicians on the Quantification of Categorical Sentences (*)." *Topoi.An International Review of Philosophy* no. 16:65-76.

    (*) This paper deals not with supposition theory, but with a syntactical theory which, in late medieval logic, underlies the theory of supposition.(...)

    "The focus of this paper is on a late development of medieval logic, namely the recognition of multiply quantified categorical sentences. I shall be drawing mostly on authors who were active in the 15th or early 16th century. They are not, to be sure, household names.

    One author even has the misfortune of not having had his name recorded: he is the anonymous author of a 15th century logical treatise sometimes referred to as the “Hagenau commentary”, because it purports to comment on works by earlier logicians, and because its second printing was made in Hagenau.(1) I shall refer to him as to the author of the Hagenau commentary. I shall also draw on the *Summulae* of the Spaniard Dominicus Soto(2) and on a work by the Flemish Judocus Clichtoveus who, though a humanist, wrote a remarkably clear exposition of scholastic logic. This useful book is an exposition and commentary of a summary of logic, called the “Introductiones Artificiales”, written by his friend Jacques Lefèvre d’Etaples, a noted theologian.(3) These three men had, at some time of their career at least, lived in Paris, for a logician and philosopher undoubtedly a very stimulating place to be, in those days. I shall also draw on earlier authors, to whom those I just mentioned, “our authors” as I shall call them, were heavily indebted.

    These earlier authors, who had also been active in Paris, include the first rate logician and commentator on John Buridan, John Dorp, a late 14th century author and, of course, their common spiritual father, John Buridan himself." (p. 65)

(1) The treatise in question bears as title “Commentum in primum et quartum tractatum Petri Hispani et super tractatibus Marsilii de suppositionibus, ampliationibus, appellationibus et consequentiis”(hereafter “Comm.”), Hagenau; “1495, reprint Minerva, Frankfurt, 1967. On the printings of this treatise, see S. Read, “Thomas of Cleves and Collective Supposition”, in *Vivarium* vol. 29, 1991, 50–84, p. 79.

(2) Summulae (hereafter “SL”), third revised edition, Salamanca, 1554, reprint Olms, Hildesheim-New York, 1980. The first edition of this treatise was published in 1529.

(3) *Jacobi Fabri Stapulensis artificiales nonnullae introductiones, per Judocum Clichtoveum in unum diligenter collectae, familiarique commentario per eumdem declaratae* (hereafter “IA”), Paris, 1535 (already published in 1500). On the milieu to which this author belonged, see E. J. Ashworth, *Language and Logic in the Postmedieval Period*, Dordrecht, 1974, p. 10.

40. Kaye, Sharon. 1997. "Later Medieval Nominalism and the Politics of Supposition." *Eidos.The Canadian Graduate Journal of Philosophy* no. 14:29-50.

Abstract: "The salient dispute between realists and nominalists of the fourteenth century concerns the metaphysics of supposition. Do general terms stand for extra-mental universals or not? By answering in the affirmative, Walter Burley loses his ability to provide a plausible account of indefinite promises such as "I promise you a horse." By answering in the negative, Ockham not only explains indefinite promises, but also paves the way for a conception of the faith community more revolutionary than Protestantism. In the Bible, Jesus promises his disciples that he will be with them "always, to the end of the age." In Ockham's view, this is an indefinite promise parallel to the case of the horse; it means "I promise you a Christian." According to this analysis, the universal church can survive in a single, unlikely, and even unknown, individual. Ockham thereby undermines the doctrine of papal infallibility as well as institutional religion itself."

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History of Logic

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Bibliography of the Medieval Theories of Supposition: Third part

Bibliography

Studies in English Kli - Rea

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   ""The expression 'free logic' is an abbreviation for the phrase 'free of existence assumptions with respect to its terms, general and singular' .

   Classical quantification theory is not a free logic in this sense, since its standard formulations commonly assume that every singular term in every model is assigned a referent, an element of the universe of discourse. Indeed, since singular terms include not only singular constants, but also variables2, standard quantification theory may be regarded as involving even the assumption of the existence of the values of its variables, in accordance with Quine's famous dictum: "to be is to be the value of a variable"(3)." (p. 197)

   "In this paper I am going to give a brief, primarily systematic (as opposed to primarily historical) account of how it was possible for medieval logicians to maintain Aristotle's theory of the four categoricals and to dispense with these existential assumptions in the framework of their theory of reference, the *theory of supposition*. Besides the informal account I will also

indicate how these informal ideas can be put to work in a formal semantic systems. By this I hope to show that the ideas of medieval logicians can provide us with valuable insights even in the apparently modern field of free logic." (p. 198, a note omitted)

(1) Lambert (1983), p. 104 (emphasis in the original). Cf. Lambert (1991).

(2) See Lambert (1983), p. 105, n. 9.

(3) Quine (1953), p. 15. Concerning the real import of Quine's dictum and its relationship to free logics see Lambert (1983), pp. 110-112.

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2. Kneale, William Calvert, and Kneale, Martha. 1962. *The Development of Logic*. Oxford: Clarendon Press.

   Reprinted 1975 with corrections.

   Chapter IV. *Roman and Medieval Logic*, § 4.*Proprietates Terminorum*pp 246-274.

   "The theory of the *proprietates terminorum*, which is very prominent in later medieval logic, took shape in the second half of the twelfth century, and it seems to have grown out of the discussions of Abelard and his contemporaries about the structure of categorical propositions. Since, however, it is not yet possible to trace the details of this development, we shall begin our consideration with the earliest printed version of the theory, namely that of William of Shyreswood in his *lntroductiones in Logicam*. From the manner in which this is

presented and from its occasional references to other views we may safely conclude that the general doctrine was already well known when the author wrote." (p. 246)

(...)

"As its name implies, the theory of the *proprietates terminorum* is intended to provide an account of the different roles that words or phrases can have when they appear as terms in propositions.

But it is assumed in this theory that a word or phrase which is capable of serving as a term must first have significatio in the sense of conveying or presenting, as William says, a form." (p. 247)

3. Kneepkens, Corneille Henry. 1987. "*Suppositio* and *Supponere* in 12th Century Grammar." In *Gilbert de Poitiers et ses contemporains. Aux origines de la "Logica Modernorun"*, edited by Jolivet, Jean and Libera, Alain de, 325-351. Napoli: Bibliopolis.

4. Knuuttila, Simo. 2013. "Supposition and Predication in Medieval Trinitarian Logic." *Vivarium* no. 51:260-274.

   Abstract: "Many fourteenth-century logicians took affirmative propositions to maintain that the subject term and the predicate term stand or supposit for the same. This is called the identity theory of predication by historians and *praedicatio identica* (or one form of *praedicatio identica*) by Paul of Venice and others. The identity theory of predication was an important part of early fourteenth-century Trinitarian discussions as well, but what was called *praedicatio identica* by Duns Scotus and his followers in this context was something different. After some remarks on Scotus's view and its background, I shall analyse Adam Wodeham's explanation of Scotus's *praedicatio identica* and how he understood the assumptions pertaining to supposition in the Scotist approach.

   I also describe Wodeham's own solution to Trinitarian sophisms, which did not deviate from the identity theory of predication."

5. Libera, Alain de. 1982. "The Oxford and Paris Traditions in Logic." In *The Cambridge History of Later Medieval Philosophy*, edited by Kretzmann, Norman, Kenny, Anthony Patrick and Pinborg, Jan, 174-187. Cambridge: Cambridge University Press.

   "Terminist logic grew to maturity in the period 1175-1250, a period that was also crucially important in the development of the universities of Paris and of Oxford. Scholars have recently focused their attention on divergences in the early development of the logical and semantic theories that constitute terminist logic, divergences suggesting that one cluster of doctrines is to be associated with Oxford, another with Paris. In view of the very marked differences between British and continental logic in the early fourteenth century, it seems important to investigate whether such differences can be traced backwards into the thirteenth and late twelfth centuries. As I hope to show, such divergences do in fact exist even if they are not so great as to make the traditions of Oxford and of Paris entirely independent.

   Although by the turn of the thirteenth century terminist logic was acknowledged by all logicians as a common frame of reference, various interpretations of important issues were still being put forward. If divergences between the traditions of Oxford and Paris are to be established, the evidence is likely to be found in the discussions concerning the various properties of terms, such as supposition, appellation, ampliation, and restriction." (p. 174, a note omitted)

6. Loux, Michael J. 1979. "*Significatio* and *Suppositio*. Reflections on Ockham's Semantics." *The New Scholasticism* no. 53:407-427.

   Abstract: "In this paper, I examine Ockham's views on "significatio" and "suppositio" in the light of pre-ockhamistic terminist treatments of these notions. What I try to show is that Ockham's views here are not simply nominalistic variants on traditional terminist themes. While conceding that Ockham's nominalism is central in his theory of terms, i try to locate the "semantical" underpinnings of his views on "significatio" and

"suppositio". What I suggest is that Ockham's account deviates from those of his predecessors in taking the notion of standard reference or personal "suppositio" as conceptually prior to the notion of meaning or "significatio", and I conclude that perhaps a rejection of the atomistic semantics of his predecessors motivates this revision of the traditional theory of terms."

7. Malcolm, John. 1977. "On the Disappearance of *Copulatio* as a Property of a Term." *Franciscan Studies* no. 37:120-138.

   "Perhaps the most original contribution of the medieval logicians was the development of the doctrine of the properties of terms. William of Sherwood lists four such properties: *significano, suppositio, copulatio* and *appellatio*.(1) The other two leading 13th century “terminists,” Peter of Spain (2) and Lambert of Auxerre, (3) include these four in their discussions. By the 14th century, however, *copulatio* is gone from the list. It does not appear in Ockham and is used by Burleigh, De Puritate (4) p. 54, to signify the uniting or connecting of a predicate with a subject. But this is to describe the function of the copula which joins (the subject and predicate) terms and hence *copulatio* is no longer considered as a property of a term.

   I am going to present an hypothesis to account for the disappearance of *copulatio*. I shall maintain, in short, that when *suppositio* and *copulatio* were first introduced there was a distinctive role for *copulatio* to play, but they underwent a parallel change in meaning which rendered *copulatio* superfluous. To try to substantiate this claim I shall offer a four-stage development. The first stage, which predates the actual use of the expression “properties of terms,” concerns *significatio* and *appellatio*. The second and third stages reflect the introduction and transformation, respectively, of the *suppositio-copulatio* distinction. The fourth stage is *post-copulatio*." (p. 120)

   (1) William of Sherwood, *Introductiones in Logicam*, ed. M. Grabmann. Sitzungsberichte der Bayerischen Akademie der Wissenschaften, Phil. Hist. Abteilung, Jahrgang 1937, Heft 10 (Munich, 1937), p. 74.

(2) Peter of Spain, *Summulae Logicales*, ed. De Rijk (Assen, 1972)-

(3) Lambert of Auxerre, *Logica (Summa Lamberti)*, ed. Alessio (Firenze, 1971).

(4) Burleigh, Walter, *De Puritate Artis Logicae*, ed. Boehner (St. Bonaventure, New York, 1955).

8. Markosian, Ned. 1988. "On Ockham's Supposition Theory and Karger's Rule of Inference." *Franciscan Studies* no. 48:40-52.

   "Abstract: "Elizabeth Karger has suggested an interpretation of Ockham's theory of the modes of common personal supposition ("TM") according to which the purpose of TM is to provide certain distinctions that Ockham will use in formulating a unified theory of immediate inference among certain kinds of sentences. Karger presents a single, powerful rule of inference that incorporates TM distinctions and that is meant to codify Ockham's theory of immediate inference. I raise an objection to Karger's rule, thereby calling into doubt the interpretation of Ockham that is based on attributing that rule to him."

9. Marmo, Costantino. 2013. "Scotus on Supposition." *Vivarium* no. 51:233-259.

   Abstract: "In his commentaries on Porphyry and Aristotle's *Organon* (*Categories, Peri hermeneias, Sophistici elenchi,* and *Topics*) and in his other works, John Duns Scotus shows his knowledge of both the modistic theory of language and the theory of supposition. My contribution sheds some light on the relationship between Scotus' philosophy of language and the theory of supposition, collecting and commenting on all the passages in which he makes use of it or discusses some theoretical points. I take into special account the almost unknown commentary on the *Topics*, which is preserved in a Vatican manuscript."

10. Matthews, Gareth. 1964. "Ockham's Supposition Theory and Modern Logic." *The Philosophical Review* no. 73:91-99.

    Reprinted in *Inquiries into Medieval Philosophy: A Collection in Honor of Francis P. Clarke,* edited by J. F. Ross, Wesport:

Greenwood, 1971, pp. 131-140.

"Reading Philotheus Boehner on medieval logic,2 one may get the idea that medieval supposition theory is, in part, a kind of quantification theory. Up to a point this is a helpful idea to have. But one may also get the idea from reading Father Boehner that the main difference between modern quantification theory and the relevant portion of medieval supposition theory is a difference over the interpretation of universal propositions. This last idea, it seems to me, is quite wrong-headed. It needs to be done away with completely if one is to be at all clear about how medieval supposition theory is related to modern mathematical logic. I wish to do my part in doing away with it.

In his discussion of supposition theory Father Boehner has something to say about Peter of Spain, William of Ockham, and Walter Burleigh. But in comparing the medieval theory with modern logic Boehner seems most interested in the logic of Ock¬ ham. So, since I can also make my own points with reference to Ockham alone, I shall take Ockham's Swnma Logicae as the medieval source for the remarks to follow." (p. 131 of the reprint)

(...)

"I conclude that the idea that Ockham and modern logicians agree on the interpretation of particular propositions but differ on the interpretation of universal propositions is both wrong and wrong-headed. It is wrong because in fact they differ on both counts. It is wrong-headed because, once one realizes that Ockham quantifies over terms whereas modern logicians quantify over variables, one can see that Ockham and the moderns are not free to agree on the interpretation of any catergorical propositions —whether A, E, I, or O." (p. 140)

11. ———. 1973. "*Suppositio* and Quantification in Ockham." *Noûs* no. 7:13-24.

"We have been able to dispose of the idea that the doctrine of descent in Ockham constitutes a rudimentary quantification theory without returning to the issue of equivalence. Let me say

in conclusion that there are ways of re-raising the issue of equivalence so as to make it worth discussing, even though the quantification issue is now settled. The doctrine of descent forms part of the account Ockham gives of the meaning that general terms have when they are used in propositions to stand for (*supponere pro*) individuals falling under them. These are, perfore, nonempty terms; in the usual case they will be polyreferential. (Ockham has to tell a special story about the meaning of empty terms-see, for example, 2.14.) We can now ask whether Ockham considers the expansion got by descending on a polyreferential term in an A, E, I, or O proposition equivalent to the original. Counting in favor of saying 'No' to this question are chiefly (a) the fact that Ockham never claims equivalence, and (b) the obviousness of the nonequivalence of an O proposition like (4) and its predicate term expansion (in this case, (4b)). Counting in favor of saying 'Yes' is the fact that it is far easier to see how one might seek to elucidate the meaning of a general term in a given proposition by producing an equivalent proposition than by producing merely an entailed proposition. To decide this question one would need to get clear on the central issue of what Ockham thinks it is for a general term in such-and-such a proposition to stand (determinately, confusedly, or what have you) for individuals falling under it. I should like to have tackled that issue in this paper. But I have found I had enough to do clearing aside the idea that the doctrine of descent in Ockham is a rudimentary theory of quantification." (pp. 22-23)

(4) Suppose we say that

(a) 'unicorn' is an *empty term*, on the grounds that there is no presently existing individual falling under it; that

(b) 'god' is a *monoreferential term*, on the grounds that there is one and only one presently existing individual falling under it, and that

(c) 'man' is a *polyreferential* term, on the grounds that there are two or more presently existing individuals falling under it. (p.21)

References

[2] Geach, Peter Thomas, Reference and Generality (Ithaca: 1962).

12. ———. 1984. "A Note on Ockham's Theory of Modes of Common Personal Supposition." *Franciscan Studies* no. 44:81-96.

    "The last half of this century has seen an amazingly energetic and resourceful effort to understand Ockham's supposition theory. The result is that we are much more sophisticated in our approach to the subject today than anybody could have been before. Yet, despite the fact that we now have, not only critical editions and translations of Ockham's logic texts, but also elaborately formal reconstructions of the theory of supposition itself, there is no clear consensus about what Ockham was up to in presenting his theory of the Modes of Common Personal Supposition (hereafter, following Alfred Freddoso,(2) "MCPS")." (p. 81, a note omitted)

    "In his long introduction to Part II of Ockham's *Summa Logicae*, Alfred Freddoso suggests, somewhat off-handedly, that Ockham's theory of MCPS may be "part of his theory of inference." (p. 28) I once heard a similar suggestion from Calvin Normore. In the remainder of this note I want to begin to fill out the Freddoso-Normore suggestion. As we shall see, my way of beginning to fill it out provides an additional reason for denying the equivalence claim and hence for denying that Ockham's theory of MCPS is meant to be a quantification theory." (p. 84)

    (2) Alfred J. Freddoso and Henry Schuurman, trans., *Ockham's Theory of Propositions: Part II of Summa Logicae* (Notre Dame: 1980), "Introduction" by Alfred J. Freddoso.

13. ———. 1997. "Two Theories of Supposition?" *Topoi. An International Review of Philosophy* no. 16:35-40.

    Abstract: "In a recent paper [*] Paul Vincent Spade suggests that, although the medieval doctrine of the modes of personal supposition originally had something to do with the rest of the theory of supposition, it became, by the 14th century, an

unrelated theory with no question to answer. By contrast, I argue that the theory of the modes of personal supposition was meant to provide a way of making understandable the idea that a general term in a categorical proposition can be used to refer to the individual things that fall under it.

Once that idea had been made acceptable, truth conditons for the various forms of categorical proposition could be given without any specific appeal to the ideas of descent and ascent in terms of which the modes had been defined."

[*] P. V. Spade, “The Logic of the Categorical: The Medieval Theory of Descent and Ascent”, in Norman Kretzmann, ed., *Meaning and Inference in Medieval Philosophy,* Dordrecht: Kluwer, 1988, 187–22.,

14. Meier-Oeser, Stephan. 2000. "The meaning of 'significatio' in Scholastic logic." In *Signs and Signification. Vol. II*, edited by Gill, Harjeet Singh and Manetti, Giovanni, 89-107. New Delhi: Bahri Publications.

    "Studies in scholastic theories of signification usually focus on what Roger Bacon (*De signis*: 132) has called the "difficilis dubitatio utrum vox significet species apud animam an res" (the difficult question, whether spoken words signify mental concepts or things), or, in Scotus' words (*Ordinatio*, vol. 6: 97), the "magna altercatio... de voce, utrum sit signum rei vel conceptus" (the great altercation, whether the spoken word is a sign of the thing or of the concept). But as interesting and important this question may be, it covers just one aspect of the numerous and complex problems linked with the scholastic concept of 'significatio'. For since scholastic terminology generally made a clear cut distinction between 'significatio' and 'significatum', the two questions, what words signify (or what their significatum is), and what signification itself may be, lead in different directions. By leaving aside the former question, I shall concentrate on the latter.

    The question about meaning or signification is deemed, especially since the 'linguistic turn', to be one of the most fundamental questions, philosophy has to account for. Of course, it is by no means a recent question. And yet it is, in a

specific sense, not as old as one might suggest. It may be controversial, whether the problem of meaning ('Bedeutungsproblem'), as Weisbergerer (1930:17f) has stated, did not matter in classical Greek philosophy, or, as Cassirer (1925: 86) has claimed, already for Plato made up the "starting point of philosophy", whether Aristotle in the first chapter of his *Peri hermeneias* had offered "not even a sketch of a general theory of meaning" (Kretzmann 1974:5), or at least the "rudiments of a semantic theory" (Weidemann 1982). What has to be noticed, is, that the very term and concept of signification had not yet become a problem in classical Greek philosophy -- and could not even have been as such, due to the simple fact, that a concept of meaning or signification in a terminological sense did not exist. Indeed, the word or linguistic sign *(semainon)* was said to signify or mean something *(semainei ti)* and speech *(logos)* was characterised as significative *(semantikós).* But whereas in modern translations this is usually expressed in terms of words having meaning. there is, as far as I can see, at least in classical Greek no equivalent noun for 'meaning' or 'Bedeutung'. The history of terminology shows, that the corresponding Greek noun of the latin '*significatio'* was *semasia'*. But the earliest evidence for the use of *'semasia'* in the sense of meaning (of a word) seems to be a passage in the *De signis,* written by the Epicurean Philodemus of Gadara around the middle of the first century. In all earlier occurrences this term means 'sign' or 'signal' or an act of signalising (cf Ebert 1987:108sq.).

So it seems as if semantics is not necessarily in need of the concept of signification or meaning. Because for quite a long time philosophy did not even have a word for it. But once introduced, it could give rise to such problems, as, referring to the concept of meaning, Charles Morris (1971:95) has pointed out by noticing that " 'meaning' signifies any and all phases, of sign-processes (the status of being a sign, the interpretant, the fact of denoting, the significatum)".

By considering the meaning of 'significatio' in scholastic logic, I do not intend to give a comprehensive outline of the various theories of signification that have been worked out by that

tradition, but rather want to confine myself to the more modest purpose of giving an account of the use of that term in scholastic logic. So, even if the title of my paper seems to offend the Wittgenstein's prominent advice "don't ask for meaning, ask for use", I will observe it insofar, as I am going to *take a look at the concrete use of 'meaning' or rather 'signification' in scholastic logic, which however, as we shall see, not quite the same. By so doing, I do not intend to establish something like the* scholastic meaning of signification. For if we are told by Wittgenstein and many others, that "the meaning of a word is its use in language", we will be confronted here with the fact, that the usage of *'significatio'* -- and thus its 'meaning' -- is highly divergent in itself." (pp. 89-90)

References:

Cassirer, E. 1925. *Die Philosophie der Griechen,* in: M. Dessoir (ed.): L*ehrbuch der Philosophie* (Berlin).

Ebert, Th. 1987. *The origin of the Stoic theory of signs in Sextus Empiricus*, Oxford Studies in Ancient Philosophy 5, 83-126.

Kretzmann, N. 1974. *Aristotle on Spoken Sound Significant by Convention*, in: J. Corcoran (ed.): *Ancient Logic and Its Modern Interpretation* (Dordrecht, Boston) 3-21.

Morris C. W. 1971. *Signs, Language and Behavior*, in: *Writings on the general 'Theory of Signs* (The Hague).

Weidemann, H. 1982. *Ansatze zu einer semantischen Theorie bei Anstoteles:* Zeitschrift fur Semiotik 4, 241-257.

Weisgerber, L. 1930. S*prachwissenschaft und Philosophie zum liedeutungsproblem*, in: Blatter fur Deutsche Philosophie 4.

15. ———. 2013. "The Hermeneutical Rehabilitation of Supposition Theory in Seventeenth-Century Protestant Logic." *Vivarium* no. 51:464-481.

Abstract: "The paper focuses on some aspects of the early modern aftermath of supposition theory within the framework of the protestant logical tradition. Due to the growing influence of Humanism, supposition theory from the third decade of the

sixteenth century was the object of general neglect and contempt. While in the late sixteenth-century a number of standard textbooks of post-Tridentine scholastic logic reintegrated this doctrine, although in a bowdlerized version, it remained for a century out of the scope of Protestant logic. The situation changed when the Strasburg Lutheran theologian J.C. Dannhauer, who in 1630 developed and propagated the program of a new discipline which he called ‘general hermeneutics’ (*hermeneutica generalis*), accentuating the importance of supposition theory as an indispensable device for the purpose of textual interpretation. Due to Dannhauer’s influence on later developments of hermeneutics, which in the seventeenth and early eighteenth centuries was regarded as a logical discipline, supposition theory is still present in several logical treatises of the eighteenth century. The explication of the underlying views on the notion of supposition and its logico-semantic function may give at least some clues as to how to answer the question of what supposition theory was all about."

16. Miller, Barry. 1973. "Proper Names and *suppositio personalis*." *Analysis* no. 33:133-137.

    "Proper names may be used so as to be self-referring, as in ' "Tom" is a three-lettered word' and ' "Tom" is a noun'. They may also be used to refer to their bearer, as in 'Tom is running'. And the point I want to discuss is whether 'Tom' may not be used in a third way, one in which it refers neither to itself nor to its bearer. What I have in mind may be illustrated from the case of common names. As a parallel to ' "Tom" is a three-lettered word' and ' "Tom" is a noun' we have ' "Man" is a three-lettered word' and ' "Man" is a noun' respectively.

    As a parallel to 'Tom is running' we have 'A man is running'. But, inaddition, we have 'Man is a species', in which 'man' clearly refers neither to itself nor to individual men. So the question I am raising is whether there is any use of 'Tom' that parallels this last use of 'man'.

    In the middle ages that same question was framed in terms of whether proper names did or did not have *suppositio*

personalis, with William of Sherwood saying they did and Peter of Spain saying they did not. I think that William was right. I will argue therefore that there is a use of 'Tom' that does parallel that of 'man' in 'Man is a species', and in which 'Tom' refers neither to itself nor to Tom. This, I suggest, is to be found in 'Tom is an individual'." (p. 133)

17. Moody, Ernest. 1953. *Truth and Consequence in Mediaeval Logic*. Amsterdam: North-Holland.

    Reprint Westport: Greenwood Press, 1976.

    "While these terminist logicians appear to have been familair with the *Prior Analytics, Topics*, and *Sophistical Refutations* of Aristotle, as well as with the traditional Boethian writings, their text books do not follow the order, nor cover the whole content, of Aristotle's *Organon*. The "traditional" sections treat only of the following subjects: (1) the proposition, both categorical and hypothetical; (2) the predicables; (3) the categories (omitted by Shyreswood); (4) the syllogism; (5) the topics or *loci communes*; and (6) the fallacies.

    What is new in these text books is a section treating of "the properties of terms", introducing the conception of the supposition of subject and predicate for a common undetermined subject, and using this notion in the analysis of quantification, temporal determinations of the copula or verb, adjectival determinations of subject or predicate, and logical functions of relative pronouns. A sharp distirrction is made between the property of "signification" and that of "supposition", such that the logical analysis of categorical propositions, and of their truth conditions, is carried out in a formal and extensional manner in terms of the property of "supposition"." (p. 4)

    (...)

    "These new branches of logical investigation, represented by the treatises on the supposition of terms and by those on the syncategorematic signs, were destined to receive an elaborate development during the century following on Shyeswood and Peter of Spain. The part played by Priscian's grammatical

syntax in the development of this approach to the logical analysis of language is strikingly evident from the constant citations of the Roman grammarian which occur in Shyreswood and the other terminist logicians.")p. 5)

18. Mullaly, Joseph P. 1945. *The Summulae Logicales of Peter of Spain*. Notre Dame: Indiana University Press.

    Introduction, pp. IX-CIV. § 4. Antecedents and Nature of the Logica Moderna: A. A Theory of Supposition, pp. XXXVIII-LVIII.

    "Three of the seven treatises which enter into the composition of the *De Proprietatibus Terminorum* are expressly dedicated to a categorizing treatment of supposition—the treatises on Suppositions, Amplifications and Restrictions.

    A fourth treatise, that on Relatives, is so integrally bound up with the conception of supposition that it is practically impossible to regard it as other than a further application of the conception. Indeed, it is from the conception of the supposition of relatives which is held by the grammarians that the logicians derived the concept of supposition in the first place.

    The first problem in connection with "suppositio" is the genesis of the term and the evolution, if any, of the conception.

    In classical Latin, “suppono” is commonly used in the sense of “substitute”. Cicero uses it in a very suggestive manner when he says “...non esset difficile alium in suppositi locum supponere.”(26) It is probably from the classical usage of the term “supponere” that “suppositio” originally stems. The conception of a term substituting for or standing for something other than itself occurs frequently in Priscian but it is always in relation to the pronoun(27)." (pp. xlv-xlvi)

    (26) Cicero *Actionis in C. Verrem Secundae* 5, 30.

    (27) “...pronomina loco propriorum accipiuntur nominum...” Priscian, op. cit., [*Institutiones Grammaticae*, ed. by M. Hertz (Leipzig, 1854-1859)] XIII, 31. Also ef. ibid., II, 18; XVII, 13; XVII, 34; XVII, 54; XVIII, 32.

19. Murdoch, John E. 1975. "From Social into Intellectual Factors: An Aspect of the Unitary Character of Late Medieval Learning." In *The Cultural Context of Medieval Learning*, edited by Murdoch, John E. and Sylla, Edit Dudley, 271-338. Dordrect: Reidel.

    "It remains to examine one final analytical language; it is the most comprehensive of all in its applications: the *theory of suppositio* ofthe so-called *logica moderna*. This is not the place to pause for even the most compendious description of the theory or of the service it was to philosophy in general. This, together with considerable detail about what I would call its vocabulary and rules or algorithms, can be gleaned from other sources.(61)

    For our purposes it is enough to note that, as an analytical language, it was used to treat any philosophical problem. My past interest has been in its application to problems within natural philosophy, most notably those *de motu*. But is was similarly applied in theology as well. As part of logic, wherever is was brought to bear, it functioned metalinguistically. That is, its application amounted to an invocation of the procedural rule to adopt a second intentional point of view; one dealt not with individual entities, but with propositions and with terms within propositions(62) that stood for (*supponit pro*) such entities. Accordingly, the elucidation of the kind of supposition that was had by the terms in a given problematic proposition was one of the most common ways of resolving the problem carried by the proposition, especially when that problem had to do with the analysis of continuous processes or quantities, with the determination ofthe proper order of "parts" within those processes or quantities, or with the setting of limits for them." (pp. 285-286, a note omitted)

    (61) William & Martha Kneale, *The Development of Logic* (Oxford, 1962) pp. 246-274; Ernest Moody, *Truth and Consequence in Mediaeval Logic* (Amsterdam, 1953) ch. 1-3; Philotheus Boehner, *Collected Articles on Ockham* (St. Bonaventure, 1958) pp. 174--267; L. M. De Rijk, 'The Development of Suppositio naturalis in Mediaeval Logic',

Vivarium, 9 (1971) 71-107; 11 (1973) 43-79 and the other articles of De Rijk cited in the bibliography to his recent edition of Peter of Spain (above, note 60 [Peter of Spain, *Summule logicales*, ed. L. M. DeRijk (Assen, 1972)]).

(62) Since suppositio is a significative relation had by terms only as they occur in propositions, this qualification is necessary.

20. Muré, Dafne. 2013. "Suppositum between Logic and Metaphysics: Simon of Faversham and his Contemporaries (1270-1290)." *Vivarium* no. 51:205-229.

    Abstract: "This article is the result of research on the occurrences of the terms *suppositio, supponere* and their linguistic derivations in the literature on fallacies (comments on the *Sophistical Refutations*) of the second half of the thirteenth century. The authors analysed are Albert the Great, Giles of Rome, Simon of Faversham, the so-called *Incerti Auctores* (Anonymous C and SF), the Anonymous of Prague (P) and John Duns Scotus.

    The central elements that emerge are the role played by the notion of *suppositum* and by the linguistic context (*adiuncta, determinatio*) to determine the denotation of an expression, and the importance of the metaphysical problem of the unity and identity of s*uppositum* in both the theory of predication and the theory of inference. Both subjects, obviously, are closely connected."

21. Normore, Calvin Gerard. 1997. "Material Supposition and the Mental Language of Ockham's *Summa Logicae*." *Topoi. An International Review of Philosophy* no. 16:27-33.

    "William Ockham begins his *Summa Logicae* by dividing language into three types, written, spoken and “conceived, having being only in the understanding”.(1) He goes on to argue that this conceived language or ‘mental’ (*mentalis*) language, as he frequently calls it, is in some ways the most basic type. It is composed of terms which are natural whereas spoken and written language are instituted *ad placitum*. Spoken and written terms have their signification because of their

subordination to the terms of mental language which play very much the roles Frege attributes to senses (*Sinne*).

Ockham's views about mental language seem to have developed considerably during the part of his life in which he wrote extensively about issues in the philosophy of language. I will be concerned here only with what might be thought his 'mature' view as this is presented in the (relatively) late *Summa Logicae*. In this work the terms of the mental language (concepts (*conceptus*) as he also calls them) are acts of the mind and the formation of a mental sentence is some kind of production of such acts." (p. 27)

(1) "Est autem sciendum quod sicut secundum Boethium, in *I Perihermenias* triplex est oratio, scilicet scripta, prolata, et concepta, tantum habens esse in intellectu, sic triplex est terminus, scilicet scriptus, prolatus et conceptus." Ockham *Summa Logicae* I, c. 1 *(Opera Philosophica* I, p. 7 , l. 13–16). Hereafter I will abbreviate *Summa Logicae* as S.L., *Opera Philosophica* as OP and will place simple citations of this work in the text.

22. Nuchelmans, Gabriel. 1983. "Medieval Problems Concerning Substitutivity (Paul of Venice, *Logica Magna* II, 11, 7-83) " In *Atti del Convegno Internazionale di Storia della Logica (San Gimignano, 4-8 December 1982)*, edited by Abrusci, Vito Michele, Casari, Ettore and Mugnai, Massimo, 69-80. Bologna: CLUEB.

23. Oesterle, John A. 1944. "Another Approach to the Problem of Meaning." *The Thomist* no. 7:233-263.

    "Thus John of St. Thomas, in defining *suppositio*(4) [*] is insisting that terms or words have *suppositio* only when they are in a proposition and hence that *suppositio* is a property only of propositional terms or words, not of terms or words simply*

    This understanding of *suppositio*, however, was strongly contested in his time, and some writers insisted that s*uppositio* was merely the employment of any name to signify the understanding of a thing. The consequence is, as John of St.

Thomas points out, a failure to distinguish *suppositio* from signification and the further consequence of assuming that any name must have s*uppositio* whether in a proposition or not. Note here, for the moment, the ultimate consequence which could be drawn from such a position: that if any name must have *suppositio*, and especially if *suppositio* is confused with signjfication, then it is an easy step to assume that a name has meaning only as it is in the context of a proposition, since it is only in the context of a proposition that there can be *suppositio* (i.e., standing as the logical subject or the logical predicate); and finally, how easy the step would be to assume also that every name must be verified, since *suppositio* requires verification.

It would be interesting to know whether the writers John of St. Thomas had in mind took these consequences; if so, the problem of meaning (or more likely, the problem of signification or *suppositio*) was being argued then." (p. 236)

(4) There is no exact English equivalent for *suppositio*. " Supposition " fails to carry the precision, and " supposes " is hopelessly inadequate. As John of St. Thomas' definition indicates, it is a certain kind of " standing for " within the proposition.

[*] *Cursus Philosophicus*, Vol. I, p. 29"10. (All pagination is from the Reiser edition.)

24. Panaccio, Claude. 1984. "Propositionalism and Atomism in Ockham's Semantics." *Franciscan Studies* no. 44:61-70.

"The term "propositionalism" has been proposed as a label for Ockham's theory of language by the Spanish scholar Teodoro de Andrés in his 1969 book, *El nominalismo de Guillermo de Ockham como filosofía del lenguaje*. For de Andrés' Ockham, the proposition rather than the term is "the primary complete linguistic unit" and the "primary reality" of knowledge.(1) On the other hand, the expression "semantical atomism" is used by Michael Loux in a 1979 paper to characterize the standard terminist tradition which, he claims, Ockham breaks with.

For Loux's Ockham, "the meaning of a general term is a function of the roles it plays in propositional contexts" and "it is impossible to isolate a non-propositional component in a speaker's linguistic knowledge."(2)

Andrés' and Loux's interpretations are remarkably similar to each other. I will call them "propositionalist interpretations of Ockham's semantics." (p. 61)

(...)

"I will here discuss the arguments in favor of the propositionalist interpretation and show that they cannot support the very strong claims that are supposed to rest on them. I will briefly consider two auxiliary arguments and, then, come to grips with the really central one." (pp. 62-63)

(...)

"I have tried to show elsewhere that, although Ockham's semantics does not show much theoretical interest in the demonstratives, it does systematically resort to them in practice to play a role very much like that of the logically proper names of Russell's logical atomism, that of providing a means for direct singular designation.(35) If that is true, we are now very far from the propositionalist interpretation of Ockham's semantics." (p. 70)

(1) Teodoro de Andrés, *El nominalismo de Guillermo de Ockham como filosofía del lenguaje* (Madrid: Editorial Gredos, 1969) 219-20, 233-36, and passim.

(2) Michael Loux, "Significatio and Suppositio: Reflections on Ockham's Semantics," *The New Scholasticis*m 53 (1979): 423-24.

(35) Claude Panaccio, "Occam et les démonstratifs," *Historiographia Lingüistica* 7 (1980): 189-200.

25. ———. 2013. "Ockham and Buridan on Simple Supposition." *Vivarium* no. 51:371-384.

Abstract: "What is at stake, philosophically, in the disagreement between Ockham and Buridan is whether there is

simple (or material) supposition in the mental language or not. The key difference is that Ockham's theory allows for the possibility of use/mention ambiguities within mental language, while Buridan's approach, whatever it is exactly, does not."

"On the whole—and this will be my provisional conclusion—, no second-order Buridanian theory, whether descriptional or intuitivistic, seems clearly superior to Ockham's straightforward acceptance of simple supposition in mental language. The key difference, in the end, is that Ockham's theory allows for the possibility of use/mention ambiguities within mental language, while Buridan's approach, whatever it is exactly, does not. My own feeling at this point is that a philosophical theory of human mental language should not rule out *a priori* the possibility of such confusions within our own minds."

26. Parsons, Terence. 1994. "Anaphoric Pronouns in Very Late Medieval Supposition Theory." *Linguistics and Philosophy* no. 17:429-445.

"This paper arose from an attempt to determine how the very late medieval (1) supposition theorists treated anaphoric pronouns, pronouns whose significance is derivative from their antecedents. Modern researches into pronouns were stimulated in part by the problem of "donkey sentences" discussed by Geach (1962) in a section explaining what is wrong with medieval supposition theory. So there is some interest in seeing exactly what the medieval account comes to, especially if it turns out, as I suspect, to work as well as contemporary ones. Besides, finding a good analysis of pronouns has proved to be very difficult, and so we might possibly find some insight in a historically different kind of approach.

I discuss a version of supposition theory that aims at producing *analyses* of sentences containing quantified terms, (2)' as articulated around 1400 by Paul of Venice, and as further developed by certain logicians such as de Soto and Celaya in the 1400's and early 1500's, (3) Much of what I will say also applies indirectly to earlier versions of supposition theory (before 1400)."

(1) I say very late medieval' because the period in question (1400-1600) would normally be classified as Renaissance. I am individuating the period by its themes, not solely by its dates.

(2) This was not obviously the intent of the great developers of supposition theory from 1250 to the late 1300's: Peter of Spain, William Sherwood. Roger flacon, William Ockham, Walter Burleigh, John Buridan. For them suppositional "descended forms" follow logically from the sentences under discussion, but they do not *analyze* those sentences because they are not generally equivalent to those sentences. (This is important in Geach's (1962) criticisms of supposition theory.) A burning issue in scholarship on supposition theory is: what was it is supposed to be *for*? One popular answer is that it is supposed to yield an analysis of quantification. This answer accords well with later accounts, but poorly with earlier ones, because the earlier "analyses" are often obviously not equivalent in truth value to the sentences being "analyzed." (See e.g. Matthews, 1964.) I assume equivalence in the theories under discussion.

(3) For details of the mature theory see Ashworth (1974).

27. ———. 1997. "Supposition as Quantification *versus* Supposition as Global Quantificational Effect." *Topoi. An International Review of Philosophy* no. 16:41-63.

Abstract "This paper follows up a suggestion by Paul Vincent Spade that there were two Medieval theories of the modes of personal supposition. I suggest that early work by Sherwood and others was a study of quantifiers: their semantics and the effects of context on inferences that can be made from quantified terms. Later, in the hands of Burley and others, it changed into a study of something else,

a study of what I call global *quantificational effect*. For example, although the quantifier in ~∀xPx' is universal, it can be seen globally as having an existential effect; this is because the formula containing it is equivalent to ∃x~Px'. The notion of global effect can be explained in terms of the modern theory of normal forms. I suggest that early authors were studying quantifiers, and the terminology of the theory of personal supposition is a classification of kinds of quantifiers. In this

theory, to say that a term has distributive supposition is to say, roughly, that it is quantified by a universal quantifying sign. Later authors turned this into a theory of global quantificational effect. In the later theory, to say that a term has distributive supposition is to say that the overall effect is as if the term were universally quantified with a quantifier taking (relatively) wide scope. The difference between these two approaches is illustrated by the fact that the term ‘man’ is classified as having distributive (“universal”) supposition in ‘Not every man is running’ in the earlier theory, whereas in the later theory that term does not have distributive supposition; it has determinate (“existential”) supposition. In the paper I explain these options, and I argue from several texts that the earlier and later medieval theories actually worked like this. In an appendix I make further efforts to clarify the obscure early accounts, as well as the nineteenth century “doctrine of distribution”. The last section of the paper discusses the “purpose(s)” of supposition theory."

28. ———. 1997. "Missing Modes of Supposition." *Canadian Journal of Philosophy* no. Supplemetary volume 23:1-24.

    "Supposition theory is a medieval account of the semantics of terms as they function in sentences. The word 'supposition' is probably interchangeable with our word 'reference,' but I'll leave it as 'supposition' so as to identify the medieval source of the theory I discuss here. Medieval writers had a great deal to say about supposition; this paper focuses on only one part of the theory, the study of what is now generally called the theory of *modes of common personal supposition*. The word 'common' is used here as in 'common term,' as opposed to 'singular term,' but in fact, the theory focuses on common terms along with the quantifiers

    that accompany them. The word 'personal' is a technical term indicating that the word in question is used in its normal way to refer to the things it is true of, as distinguished from occurrences in which it refers to itself (as in "Giraffe' is a noun') or refers to a particular thing intimately related to the things it is true of (as in 'Giraffe is a species'). So we might describe this

as a theory of the modes of reference of quantified common terms used normally

29. ———. 2006. "The Doctrine of Distribution." *History and Philosophy of Logic* no. 27:59-74.

    "Peter Geach describes the 'doctrine of distribution' as the view that a term is distributed if it refers to everything that it denotes, and undistributed if it refers to only some of the things that it denotes. He argues that the notion, so explained, is incoherent. He claims that the doctrine of distribution originates from a degenerate use of the notion of 'distributive supposition' in medieval supposition theory sometime in the 16th century. This paper proposes instead that the doctrine of distribution occurs at least as early as the 12th century, and that it originates from a study of Aristotle's notion of a term's being 'taken universally', and not from the much later theory of distributive supposition. A detailed version of the doctrine found in the Port Royal Logic is articulated, and compared with a slightly different modern version. Finally, Geach's arguments for the incoherence of the doctrine are discussed and rejected."

    "1. Introduction

    This paper is about the 'doctrine of distribution' as described and criticized by Peter Geach. My goal is to provide an alternative to Geach's account of the history of the doctrine and to defend the doctrine against his claims that it is incoherent. This paper discusses:

    (1) what the 'doctrine of distribution' is;

    (2) some of Peter Geach's criticisms of the doctrine;

    (3) Geach's story of the history of the doctrine;

    (4) an alternative account of the history of the doctrine;

    (5) the version of the doctrine as it occurs in the Port Royal Logic;

    (6) a defence of the coherence of the doctrine."

30. ———. 2008. "The Development of Supposition Theory in the Later 12th through 14th Centuries." In *Handbook of the*

History of Logic. Vol. 2: Mediaeval and Renaissance Logic, edited by Gabbay, Dov and Woods, John, 157-280. Amsterdam: Elsevier.

"Soon after the time of Anselm (1033–1109) and Peter Abelard (1079-1142), universities began to be founded. Logic was taught pretty much as it had been before the year 500; it consisted of work from Aristotle's *Categories* and *On Interpretation,* and material from the first few sections of his *Prior Analytics*. There was also material from the Stoics on propositional logic. In the early 1100's, western scholars acquired Latin versions of additional work by Aristotle, including his *Sophistical Refutations*, which dealt extensively with fallacies. This inspired original new work by medieval scholars. Sometime in the 12th century a number of original texts suddenly appeared containing a fairly extensive group of interrelated theories, usually employing the term 'supposition', which means pretty much what we mean by "reference" or "standing for". The texts were similar, expounding much the same doctrines, and often employing the same or closely similar examples. Clearly there was some common source, but the texts themselves contain no indication of the origin of the doctrines, and the early history of the topic is unknown. This essay is an account of some of the main theories of this tradition, often called Supposition Theory. For want of space, the commonest known themes will be treated, without extensive details of how the theories varied from author to author. The picturegiven here is then a kind of ideal framework of a large tradition." (p. 157)

31. ———. 2013. "The Expressive Power of Medieval Logic." *Vivarium* no. 51:511-521.

Abstract: "This paper is about the development of logic in the Aristotelian tradition, from Aristotle to the mid-fourteenth century.

I will compare four systems of logic with regard to their expressive power.

1. Aristotle's own logic, based mostly on chapters 1-2 and 4-7 of his *Prior Analytics*.

2. An expanded version of Aristotle's logic that one finds, e.g., in Sherwood's *Introduction to Logic* and Peter of Spain's *Tractatus* 3-5. Versions of the logic of later supposition theorists such as William Ockham,

John Buridan, and Paul of Venice. Version 4 is the logic without relatives (anaphoric pronouns); version 5 adds relatives.

I am ignoring modals, conditionals that are not *ut nunc*, infinitizing negation, exclusives and exceptives, all exponibles, all insolubles, and terms with simple or material supposition, ampliation and restriction, and many other things."

32. ———. 2014. *Articulating Medieval Logic*. New York: Oxford University Press.

Chapter 7: *Modes of Personal Supposition*, 184-226.

"This chapter has two parts. The firrst part, sections 7.1–7.7, explains an historical version of the theory of modes of personal supposition. The second part, sections 7.8–7.12, deals with a refined version of that theory.

7.1 Introduction to the medieval theory

A common term which is used personally(1) has what is called a mode of (common) personal supposition.(2) A mode of supposition is something like a kind of quantificational status. It is a status that a term has in a proposition based on where it occurs in the proposition and what quantifier word occurs with it and with other terms in the proposition. Three modes of common personal supposition are widely discussed:

• Determinate Supposition

• (Confused and) Distributive(3) Supposition

• Merely Confused Supposition" (p. 184)

(1) Medieval logicians held that expressions can be used in three ways. An expression can be used materially (with "material supposition") as in 'Man is a noun'; used in this way the expression supposits for itself or for a similar expression. An expression can be used simply (with "simple supposition") as in 'Man is a species'; used in this way the expression

supposits for a related form in the external world or for a mental concept. (Realists held the former; nominalists something like the latter.) Finally, an expression can be used personally (with “personal supposition”) as in ‘A man is an animal,’ to supposit for things that “fall under” the term. (Realists would say that in personal supposition a term supposits for things that fall under the form that the word supposits for when used with simple supposition; some nominalists would say that in personal supposition a term supposits for the things that its associated mental concept naturally signifi es.) The topic of this chapter concerns words used personally.

(2) Some authors (see Marsilius of Inghen 1 (57–9)) believe that terms used materially can also be assigned a mode of supposition, since they are common terms. (Dutilh Novaes 2007, 62 suggests that he was the first to hold this.) For example, in ‘Every donkey in that sentence is bisyllabic’ the word ‘donkey’ is a common term that stands for any word spelled d-o-n-k-e-y. On this analysis, ‘donkey’ has distributive material supposition in that sentence. According to some, even discrete terms used materially are common terms, and can have modes of supposition, as in ‘Every this uttered this morning was the subject of the sentence in which it occurred.’

Most authors either disagree with this view, or ignore it.

(3) Some authors use ‘distributed’ and some use ‘distributive’; I use these interchangeably. (The term ‘distributed’ may presuppose that a term cannot have that mode of supposition unless it has been distributed by some distributing sign; see section 7.4.)

References

Dutilh Novaes, Catarina. 2007. *Formalizing Medieval Logical Theories: Suppositio, Consequentiae and Obligationes*. Dordrecht: Springer.

33. Pérez-Ilzarbe, Paloma. 2004. "Complexio, Enunciatio, Assensus: The Role of Propositions in Knowledge according to John Buridan." In *Medieval Theories on Assertive and Non-*

Assertive Language, edited by Maierù, Alfonso and Valente, Luisa, 401-413. Firenze: Olschki.

"This paper is an attempt to rethink Buridan's ideas concerning knowledge (which are well known after the work of de Rijk and Zupko) from two perspectives: On the one hand, I explore Buridan's theory of knowledge in the hope that it will shed some light on the intuition that the structure· of propositions determines the justification of our beliefs on various different levels. On the other hand, I would like to contribute to demonstrating the consistency of Buridan's thought, which has been remarked by almost all scholars working on Buridan: in particular, I am interested in exploring the benefits of using supposition theory when applied to the theory of knowledge.

The aim of this paper, suggested in the subtitle: the role of propositions in knowledge, is therefore to explore the interweaving between Buridan's theory of propositions and some aspects of his theory of knowledge. I will start by examining Buridan's conception of *scientia* (as opposed to *error, opinio* and *fides*), from the perspective of two distinctions which are very important to Buridan's theory of the proposition: *complexio / enunciatio* and *enunciatio / assensus*. Then I will recall Buridan's analysis of prop··! tions (and his use of supposition to define truth conditions) to show ilui» consistency with this conception of knowledge." (pp. 401-402, two notes omitted)

34. Perini-Santos, Ernesto. 2013. "When the Inference 'p is true, therefore p' Fails: John Buridan on the Evaluation of Propositions." *Vivarium* no. 51:411-424.

Abstract: "For John Buridan, truth-bearers are assertions. This fact explains why the inference 'p is true, therefore p' may fail. On the one hand, the tense of the verb plus the time of utterance do not determine the time about which a sentence is intended to be true: the intention of the speaker is needed. On the other hand, since the meaning of vocal and written words is conventional, it may seem that they can be used with different meanings on each side of the inference. While the antecedent may talk about a situation different from the present one, this

doesn’t make it the actual situation of utterance, and the words have meanings only in the actual situation of use. Although such situations are different, in both of them we are asked to see the importance of identifying features of which the disquotational schema doesn’t keep track and that can only be specified in the context of use."

35. Perreiah, Alan Richard. 1967. *Is There a Doctrine of Supposition in the Logica Magna?*, Indiana University.

    Available at ProQuest Dissertation Express. Order number: 6715146.

36. ———. 1971. "Approaches to Supposition Theory." *The New Scholasticism* no. 45:381-408.

    "The past 25 years have seen an increasing interest in later medieval logic and in the theory of supposition. A review of literature reveals, however, wide differences of interpretation of supposition-theory. Taking the theory in the widest sense as a contribution to semiotic or the theory of signs, this study shows how supposition has been variously treated as a syntactical, semantical and even pragmatical theory. The main views of P. Boehner, E. Moody, P. Geach, D. P. Henry, W. C. Kneale and L. M. De Rijk are examined, compared and appraised with respect to overall progress in the elucidation of supposition theory."

37. ———. 1986. "Supposition Theory: A New Approach." *The New Scholasticism* no. 60:213-231.

    "For the past three decades the theory of supposition (*suppositio*) has been a crux of scholarship in medieval logic. Although supposition was one of the banner doctrines of the logics modernorum, its nature and purpose have remained elusive to modern interpreters. Tn this paper I outline an alternative approach to supposition theory. The paper has three parts.

    Part I reviews a few of the difficulties which modern conceptions of supposition theory have encountered.

    Part IT offers an interpretation of supposition theory as a system of conceptual notation.

Part III develops some connections between supposition as conceptual notation and the medieval art of memory.

A conclusion will suggest some of the advantages of the present interpretation over earlier ones." (p. 213, notes omitted)

38. Piolata, Thomas. 2021. "The Significance of Supposition: Abelard and Bonaventure on the Question of God Begetting God." *Collectanea Franciscana* no. 91:27-49.

    Summary: "This article treats the way in which Peter Abelard and Bonaventure deal with the logic of the phrase *Deus genuit Deum*, that is, how to understand logically the idea – rooted in the *Creed* – that God generates God (“God from God”). As Augustine had affirmed, essence cannot generate itself. Consequently, this aspect of the faith poses a potential problem. To handle it, the logical theory of supposition is key. This theory concerns the reference of a given term in a phrase, and not its signification. Abelard did not have the privilege of supposition. By the time of Bonaventure, however, it had become a standard tool of logical analysis. The goal of this study is thus to articulate the logical treatment of this phrase in Abelard and Bonaventure, and thereby to highlight the importance of the theory of supposition."

39. Price, Robert. 1970. "William of Ockham and *Suppositio Personalis*." *Franciscan Studies* no. 30:131-140.

    "Many have suggested that Ockham's theory of *suppositio* is in some sense an anticipation of contemporary quantification theory; usually this is qualified by the suggestion that Ockham quantifies over terms or qualities rather than individuals.(1) There is also some discussion as to whether the theory is semantical or syntactical in character.(2) Both these matters are, I think, tied together. If we must force a later distinction

    on Ockham: what he did was to develop roughly the same semantical theory which was later used to interpret contemporary quantification theory. He did so, however, in order to interpret the simple categoricals which have a quite different syntax.

    (...)

In order to give a clear account of these matters I will first give in contemporary materials a theory which would serve Ockham's purposes.

What this amounts to is the presentation of a semantical interpretation for quantification over sorted individuals which emphasizes those features which are relevant to Ockham's account.(3) I will then present a rough outline of Ockham's theory as it appears in the first *Summa* in order to stress the parallels between it and the previously presented theory. I will then turn to a discussion of historical developments along the lines already indicated." (pp. 131-132)

(1) Cf., e.g., Philotheus Boehner, *Medieval Logic*, Manchester, 1952, and Gareth Mathews, "Ockham's suppositio theory and modem logic," *Phil. Rev*. 73 (1964), 91~9.

(2) Cf., e.g., Ernest A. Moody, *Truth and consequences in mediaeval logic*, Amsterdam, 1953, and Manley Thompson, "Logic, philosophy, and history," *Rev. Meta*. 8 (1954-55), 91~7.

(3) The relevance of such a system to Aristotelian logics was established by Timothy Smiley in "Syllogism and quantification," *J.S.L*. 27 (1962), 58-72.

40. Priest, Graham, and Read, Stephen. 1977. "The Formalization of Ockham's Theory of Supposition." *Mind* no. 86:109-113.

    "The point of the paper is to show that the medieval theory of personal supposition can be formalised using the standard tools of modern logic. A formal account of the modes of supposition is given and it is shown how these can be used to obtain the descensus in standard cases. The formalisation is used to show that Ockham's views on the supposition of the predicate in the "o" form are mistaken, and to refute the following claims: (a) the medievals omitted some modes of supposition; (b) they had too many modes of supposition; and, (c) their theory is incapable of handling multiple quantification."

41. ———. 1980. "Merely Confused Suppposition: a Theoretical Advance or a Mere Confusion?" *Franciscan Studies* no. 40:265-297.

"In this article we will discuss the notion of merely confused supposition as it arose in the mediaeval theory of *suppositio personalis*. The context of the analysis is our formalization of William of Ockham's theory of supposition sketched elsewhere.(1) The present paper is however, self-contained, although we assume a basic acquaintance with supposition theory. The detailed aims of the paper are: i) to look at the tasks that supposition theory took on itself and to use our formalization to relate them to more modern ideas; ii) to explain the notion of merely confused supposition and to defend it against certain criticisms; and iii) to discuss two issues closely related to the idea of merely confused supposition which we would not broach in a shorter article: the mode of supposition of terms in intensional contexts, and the possible existence of a fourth mode, often called *suppositio copulatim*.

Our account is essentially a theoretical one which attempts to explain and account for a number of features of mediaeval supposition theory and, as such, it is ultimately to be tested against source material. Hence, although much of the evidence we shall offer comes from Ockham's writings, our conclusions apply to the mediaeval theory of supposition, in terms of descent, as it is found in a number of authors. Our earlier article drew on three works of Ockham's: *Summa Totius Logicae* (henceforth STL), *Elementarium Logicae* (EL), and *Tractatus Logicae Minor* (TLM).(2) Since then we have become aware of Gàl's persuasive doubts concerning the authenticity of the last two works. His conclusion is that they cannot be taken as genuine texts of Ockham's until further research has been carried out.(3) We will find it possible here to draw most often on STL; however, the reader will note that our findings are consonant with both TLM and EL, and on occasions we will look there for support, and also to writings by later authors working in the same tradition."

(1) G. Priest & S. Head, "The Formalization of Ockham's Theory of Supposition," Mind, 86 (1977), 109-13.

(2) *STL*: G. de Ockham, *Summa Logicae*, eds. P. Boehner, G. Gàl & S. Brown (*Opera Philosophica I*: St. Bonaventure, 1974).

EL: “*The Elemeniariutn Logicae of Ockham*," ed. E. Buytaert, Franciscan Studies, 25 (1965), 151-276 and 26 (1966), 66-173.
TLM: “Traciatus Logicae Minor of Ockham," ed. E. Buytaert, Franciscan Studies, 24 (1964), 34-100.

(3) *STL, pp. 62*-66*.*

42. ———. 1981. "Ockham's Rejection of Ampliation." *Mind* no. 90:274-279.

    "The standard mediaeval account of the truth-conditions of modal and tensed sentences used a notion of "ampliation", whereby the class of objects for which a term supposits could be extended beyond the class of things of which it could be truly predicated. Ockham did not use the notion in his account. We examine why this was, explain Ockham's account, and argue that it is preferable to the ampliative one. In particular, the authors show the ambiguities found in modal and tensed sentences to be, contrary to popular opinion, different, and support Ockham's contention that the ambiguity in the tensed case is not one of sense (signification) but of reference (supposition)."

43. Read, Stephen. 1991. "Thomas of Cleves and Collective Supposition." *Vivarium* no. 29:50-84.

    "The Modes of Supposition

    In an anonymous commentary on Marsilius of Inghen's treatise on supposition, it is asked: "are there only three kinds of common [personal] supposition?"(1) The question is posed within the medieval theory of properties of terms, according to which various kinds or modes of supposition are ascribed to subject and predicate terms in propositions. Abstracting from the particular doctrines of particular authors, one may define the three standard modes of common personal supposition attributed to general terms in their occurrence in propositions as follows:

    The mode of common personal supposition of an occurrence of a general term t in a proposition P is

i) *determinate* if P is equivalent to a disjunction of singulars with respect to t'

ii) *confused* if not, and

a) confused and distributive if P entails a conjunction of singulars with respect to t ;

b) merely confused if not but P entails the result of replacing t by a disjunct term."(p. 50)

(,,,)

"Conclusion

Towards the middle of the fourteenth century, it was realised that, simply on gronds of symmetry or duality, a fourth mode of descent to singulars was possible, conjunct descent or *descensus copulatim*. This finally led, arguably in the person of Thomas Zeghenans of Cleves, a Paris master of the early 1370s, to the identification of a fourth mode of common personal supposition, *suppositio copulatim*. Independently, it had long been realised that the subjects of universal propositions permit both a distributive, or divisive, interpretation, and a collective one. This in itself can be a ground for postulating an additional mode of supposition, and indeed, one which can be linked to the new conjunct mode of descent. Thus the fourth mode of common personal supposition can equally well be called "collective supposition.". (p. 82)

(1) (anon.,) *Commentum in Primum et Quartum Tractatum Petri Hispani et super tractatibus Marsilii de suppositionibus, ampliationibus, appellationibus et consequents*, Basle 1487, sign. r4r-r5v; also Hagenau 1495 (reprinted Frankfurt 1967) and 1503, sig. q5v-q6v: sig. r4r/q5v, questio nona: "Utrum tantum tres sunt species suppositionis communis".

(2) Most of what I write in this paper concerns the theory of supposition as it developed in the second half of the fourteenth century. Little has been written on the theory at this date. A recent and instructive article on the theory before this date is P. V. Spade, *The Logic of the Categorical : the medieval theory of*

descent and ascent, in *Meaning and Inference in Medieval Philosophy*, ed. N. Kretzmann, Dordrecht 1988, pp. 187-224.

44. ———. 1999. "How is Material Supposition Possible?" *Medieval Philosophy and Theology* no. 8:1-20.

    "In the early fourteenth century, material supposition was characterized as nonsignificative, when a term supposits for itself or other terms contrary to its normal signification. But this characterization is in tension with the doctrine of signification, which picks out the concept uniting the things for which the term supposits. This tension was appreciated by Thomas Maulfelt and others so that by the end of the century, in John Dorp for example, a further concept was associated with each term, the concept of the term itself and its equiforms. Material supposition can then be subsumed under the theory of signification."

45. Rearden, Myles. 1982. "On teaching students logic." *Philosophy* no. 57:130-132.

    "Is Peter Geach right to dismiss the medieval theory of distribution? Arguably, the distinction between "suppositio distributiva et confusa" and "suppositio confusa tantum" is more durable than all the rest of supposition theory. There is still valid point about how general terms stand for individuals. "some man runs" and "every man runs" both stand for everyone. The difference is that the former does so disjunctively, the latter, conjunctively. That seems enough to salvage the essence of distribution theory. Geach's rejection of distribution stems from his view that it involves assimilating nouns to proper names as regards their manner of signification. Quite the contrary, medieval distribution theory accepted the difference between a name-like referring and a more general standing-for. Distribution theory continues to make sense, and so consequently does much of the logic of categorical propositions."

46. ———. 1984. "The distribution of terms." *The Modern Schoolman* no. 61:187-195.

"The traditional doctrine of distribution retains some validity, contrary to the view of Geach in reference and generality. The history of the doctrine is outlined. The medieval distinction between descensus copulativus and descensus disiunctivus is the core of distribution. The class interpretation of categoricals obscures the doctrine. Contemporary quantifier theory reveals it again. Geach's arguments against it are analysed and criticised."

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History of Logic

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Bibliography of the Medieval Theories of Supposition: Fourth part

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Studies in English Ric - Z

1. Richards, Thomas J. 1971. "The Two Doctrines of Distribution." *Australasian Journal of Philosophy* no. 49:290-302.

   "Medieval logicians often defined a term T as distributed in a sentence f(T) iff there is a valid inference from f(T) to If(this T)]. Thus P is distributed in [Some S are not P]. Nineteenth-century traditional logicians presented an alternative definition of distribution of T in f(T) according to whether T refers to its whole extension. Thus S is not distributed in [Some S are not P]. This version is also medieval, and has been attacked, mainly by Geach, from the point of view of the incoherence of the theory of reference it *prima facie* presupposes. In this paper I shall make some remarks about the history of the two doctrines, then attempt to provide precise formulations of them.

   These formulations will then be compared; and then precise formulations of the two traditional distribution laws of inference will be offered. These two laws are, informally and traditionally: a term distributed in a conclusion must be distributed in a premiss (Law of Valid Process); and, the middle term of a syllogism must be distributed in a premiss (Law of

Distributed Middle). The latter is capable of generalisation to cases other than traditional syllogisms, otherwise it is trivial.

The tenor of the paper is that all these precise formulations are acceptable renderings of distribution theory generalised beyond simple S-P sentences.

Consequently the acceptability of these areas of traditional metatheory of traditional logic has as at least a necessary condition the proof of the two distribution laws and the demonstration of the equivalence of the two definitions of distribution. It will be shown that the two definitions are not equivalent, that the Law of Valid Process does not hold on one definition of distribution, and that neither law holds on the other definition." (p. 290)

2. Rijk, Lambertus Marie de. 1962. *Logica Modernorum: A Contribution to the History of Early Terminist Logic. Vol. 1: On the Twelfth Century Theory of Fallacy*. Assen: Van Gorcum.

   Contents: Preface 11; 1. The specific character of the *Logica Modernorum* 13; 2. The theory of fallacy in the framework of the *Logica Vetus* 24; 3. The theory of fallacy in the great logical works of Peter Abailard 49; 4. The theory of fallacy in the School of the *Parvipontani* 62; 5. The earliest mediaeval commentaries on the *Sophistici Elenchi* 82; 6. The theory of fallacy in the later glosses on the *Perihemeneias* 113; 7. Two treatises on fallacy from the latter part of the twelfth century 127; 8. On the use of the doctrine of fallacy in twelfth century theology 153; Books and articles referred to 179; List of manuscripts used 181; Appendices: A. *Glose in Arist. Sophisticos Elencos* 187; B. *Summa Sophistorum Elencorum* 257; C. *Tractatus de dissimilitudine argumentorum* 459; D. *Fallacie Vindobonenses* 459; E. *Fallacie Parvipontane* 491; F. [Frustula Logicalia] 611; Indices: A. Index locorum 629; B. Index nominum 642; C. Index sophismatum et exemplorum 646; D. Index verborum et rerum 659-674.

   "In this work the author tries to show how the *Logica Modernorum,* - which, as is known, exerted, from the thirteenth century onwards, such a profound influence on the

development of Mediaeval Philosophy -, had its origin in the twelfth century logical and grammatical theories which arose in the Western centers of studies, especially in Paris.

The first volume deals with one of the two roots of this development: the twelfth century doctrine of fallacy; the second volume will treat of the *Logica Modernorum* in the grammatical theories of the twelfth century.

The author thought it of great importance to edit in full the main treatises on which his studies are based; they are found in the *Appendices* A-E. *Appendix* F contains three passages from twelfth century *Perihermeneias*-commentaries; in order to avoid the false suggestion that one has to do here with fragmentary remnants which have come down to us, I chose, despite its somewhat culinary sound, the term *'Frustula'* instead of the more usual *'Fragmenta'*. Some information on the manuscripts concerned is given in the course of this study; for the places, consult the *List of manuscripts used*.

As to the *ratio edendi* I >refer to the preface of my edition of the *Dialectica* of Garlandus Compotista, published as part III in the same series.

The *Index nominum,* the *Index locorum* and the *Index sophismatum* aim at completeness. The *Index verborum et rerum* is not exhaustive: it only tries to give a number of words and phrases considered as important for the understanding of the conceptual and doctrinal contents of the edited treatises and to facilitate the reader's orientation in this study." ("In this work the author tries to show how the *Logica Modernorum,* - which, as is known, exerted, from the thirteenth century onwards, such a profound influence on the development of Mediaeval Philosophy -, had its origin in the twelfth century logical and grammatical theories which arose in the Western centers of studies, especially in Paris.

The first volume deals with one of the two roots of this development: the twelfth century doctrine of fallacy; the second volume will treat of the *Logica Modernorum* in the grammatical theories of the twelfth century.

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3. ———. 1967. *Logica Modernorum. Vol 2. Part One: The Origin and Early Development of the Theory of Supposition*. Assen: Van Gorcum.

"In this work it will be attempted to show how the *Logica Modernorum* had its origin, long before the thirteenth century, in the logical and grammatica! theories current in the Western centres of studies: Paris, Oxford and presumably a school in Northern ltaly.

The First volume dealt with what was considered as one of the two roots of this development: the twelfth century theories of fallacy. The present volume discusses the other source: the development of Mediaeval grammar from an elementary discussionof (Latin) grammar to a linguistic-semantic theory of (Latin) language. It was the latter contribution that was of extreme importance for the origin of the theory of supposition, and generally speaking, of terminist logic.

The purpose of this volume is to trace the details of the origin of the theory of supposition, including appellation and copulation, and to discuss the theory of the properties of terms as found about 1200.

Besides, some historical evidence will be given for the origins of the tracts dealing with the properties of syncategorematic terms and those discussing the other specific elementa of the *Logica Modernorum*.

The author has thought it of some importance for further investigation in this field to edit in full the main treatises on which the present study is based.They will be found in the second part of this book. They have been arranged chronologically, except for the *Quaestiones Victorinae*, which are to be considered as an extra.

The *Index nominum,* the *Index locorum* and the *Index sophismatum* aim at completeness. The *Index verborum et rerum* is not exhaustive: it only tries to give a number of words and phrases considered as important for our understanding of the conceptual and doctrinal contents of the edited tracts, and to facilitate the reader's orientation in this study." (From the *Preface*)

4. ———. 1967. *Logica Modernorum. Vol 2. Part Two: The Origin and Early Development of the Theory of Supposition. Texts and Indices*. Assen: Van Gorcum.

   Contents: I. Introductiones Montane minores 7-71; II. Abbreviatio Montana 73-107; III Excerpta Norimbergensia 109-141; 1. De arte dialetica 113-126; 2. De arte disserendi 127-133; 3. lntroductiones Norimbergenses 134-141; IV Ars Emmerana 143-174; V. Ars Burana 175-213; VI. Tractatus Anagnini 215-332; 1. De predicabilibus 217-232; 2. De argumentationum generibus 233-257; 3. De suppositionibus 258-282; 4. De propositionum generibus earumque probatione 283-296; 5. De quinque dictionum generibus 297-326; 6. De arte sophistica 327-332; VII Tractatus de univocatione Monacensis 333-351; VIII lntroductiones Parisienses 353-373; IX Logica "Ut dicit" 375-411; X. Logica "Cum sit nostra" 413-451; XI. Dialectica Monacensis 453-638; XII Fallacie Londinenses 639-678; XIII.

Fallacie Magistri Willelmi 679-702; XIV Tractatus de proprietatibus sermonum 703-730; XV. Quaestiones Victorinae 731-769.

5. ———. 1971. "The Development of *Suppositio Naturalis* in Medieval Logic. I. Natural supposition as non-contextual supposition." *Vivarium* no. 9:71-107.

   Reprinted as chapter IX in: L. M. de Rijk, *Through Language to Reality. Studies in Medieval Semantics and Metaphysics*, edited by E. P. Bos, Northampton, Variorum reprints, 1989.

   "I had already discussed this matter [naural supposition] in the second volume of *Logica Modernorum* (Assen 1967; pp. 571-578) and in the paper *Significatio y suppositio en Pedro Hispano*.

   The aim of this paper is to elaborate and, partly, correct the view of natural supposition given there by a discussion of the most representative thirteenth century authors and of some fourteenth century logicians with whom natural supposition still played a rôle, such as John Buridan and Vincent Ferrer.

   The thirteenth century authors are Peter of Spain, William of Sherwood, the anonymous author of the *Tractatus de proprietatibus sermonum*, and Lambert of Auxerre. It should be remarked at the outset that there is no interdependence between these thirteenth century authors, apart from the rather vague relation effected by their standing in a common tradition of logic." (pp. 71-72)

6. ———. 1973. "The Development of Suppositio Naturalis in Medieval Logic. II. Fourteenth-Century Natural Supposition as Atemporal (Omnitemporal) Supposition." *Vivarium* no. 11:43-79.

   Reprinted as chapter X in: L. M. de Rijk, *Through Language to Reality. Studies in Medieval Semantics and Metaphysics*, edited by E. P. Bos, Northampton, Variorum reprints, 1989.

   "I - Status quaestionis.

   From the investigations in the first part of this article the conclusion was drawn that in the thirteenth century doctrine of

supposition natural (or habitual, or absolute) supposition was considered the natural capacity of a term to stand for something partaking in the essence (or: universal nature) signified by that term; accidental supposition was the term's actual being taken for something in virtue of the term's combination with some other term in either a phrase or a proposition, or of its having a special meaning in a special social context. Briefly stated : natural supposition was decidedly non-contextual, whereas all kinds of accidental supposition were of the contextual type.

Two characteristics of the thirteenth century doctrine of supposition are to be noticed

(a) accidental supposition, being contextual, does not always imply a propositional context

(b) natural supposition, being something midway significatio and suppositio (as opposed to significatio), seems to enervate the clear-cut

distinction all thirteenth century logicians made between suppositio and significatio.

ad a Thirteenth century logicians turn out to consider the proposition as just one of the possible contexts of a term, not as the only one required for a term's having supposition.

ad b The introduction of natural supposition was due to the peculiar fact that those logicians apparently held it to be indispensable to distinguish between a word's having signification (viz. its representing some universal nature) and its capacity to stand for individuals partaking in this universal nature (c.q. the universal nature participated, taken as such), which capacity was the direct, or natural, counterpart of its having signification. This natural capacity must be seen as a reference to a *possible* context, which supplies an adjunct to limit, or restrict, the term's original capacity (c.q. which causes its having an unrestricted exercise of its natural capacity). (...)

As is well known, when studying the problems of signification fourteenth century logicians showed an increasing interest in

the contextual approach to language. Their investigations were focussed on the *congruitas locutionis* and the *veritas propositionis* as the basic requirements *(exigentie)* for stating the actual meaning of terms. Their theories of supposition may be taken as an attempt to specify the truth conditions for (mostly affirmative) categorical propositions. Thus, the various kinds of supposition were characterized by fourteenth century logicians by means of implications *(consequentie)'*. Consequently, they were bound to lay the most explicit stress on the *proposition* as the only possible context in which a term could have supposition.

The most obvious conclusion from the theoretical point of view would be that natural supposition, being of the non-contextual type, had to disappear in fourteenth century logic. To my mind, it certainly had - as certainly as it never should have appeared. However, it *did* occur in those days, not only in the Realist tradition but with a logician as John Buridan as well.

It is the aim of this article to discuss the reinterpretation of natural supposition and the controversies it provoked, and is still provoking up to the present days." (pp. 43-44)

7. ———. 1982. "The origins of the theory of the properties of terms." In *The Cambridge History of Later Medieval Philosophy: From the Rediscovery of Aristotle to the Disintegration of Scholasticism*, edited by Kretzmann, Norman, Kenny, Anthony Patrick, Pinborg, Jan and Stump, Eleonore, 161-173. Cambridge: Cambridge University Press.

   "The first medieval scholars to have a professional interest in language as such were the grammarians. Their interest was focused on what we would call logico-semantical and syntactical questions; this is espedally true of the School of Chartres as early as the 1030s. No longer were words studied as separate units quite apart from their linguistic context; rather it was that context itself that attracted the most intense interest. I have labelled this concentration of attention the 'contextual approach' (De Rijk 1967, pp. 113-17; 123-5). The statement (*propositio*), not isolated words, was taken to be the fundamental unit of meaning. The meaning of a word in its

actual use in a propositional context was considered so important, indeed, as to lead to the introduction of a special terminology, centred around terms (i.e., words as parts of actual propositions) and their properties.

The development of the doctrine of the properties of terms was in fact nothing but the growing dominance of just one of the properties of terms, *suppositio*, i.e., actually 'standing for'. On the other hand, throughout that development, there remained some basic presuppositions which not only established the framework of the development but were, unfortunately, to determine later developments as well. Among them the most obstinate was the doctrine of *significatio*." (pp. 161-162)

References

Rijk, L. M. de, (1962-7). *Logica modernorum: A contribution to the History of Early Terminist Logic. I: On the Twelfth Century Theories of Fallacy* (1962); II, 1: *The Origin and EarlyDevelopment of the Theory of Supposition*; II, 2: *Texts and Indices* (1967), Van Gorcum

8. ———. 2013. "Semantics and Ontology. An Assessment of Medieval Terminism." *Vivarium* no. 51:13-59.

Abstract: "This paper aims to assess medieval terminism, particularly supposition theory, in the development of Aristotelian thought in the Latin West. The focus is on what the present author considers the gist of Aristotle's strategy of argument, to wit conceptual focalization and categorization. This argumentative strategy is more interesting as it can be compared to the modern tool known as 'scope distinction'."

"A Summary

The following statements can summarize our findings:

[1] The medieval theories of the properties of terms, supposition in particular, and medieval terminism in general developed around 1100 from a doctrine concerning the unmasking of fallacious arguments through grammaticological analysis.

[2] Unlike fallacies, as a root of terminism, grammatico-logical analysis continued to play a prominent role in its later developments.

[3] Like any philosophical method, the methodology of terminism had everything to do with a philosopher's basic attitude towards reality, and, accordingly, its diverse developmental directions mirrored diverse philosophical positions, varying from realism to nominalism/conceptualism, to each of which it was equally hospitable.

[4] The basic ancient and medieval philosophical positions were all governed by the paradigm of the parallellism (supposedly existing) between Reality and our cognitive faculties (for Aristotle and the Medievals, particularly the scheme of the ten categories).

[5] There are, consequently, unmistakable parallells between the Aristotelian and the medieval strategies of argument, which, however different they sometimes seemed, both served much the same philosophical positions.

[6] The nucleus of the Aristotelian strategy of argument, which consists in focalization and correct categorization, is also found in terminism, both of which are based on the conviction that any proper discussion requires highlighting the object's (whether essential or coincidental) ontic features that are suited to the investigation or discussion at hand.

[7] Taking advantage of the ambivalent semantic area of the key focal terms of the discussion is one of the main characteristics of terminism.

[8] The medieval debates on metaphysical issues and on intentionality, as well as sophisticated disputes about the significative force of words occurring in special contexts, gave rise to many semantic refinements, such as the issues of semantic stratification and time connotation.

[9] The entire development of terminism can also be assessed in the broader context of the post-medieval rise of empiricism, including an ongoing critical attitude towards rational

speculation. As far as the Middle Ages are concerned, this attitude came to the fore in reducing the number of the categories regarded as ontologically representative (with Ockham among others), or even in giving up the idea of ontological representativeness altogether (with Crathorn)." (pp. 55-56)

9. Roberts, Louise Nisbet. 1956. "Classification of Suppositions in Medieval Logic." *Tulane Studies in Philosophy* no. 5:79-86.

   "Classifications of supposition are a characteristic portion of the terminist logic of the Thirteenth and Fourteenth centuries. The article contains a brief explanation of classifications to be found in the texts of such logicians as Peter of Spain, Albert of Saxony, and John Buridan."

10. ———. 1960. "Supposition: A Modern Application." *Journal of Philosophy* no. 57:173-182.

    "A few Twentieth Century issues found in the analysis of ordinary language are explored in terms of Fourteenth Century logic. The late medieval theory of supposition is applied to problems appearing in the work of such recent thinkers as W. V. O. Quine and P. F. Strawson."

11. Roques, Magali. 2019. "Vincent Ferrer on Natural Supposition." *Medioevo* no. 44:161-177.

12. Sagal, Paul Thomas. 1967. *The Concept of Supposition and Its Place in the Development of Medieval Semantology*, University of Pennsylvania.

    Available at ProQuest Dissertation Express. Order number: 6809232.

13. ———. 1973. "On Refuting and Defending Supposition Theory." *The New Scholasticism* no. 47:84-87.

    Summary: "P. T. Geach's critique of medieval supposition theory has generated much controversy. Supposition theory is neither as guilty as Geach claims, nor as innocent as Scott, one of Geach's critics, claims. Geach takes a medieval account of supposition, the "Ockham-Buridan" account, and attempts to show that it provides us with unacceptable semantic analyses of

certain propositions. According to him, supposition theory treats applicatives as associating with common nouns to form referring expressions. However, there is no way to render intelligible the referents of expressions like 'some dancers' and 'all dancers'. Geach sees this semantic foul-up as a consequence of supposition theory's failure to assign applicatival expressions to the proper grammatical category. T. K. Scott counters that the medieval treatment of applicatives parallels modern logic's treatment of quantifiers."

14. Sbordone, Luca. 2016. "Semantics and Pragmatics of Reference. Elements of a Contemporary Theory of Supposition." In *Formal Approaches and Natural Language in Medieval Logic*, edited by Cesalli, Laurent, Goubier, Frédéric and Libera, Alain de, 303-324. Barcelona - Roma: Fédération Internationale des Instituts d'Études Médiévales.

    "In recent years, a number of important studies in medieval philosophy have convincingly shown that those we would call pragmatic considerations according to today's trends in philosophy of language and linguistics, were also at the core of the concerns in medieval logic and semantics. The works of Irène Rosier-Catach(1), only to mention one remarkable example, have shown that medieval theories of language, far from being limited to strictly syntactic or semantic analyses, crucially involved elements of what we could call speech act theory as well as a notion of meaning which resorted to the identification of the intentions lying behind a speaker's utterance." (p. 303)

    (...)

    "In the same spirit of the cited works, in the present paper I will argue in favour of the analogy between Ockham's supposition theory and one very specific and peculiar approach in post-Gricean Pragmatics, that of so-called Default Semantics(6) (DS).

    The purpose of this work will be very limited. I will restrict myself to a little portion of Ockham's theory of supposition, i.e. his theory of supposition proper, and will leave aside the much more complex theory of the modes of personal supposition.

Also, I will pursue my analogy only with respect to the treatment that DS proposes with respect to one important distinction in contemporary theories of reference, i.e. Donnellan's distinction between referential and attributive uses of definite descriptions(7).

My aim is to show that the general strategy advocated in DS to cope with this kind of semantic issue comes very close to Ockham's strategy to distinguish the readings of a proposition by the possible modes of supposition of its terms. My hope is that such an analogy could eventually be illuminating with respect to the general question of what medieval theories of supposition were aimed at." (pp. 304-305)

(1) I. Rosier-Catach, *La parole comme acte: sur la grammaire et la sémantique au IIIe siècle,* J. Vrin, Paris 1994.

6 K. Jaszczolt, *Default Semantics*, Oxford University Press, Oxford 2005.

7 K. Donnelaln, «Reference and definite descriptions», *Philosophical Review*, 75 (1966) 281-304.

15. Schaeffer, Frans. 1987. "Syntax and Semantics in Supposition Theory." In *Ockham and Ockhamists*, edited by Bos, Egbert Peter and Krop, H. A., 63-69. Nijmegen: Ingenium Publishers.

"Introduction

Of the many topics discussed by Ockham in his writings on logic, in recent rimes most attention has been paid to his theory of supposition. This is not surprising, since the theory of supposition is widely recognized to be the most original medieval contribution to logic, and in Ockham' s hands the theory became a strong weapon in the fight about the status of universals.

What is surprising, perhaps, is that this attention has been focused almost completely on personal supposition, to the exclusion of material and simple supposition. This can be explained in part by the fact that the notions of material and simple supposition can only be understood against the background of a comprehensive (medieval) philosophy of

language, whereas personal supposition can be approached more directly from a modem logical point of view.

Indeed, it is clear that techniques and notions drawn from modem logical theory can play an important role in helping to understand personal supposition. But we must be careful not to divorce persona! supposition from the larger framework of which it is, after all, only a part." (p. 63)

16. Schoot, Henk J.M. 1993. "Aquinas and Supposition: the Possibilities and Limitations of Logic *In Divinis*." *Vivarium* no. 31:193-225.

)"Medieval theory of supposition, being a part of medieval theory of meaning, has been and remains a subject of particular interest of present-day philosophers. Ever since it was discovered that there are peculiar parallels between modern and medieval theory of meaning, considerable effort has been made to describe its origins and develop- ment. The parallel, in short, is a similar distinction between the signification of a word and its actuad meaning in use. Frege' s conceptual pair of Sinn (sense) and Bedeutung (reference), like Carnap' s pair of Intension and Extension (Connotation and Denotation), were discovered to echo the medieval distinctions between Significatio and Appellatio (around 1100), and between Significatio and Suppositio (end 12th and 13th century)." (p-193)

(...)

"The first paragraph will elaborate the link between divine simplicity, mystérium and the (in)adequacy of talk about God, in order to make intelligible that in Aquinas all analysis of the human way of speaking provides both possibilities and limitations. In the second paragraph I will investigate Aquinas' use of the term modus significandi and show that it is linked with supposition. The third paragraph proceeds with a study of the distinction of supposition and signification, a study of the various *modi supponendi* that Aquinas distinguishes and with a comparison of it to three logical tracts from the thirteenth century (Peter of Spain, William of Sherwood and Lambert of Auxerre). Both paragraphs mention the word naturalis and so a

fourth paragraph will be needed to explain the influence of modes of signification upon modes of supposition, and the double meaning of the term supponere naturaliter in Aquinas." (p. 197)

17. Scott, Theodore Kermit. 1966. "Geach on Supposition Theory." *Mind* no. 75:586-588.

    "Ib his recent book, *Reference and Generality*,(1) P. T. Geach has made explicit some of his objections to a portion of Ockham's supposition theory, although there was some mention of its shortcomings in his earlier article on the doctrine of distribution.(2) I want to argue that most of Geach's objections are based on a misinterpretation of the doctrine. He criticizes in particular those types of supposition that are divisions of personal supposition and that constitute the portion of the theory having to do with the effect of quantifiers on propositions. It is important to recognise that the reference of terms falling under these types is already fixed by stating that they have personal supposition, meaning that they stand for their logical inferiors. And their reference is not altered by including them under these further types. There is just no mention of reference at all in connection with this portion of the theory. The sole reason for placing a term under one of these types is that the quantified proposition in which it occurs is equivalent to another proposition of a certain form.(3) For example, the term ' man ' in the proposition ' Every man is an animal ' is said to have *suppositio confusa et distributiva*, because that proposition is equivalent to the conjunctive proposition' This man is an animal and that man is an animal and ... and that man is an animal ', indicating each man in turn (*Summa Logicae*, i. 70). And the same term has suppositio determinata in the proposition ' Some man is an animal', because that proposition is equivalent to the disjunctive ' This man is an animal or that man is an animal or . . . or that man is an animal' (*Summa Logicae*, i. 71). Hence, this part of the theory has nothing to do with the reference of terms, but only with the role of quantifying words." (p. 586)

    (1) *Reference and Generality,* Cornell University Press, 1962.

(2) [The doctrine of distribution,] *Mind*, 1956, pp. 67-74.

(3) In discussing these types (*Summa Logicae*, i. 70-74), Ockham actually says that it is " suitable to descend " (contingit descendere) from the original pro- position to the second one. However, I take every such pair to be equivalent, since in every case, ht says that either of the two may be inferred from the other.

18. Sirridge, Mary. 2013. "Supposition and the Fallacy of Figure of Speech in the *Abstractiones*." *Vivarium* no. 51:147-168.

    Abstract: "I undertake to examine the practice of Richard, Master of Abstractions,[*] with respect to supposition in his dealing with the fallacy of figure of speech. His practice turns out to support the ‘single theory’ account of the theory of personal supposition, as does his treatment of a functional equivalent of simple supposition, but his practice of proposing additional solutions points to changing attitudes with respect to species as separate entities. Questions having to do with material supposition and the like are completely absent, even in discussions where we might expect to find them."

    References

    [*] Master Richard Sophista: *Abstractiones,* edited by Mary Sirridge and Sten Ebbesen with E. J. Ashworth, New York; Oxford University Press 2016.

19. Smithka, Paula J. 1991. "Ampliation and natural supposition in Albert of Saxony's *Quaestiones super logicam*." In *Itinéraires d'Albert de Saxe, Paris-Vienne au XIV Siécle*, edited by Biard, Joël, 137-148. Paris: Vrin.

20. Sørensen, Holger Steen. 1961. "An analysis of linguistic signs occurring in suppositio materialis or the meaning of quotation marks and their phonetic equivalents." *Lingua* no. 10:174-189.

    Abstract: "n this paper I propose to discuss the time-honoured problem of linguistic signs occurring in suppositio materialis, a problem which has recently been given some attention. The problem may be stated as follows: What is the subject in a sentence like “Happily was spelt incorrectly”? And to what

word-class does it belong? I shall show that the ordinary view of the suppositio materialis employment of signs — that e.g. ‘happily’ is a noun in this employment — is seriously fallacious. The notions of subject and subject of discourse have not been kept distinct. (The subject (= grammatical subject) in ‘Anderson smokes cigars’ is ‘Anderson’, whereas the subject of discourse is Anderson) In other words, signs and what signs are signs for have not been kept distinct. This is a mistake the linguist often accuses the layman of committing. But unfortunately he often commits it himself. In connexion with my analysis I shall call attention to an important distinctive feature of the language (metalanguage) the linguist uses in describing languages."

21. Spade, Paul Vincent. 1974. "Ockham's Rule of Supposition: Two Conflicts in His Theory." *Vivarium* no. 12:63-67.

    Reprinted as Chapter IX in P. V. Spade, *Lies, Language and Logic in the Late Middle Ages,* New York: Routledge 1988.

    "In his thirteenth-century I ntroductiones in logicam, William of Sherwood enunciates the following principle: "Subjects are of such sorts as their predicates may have allowed."(1) That is, the kind of supposition(2) or referencs a term has in a given sentence depends at least in part on what kind of a term the predicate is. This principle I shall call the "rule of supposition". Thus, in 'A man is running' the subject 'man' has personal supposition, while in 'Man is a species' it has simple and in 'Man is a name' it has material.(3)" (p. 63)

    (...)

    "Ockham thus gives a complete version of the rule of supposition which we first saw in rudimentary form in William of Sherwood.

    Nevertheless, I shall argue in sections II and III, below, that Ockham does not really want the rule he gives. It conflicts with the main body of his doctrine in two ways; there are pressures from two directions

    to revise his version of the rule. In section IV. I shall examine how some later formulations of the rule relieved these

pressures." (p. 67)

(1) William of Sherwood's Introduction to Logic, Norman Kretzmann, tr., (Minneapolis: University of Minnesota Press, 1966), p. n3. (...).

(2) I am concerned in this paper only with that portion of supposition theory which T. K. Scott calls "the doctrine of supposition proper", as opposed to "the doctrine of modes of personal supposition". Cf. the introduction to his *John Buridan: Sophisms on Meaning and Truth*, (New York: Appleton-Century-Crofts, 1966), pp. 29-42. I assume a minimal familiarity with at least this portion of supposition theory. (...)

(3) Kretzmann, op. cit., [*William of Sherwood's Introduction to Logic*, Norman Kretzmann, tr., (Minneapolis: University of Minnesota Press, 1966),] p. 107; Grabmann, op. cit.,[Martin Grabmann, ed., D*ie Introductiones in logicam des Wilhelm von Shyreswood (d. after 1267*) en: Verlag der Bayerischen Akademie der Wissenschaften, 1937) p. 75.

22. ———. 1975. "Some Epistemological Implications of the Burley-Ockham Dispute." *Franciscan Studies* no. 35:212-222.

Reprinted as Chapter X in *Lies, Language and Logic in the Late Middle Ages*.

"The dispute between Walter Burley and William of Ockham over supposition and signification has been discussed often in the literature. For the most part, the philosophical - as distinguished from the textual - side of this discussion has centered on those aspects of the dispute which are based on the metaphysical disagreements between the two men. From this point of view, the main question in the debate is "For what does a common term stand when it stands in simple supposition?" Burley, the realist, maintained that such a term stands for what it signifies, namely, a common nature outside the mind. On the other hand, Ockham the conceptualist could not accept such a position; in his ontology there were simply no common natures outside the mind. For him, therefore, a common term in simple supposition stands for the universal concept in the mind.

This much of the dispute then is based on the metaphysical disagreement over whether there exist common natures outside themind. It is this metaphysical side of the dispute that is usually brought out in recent discussions.

But there is quite another question too at issue between Burley and Ockham, one the answer to which is restricted but not totally fixed by their respective metaphysical views. It is: "Disregarding the question what we are to posit at the one end of the relation of simple supposition, which kind of supposition is it in which a term stands for what it signifies?" For Burley it is simple supposition, for Ockham personal. As will be seen, this issue has epistemological implications.

It is this side of the dispute that I want to explore here." (pp. 213-214, notes omitted)

23. ———. 1975. "Ockham's Distinctions Between Absolute and Connotative Terms." *Vivarium* no. 13:55-76.

    Reprinted as Chapter XI in Spade, *Lies, Language and Logic in the Late Middle Ages,* New York: Routledge 1988.

    "This paper is intended as an introduction to the theory of "connotation" as developed by William of Ockham, especially as in his *Summa logicae*. It is only an introduction to that theory, because it focusses on only the most rudimentary part of it, namely, the distinction between absolute and connotative terms. The paper does two things. First, it tries to clarify several crucial but obscure notions that arise in connection with this distinction, notions such as "signify the same things in the same way", "secondary signification", and "express the quid nominis". Second, the paper argues for the claim that connotation-theory, or at least that part of it presented here, requires no new primitive notions beyond those already required for the theory of absolute terms." (p. 55, a note omitted)

24. ———. 1976. "Priority of Analysis and the Predicates of O-form Sentences." *Franciscan Studies* no. 36:263-270.

    Reprinted as Chapter XII in *Lies, Language and Logic in the Late Middle Ages*.

"In 1970, John J. Swiniarski observed in this journal that there is something peculiar about Ockham's doctrine that the predicates of O-form sentences have confused and distributive supposition.(1)In 1973, Gareth Matthews made a similar point. (2) In brief, the problem is this: Ockham defines confused and distributive supposition in such a way that a given term in a sentence has confused and distributive supposition if and only if a descent to singulars under that term is possible by a conjunctive sentence, and the original sentence cannot be inferred from any one conjunct." (p. 263)

(...)

"I find neither of these views compelling. While Matthews is certainly right in saying that Ockham never claims equivalence explicitly, I for one find it hard to imagine that he means anything else. For if equivalence fails, the elaborate distinction of the various kinds of personal supposition cannot be used in an account of truth-conditions.

What then is the distinction for? Is it simply an idle decoration in the theory of supposition?

On the other hand, while Swiniarski's suggested "priority of analysis" rule would avoid the problem with the O-form sentences, it would not, as he claims it does, do away with the need for merely confused supposition entirely. Ockham, after all, uses merely confused supposition not only in his account of A-form sentences, but also in his account of such problem-sentences as •I promise you a horse.'

A "priority of analysis" rule would eliminate the need for merely confused supposition in the case of A-form sentences, but not in the other cases." (p. 265, a note omitted)

(1) John J. Swiniarski, "A New Presentation of Ockham's Theory of Supposition with an Evaluation of Some Contemporary Criticisms," *f'ranciscan Studies*, 30 (1970), 181-217.

(2) Gareth B. Matthews, "Suppositio and Quantification in Ockham," *Nous*, 7 (1973), 13-24.

25. ———. 1982. "The Semantic of Terms." In *The Cambridge History of Later Medieval Philosophy*, edited by Kretzmann, Norman, Kenny, Anthony Patrick and Pinborg, Jan, 188-196. Cambridge: Cambridge University Press.

"Two senses of'term'

Medieval philosophers and logicians used the word 'term' (*terminus*) in several senses, two of which are especially pertinent to this discussion.

Strictly speaking, a term is what is subjected to the predicate or predicated of the subject in an ordinary categorical proposition - the subject term or the predicate term, the two ends (termini) of the proposition. In this sense whole phrases may be terms, but only certain sorts of words - nouns, adjectives, and verbs - can serve by themselves as terms. Less strictly, and in the later Middle Ages more prevalently, a term is any word at all, regardless of propositional context. In this discussion 'term' will be used in the less strict sense unless otherwise noted.

Signijication as a psychological and causal property of terms

There are two basic properties for the medieval semantics of terms: signification and supposition. Signification is a psychologico-causal property of terms - a fact responsible for many disagreements and tensions in medieval semantics. The main source for the notion of signification was Boethius' translation of *De interpretatione* 3, 16b 19: '[Verbs] spoken in isolation are names and signify something." (p. 188)

(...)

"Supposition-theory is best viewed as two theories: the theory of supposition proper and the theory of'descent to singulars'. (29)" (p. 192)

(...)

"The second main part of supposition theory is the theory of descent to singulars or 'modes of personal supposition'. The standard modes are: 'discrete', 'confused and distributive', 'determinate', and 'merely confused'.

Discrete supposition is the supposition of proper names, demonstratives, and demonstrative phrases. There was wide divergence regarding the definitions of the other modes." (p. 194)

(29) See Scott's introduction to Buridan 1966, [(1966). *Sophisms on Meaning and Trut*h, tr. T. K. Scott, Appleton-Century-Crofts] pp. 29-42

26. ———. 1984. "A Defense of a Burlean Dilemma." *Franciscan Studies* no. 44:193-196.

"Professor Fitzgerald's interesting paper "An Interpretative Dilemma in Burlean Semantics" argues against certain claims made in my "Some Epistemological Implications of the Burley-Ockham Dispute"."

(...)

"Fitzgerald and I remain in disagreement about the correct interpretation of Burley's semantics. I hold (1) that for Burley a common term (discrete terms are another matter(1) signifies a species or common nature, not individuals, and (2) that for Burley it is only in simple supposition that a common term supposits for its significate. Since (3) a term signifies just what it makes one think of, I conclude (4) that it is only when a common term is used in simple supposition for species or common natures that we are made to think of what the term supposits for, and so what we are talking about.

If I understand him correctly, Fitzgerald and I disagree about (4) because we disagree about both (1) and (2)." (pp- 193-194)

(...)

"The reader will have to decide for himself whether the texts really do provide sufficient evidence for my claims (1) and (2), and so whether the very interesting passages Fitzgerald quotes concerning direct intellectual cognition of particulars should be counted against my interpretation or, on the contrary, only aggravate the difficulties I see in Burley's theory." (p. 196)

(1) Burley's denial of any difference between simple and personal supposition for simple discrete terms may be taken as

implying a denial of a distinction between individuals and their individual natures, between for example Socrates and his Socrateity.

27. ———. 1988. "The Logic of the Categorical: The Medieval Theory of Descent and Ascent." In *Meaning and Inference in Medieval Philosophy: Studies in Memory of Jan Pinborg*, edited by Kretzmann, Norman, 187-224. Dordrecht: Kluwer.

    "The fact is, therefore, that we hear comparatively little about supposition-theory from either side of the English Channel during roughly the last quarter of the thirteenth century. This perhaps suspicious coincidence is all the more intriguing once it is realized that the theory of supposition, as it emerges from the shadows again in the early fourteenth century, is in important respects different from what it was earlier. These differences have not been sufficiently noticed or studied in the literature. I propose to examine some of them here.

    The differences I have in mind all pertain to that well known part of supposition-theory called the doctrine of "descent to singulars", together with the correlative but perhaps not so well known notion of "ascent" (from singulars). This doctrine has been widely discussed in the secondary literature, mostly from the point of view of Ockham's presentation of it. Recently there has been some dispute over just what the doctrine of "descent to singulars" was intended to accomplish and over whether it does in fact accomplish it,u Another goal of this paper will be to shed some light on that dispute.

    Section I below distinguishes two main parts of the theory of supposition. Section II gives a preliminary description of the part that is the main focus of this paper. Section III introduces some notions and notation. Section IV defines various "modes" of common personal supposition. Section V restricts our consideration to the kinds of sentences to which the theory was primarily intended to apply. Section VI proves three theorems. Section VII makes some observations based on the theorems. Section VIII considers two views about the purpose of this theory. Finally, in Section IX, I offer my own tentative suggestions." (p. 188)

28. ———. 1997. "Walter Burley on the Simple Supposition of Singular Terms." *Topoi. An International Review of Philosophy* no. 16:7-13.

    Abstract: "This paper argues that Burley's theory of simple supposition is not as it has usually been presented. The prevailing view is that Burley and other authors agreed that simple supposition was in every case supposition for a universal, and that the disagreement over simple supposition between, say, Ockham and Burley was merely a disagreement over what a universal was (a piece of the ontology? a concept?), combined with a separate disagreement over what terms signify (the speaker's thoughts? the objects the thoughts are about?).

    In fact, however, Burley explicitly allows that some instances of simple supposition are for an individual, and that in certain cases personal supposition and simple supposition coincide. The present paper explores Burley's theory on this topic, and proposes a way of thinking about the metaphysics and the semantics that makes sense of what he says."

29. ———. 1999. "Walter Burley on the Kinds of Simple Supposition." *Vivarium* no. 37:41-59.

    "By the early-fourteenth century at the latest, the mediaeval theory of supposition could be divided in most authors into two main branches, which in recent literature have come to be called the theory of “supposition proper” and the theory of “modes of personal supposition,” respectively. While the relation between these two branches remains obscure, we can say to a first approximation that the theory of supposition proper was a theory of “reference,” designed to answer the question what entity or entities a term refers to or “supposits” for in a given occurrence in a given proposition, whereas the theory of modes of personal supposition, whatever its ultimate purpose, was the part of the theory that included the much discussed accounts of “descent to singulars” and “ascent from singulars”."(p.41, notes omitted)

    (...)

"In the present paper, therefore, I shall explore in at least a preliminary way Burley's account of the divisions and subdivisions of simple supposition, investigate how that account changed over time, and inquire into the motivation behind this part of his doctrine. The main texts I shall be concerned with are Burley's early treatise *De suppositionibus* (dated 1302)(12) and his later *De puritate artis logicae tractatus longior* (before 1327).(13) I shall occasionally mention Burley's late *Expositio super artem veterem* (1337), although the theory of simple supposition in that work remains to be studied more fully.(14)" (p. 43)

(12) Edited in Stephen F. Brown, *Walter Burleigh's Treatise De suppositionibus and Its Influence on William of Ockham*, in: Franciscan Studies, 32 (1972), 15-64. On the date, see ibid., 16.

(13) Edited in Walter Burley (= Burleigh), *De puritate artis logicae tractatus longior, With a Revised Edition of the Tractatus brevior*, ed. Philotheus Boehner, St. Bonaventure, NY 1955. In the introduction to his edition (p. viii), Boehner dates this work 1325-1328. But Rega Wood, in an unpublished paper *Walter Burley: Life and Works*, suggests a slightly earlier date.

(14) Walter Burley, *Burlei super artem veterem Porphirii et Aristotelis*, Venice: Otinus [de Luna] Papiensis, 11 May 1497 (Copy in the Lilly Library at Indiana University). On the date, see the explicit quoted in James A. Weisheipl, *Repertorium Mertonense*, in: Mediaeval Studies, 31 (1969), 174-224, at p. 189.

30. Sweeney, Eileen C. 1995. "Supposition, Signification, and Universals: Metaphysical and Linguistic Complexity in Aquinas." *Freiburger Zeitschrift für Philosophie und Theologie* no. 42:267-290.

"This essay places Aquinas's use of supposition theory in its metaphysical and linguistic contexts, showing, first, how Aquinas's use of supposition in the problems surrounding terms said of God illustrates Aquinas's theological and metaphysical commitments. Second, I argue that Aquinas's supposition theory organizes but does not dissolve the

ambiguities and complexities of language, taking the multiplicity of meanings and references as intrinsic rather than curable aspects of language. These complexities are, for Aquinas, reflections of our imperfect imitation of the immediate and complete understanding of the divine intellect, and the composite and fragmented metaphysics of created being."

31. Swiniarski, John J. 1970. "A New Presentation of Ockham's Theory of Supposition with an Evaluation of Some Contemporary Criticisms." *Franciscan Studies* no. 30:181-217.

    "This is a critical evaluation of Ockham's theories of meaning and reference based on extensive primary source materials and especially concerned with Ockham's procedures for the extensional analysis of general propositions. The Kneales' contention that absurd conclusions follow from the application of Ockham's procedures is shown to be ill-founded. Geach's claim, that Ockham's notion of purely confused supposition is unnecessary, is supported. Some of Moody's views on supposition are upheld."

32. ———. 1971. *Theories of Supposition in Medieval Logic: Their Origin and their Development from Abelard to Ockham*.

    Available at ProQuest Dissertation Express. Order number: 7107229.

    "All of the systematic treatises concerning supposition which we shall consider in this chapter date from about the middle of the thirteenth century. All of them appear as tracts in handbooks composed for the teaching of logic in the medieval universities. Four logicians whom we can name composed such texts: William of Sherwood, Peter of Spain, Roger Bacon, and Lambert of Auxerre. William's work is important because it appears to be the earliest of the four.

    Peter of Spain's text is significant because it came to be the most popular of all the medieval handbooks on logic.

    Bacon's work is important because it contains certain tendencies and insights not found in the works of either of his immediate predecessors.

Lambert's work is less significant than that of the others because it appears to be primarily an expansion upon and an explanation of the work of Peter of Spain, rather than an independent work in its own right." (Chaptet Two: Thirteeenth theories of supposition, p. 111)

33. Theron, Stephen. 1999. "The supposition of the predicate." *The Modern Schoolman* no. 77:73-78.

    "Supposition theory (chiefly that of Aquinas) is contrasted with theories of reference. It is argued that the predicate "stands for" (supponit pro) what the subject stands for. It has the same supposition, that is, but according to its predicative mode. Supposition can be varied "ad placitum." The role of the copula is crucial, as is the principle that "only wholes can be predicated of wholes" (Aquinas: De ente et essentia). The context is a discussion of writings by Peter Geach."

34. Thomas, Ivo. 1952. "St. Vincent Ferrer's *De Suppositionibus*." *Dominican Studies* no. 5:88-102.

35. Trentman, John Allen. 1964. *Simple Supposition and Ontology: A Study in Fourtenth-Century Logical Theory*, University of Minnesota.

    Available at ProQuest Dissertation Express. Order number: 6500162.

36. Uckelman, Sara L. 2013. "A Quantified Temporal Logic for Ampliation and Restriction." *Vivarium* no. 51:485-510.

    Abstract: "Temporal logic as a modern discipline is separate from classical logic; it is seen as an addition or expansion of the more basic propositional and predicate logics. This approach is in contrast with logic in the Middle Ages, which was primarily intended as a tool for the analysis of natural language. Because all natural language sentences have tensed verbs, medieval logic is inherently a temporal logic. This fact is most clearly exemplified in medieval theories of supposition. As a case study, we look at the supposition theory of Lambert of Lagny (Auxerre), extracting from it a temporal logic and providing a formalization of that logic."

37. Valente, Luisa. 2011. "Praedicaturi supponimus. Is Gilbert of Poitiers' approach to the problem of linguistic reference a pragmatic one?" *Vivarium* no. 49:50-74.

    Abstract: "The article investigates how the problem of (linguistic) reference is treated in Gilbert of Poitiers' Commentaries on Boethius' *Opuscula sacra*. In this text the terms *supponere, suppositus,-a,-um*, and *suppositio* mainly concern the act of a speaker (or of the author of a written text) that consists of referring—by choosing a name as subject term in a proposition—to one or more subsistent things as what the speech act (or the written text) is about. Supposition is for Gilbert an action performed by a speaker, not a property of terms, and his 'contextual approach' has a pragmatic touch: "we do not predicate in order to supposit as much as we supposit in order to predicate". Language is considered by Gilbert as a system for communication between human beings, key notions are the 'sense in the author's mind' (*sensus mentis eius qui loquitur*) and the 'interpreter's understanding' (*intelligentia lectoris*). The phenomenon of 'disciplinal' discourse ("man is a species of individuals") is treated by means of these hermeneutic notions and not by means of a special kind of supposition."

38. ———. 2013. "Supposition Theory and Porretan Theology: *Summa Zwettlensis* and *Dialogus Ratii et Everardi*." *Vivarium* no. 51:119-145.

    Abstract: "The article investigates how the problem of (linguistic) reference is treated in the theology of two pupils of Gilbert of Poitiers by means of *suppo** terms (*supponere; suppositus,-a,-um; suppositio*). Supposition is for Gilbert an action performed by a speaker, not a property of terms, and he considers language as a system for communication between human beings: key notions are the 'sense in the author's mind' and the 'interpreter's understanding'. In contrast, the two Porretans tend to objectify language as a formal system of terms. *Suppositio* becomes in the Summa Zwettlensis the name itself as subject term in a proposition, and is divided into many kinds; formal rules are described which govern the influence of

the predicate on the subject term's denotation. In Everard of Ypres' *Dialogus Ratii et Everardi*, supponere is a function (*officium*) of the name, and 'human is a species of individuals' is, as in some logical treatises and differently from Gilbert, a case of rhetorical transfer."

39. Wagner, Michael F. 1981. "Supposition Theory and the Problem of Universals." *Franciscan Studies* no. 41:385-414.

    "I examine Burleigh's and Ockham's positions on universals through explaining their theories of signification and supposition. I argue for a representational analysis of these theories, which i distinguish from prevailing interpretations of these theories; and i argue, in particular, that when Burleigh's theory of the signification and supposition of general terms is properly understood, he is not an extreme realist (at least as this view is normally understood) and his disagreement with Ockham over universals is much more subtle than it is normally conceived by historians of philosophy."

40. Ward, Thomas M. 2018. "Logic and Ontological Commitment: Vincent Ferrer's Theory of Natural Supposition." In *Modern Views of Medieval Logic*, edited by Kann, Christoph, Loewe, Benedikt, Rode, Christian and Uckelman, Sara L., 233-244. Leuven: Peeters.

    "This paper draws attention to one way in which Vincent Ferrer (1350–1419) developed a theory of supposition which was supposed to be amenable to certain metaphysical commitments of his fellow Dominican, Thomas Aquinas. Specifically, Ferrer held that from a proposition in which the subject term supposits naturally – for example, "Man is risible" – one can descend copulatively to everything falling under the subject term – every human – even when there is not universal quantification – for example, "Some man is risible". And when there is nothing falling under the naturally suppositing subject term – supposing, for example, that there have been no humans, are no humans, and never will be any humans – a proposition like "Man is risible" is not only truth evaluable but true. While the bulk of this paper is concerned with explaining Ferrer's theory of natural supposition, I close the paper by

exploring some of the metaphysical issues that arise on Ferrer's view that propositions with naturally suppositing subject terms can be true when there are no instances. I argue that Ferrer's position actually commits him to a kind of realism about natures that is probably not Thomistic – despite Ferrer's expressed loyalty to the Angelic Doctor.

I will proceed in the following way. After describing the way in which certain comments of Thomas Aquinas were influential on Ferrer with respect to his division of the kinds of supposition, I will give an account of Ferrer's theory of natural supposition, focusing on the four 'rules' he lays down and drawing out some of the odd inferences one can make by following these rules. I will then discuss some of the metaphysical problems arising from Ferrer's theory." (p. 233)

41. Wciórka, Wojciech. 2019. "Stephen Langton on common supposition." *Przegląd Tomistyczny* no. 25:319-367.

    Summary: "This paper argues that the notion of the "common" supposition employed by Stephen Langton (fl. ca 1200, † 1228) does not involve ambiguity (*duplicitas, multiplicitas*) but should be explained in terms of generalized or disjunctive truth conditions. This means that a sentence such as "deus generat" ("God begets") is true even if just one of the referents of the subject term has the property attributed by the predicate. The common supposition of "deus" in this context encompasses both the divine being (*essentia*) and a person, whereas the distinctive property attached by "generat" inheres only in the Father. And yet we are in no position to claim that on Langton's model "deus generat" is true with regard to a divine person but false with regard to the divine being. The sentence "deus generat" is simply true, just because one of the elements of the common supposition happens to satisfy the predicate and make the sentence true. Some aspects of Langton's views were developed by his student Geoffrey of Poitiers, whose unedited Summa 'Ego novissimus' sheds light on several tricky points, including the analogy between "deus generat" and the semantic statement "homo supponitur," which is said to involve both simple and personal supposition."

42. Weidemann, Hermann. 1979. "William of Ockham on Particular Negative Propositions." *Mind* no. 88:270-275.

    "In their recent attempt to formalize Ockham's theory of *suppositio personalis* in standard modern logic G. Priest and S. Read ('The Formalization of Ockham's Theory of Supposition', Mind lxxxvi [1977] 109-113)

    have tried

    '(a) to establish that Ockham was mistaken in his analysis of the *suppositio* of the predicate in the O form, and to put him right; and

    (b) to correct the following claims that have recently been made about the theory: (i) that Ockham and the medieval logicians in general omitted some modes of suppositio; (ii) that Ockham lists too many modes [. . .]' (p. 109).

    My aim in this paper is to show that the views of Priest and Read on these three points themselves need some correction.(1) Commenting on points (a) and (b)(i), which are focused on Ockham's treatment of particular negative propositions, I shall not follow the way Priest and Read have chosen to formalize Ockham's supposition theory. Instead I shall use, following R. Price, a 'sorted calculus of individuals with identity as its only predicate'.(2)" (p. 270)

    (1) There is a fourth point (b)(iii), on which I don't need to comment, because the authors have indeed succeeded in rejecting the claim 'that supposition theory is incapable of dealing with multiple quantification' (p. 112).

    (2) R. Price, 'William of Ockham and *Suppositio Personalis'*, *Franciscan Studies*, xxx (1970), PP. 131-14°; cf. pp. 132 f., 138 f.

43. Yrjönsuuri, Mikko. 1997. "Supposition and Truth in Ockham's Mental Language." *Topoi. An International Review of Philosophy* no. 16:15-25.

    Abstract: "In this paper, Ockham's theory of an ideal language of thought is used to illuminate problems of interpretation of his theory of truth. The twentieth century idea of logical form is

used for finding out what kinds of atomic sentences there are in Ockham's mental language. It turns out that not only the theory of modes of supposition, but also the theory of supposition in general is insufficient as a full theory of truth. Rather, the theory of supposition is a theory of reference, which can help in the determination of truth values within the scope of simple predications. Outside this area, there are interesting types of sentences, whose truth does not depend on whether the terms supposit for the same things or not for the same things."

44. Zheng, Yiwei. 1998. "Metaphysical simplicity and semantical complexity of connotative terms in Ockham's mental language." *The Modern Schoolman* no. 75:253-264.

    "In this paper I offer a formal presentation of Ockham's connotation theory, based upon a distinction between metaphysical simplicity and semantical complexity of connotative terms, that I argue render consistent Paul Spade's claim (1975) that Ockham needs and adopted a recursive semantics for his ontological elimination and Claude Panaccio's observation (1990) that there is no simple connotative term in Ockham's mental language."

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History of Logic

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Bibliography of the Medieval Theories of Supposition: Fifth part

Bibliography

Études en Français

1. Bazán, Bernardo Carlos. 1979. "La signification des termes communs et la doctrine de la supposition chez Maitre Siger de Brabant." *Revue Philosophique de Louvain* no. 35:345-372.

   Résumé : "Ayant comme objectif principal l'étude des propositions énonciatives de structure prédicative, Siger établit que la signification du terme commun peut être stable parce qu'il se rapporte aux choses changeantes signifiées par l'intermédiaire du concept consignifié. L'unité intelligible de l'essence saisie dans le concept est la base de l'unité de signification face à la diversité existentielle des choses.

   L'analyse de la signification s'avère insuffisante dès que l'on prend en considération la fonction symbolique concrète du terme à l'intérieur d'une proposition donnée. C'est ici qu'intervient la doctrine de la suppositio, dont l'essentiel revient à distinguer la fonction significative du terme et sa fonction de suppléance par rapport à la diversité des prédicats."

2. Beuchot, Mauricio. 1991. "Albert de Saxe: la supposition sémantique et les noms vides." In *Itinéraires d'Albert de Saxe, Paris-Vienne au XIV Siécle*, edited by Biard, Joël, 111-124. Paris: Vrin.

3. Biard, Joël. 1989. *Logique et théorie du signe au XIVe siècle*. Paris: Vrin.

   Chapitre III : *Supposition et signification selon Guillaume d'Ockham*, pp. 74-96.

   "La présentation ockhamiste des signes, tout en reprenant bon nombre d'idées présentes chez Roger Bacon, a la particularité d'introduire la supposition dans la définition du signe, du moins pour ce qui est des signes logico-linguistiques, c'est-à-dire des termes écrits, parlés ou mentaux. Il faut donc d'abord indiquer ce que Guillaume d'Ockham entend à travers cette notion de supposition, puis se demander si la signification est effectivement redéfinie à partir d'elle, dans quelle mesure et de quelle manière." (p. 74)

   (...)

   "Qu'est ce que Guillaume d'Ockham entend par *supposition*? Je n'ai pas l'intention d'exposer dans toutes ses ramifications la théorie ockhamiste de la supposition; mais il est indispensable de percevoir le sens général et la portée de ce concept.

   Une difficulté surgit immédiatement : la *Somme de logique* ne contient pas vraiment de définition de la supposition. Il en va certes différemment dans les traités d'inspiration ockhamiste que sont le *Tractatus minor* et les *Elementarium logicae* (1). Mais, comme le fait remarquer Léon Baudry dans son *Lexique philosophique de Guillaume d'Ockham*, la supposition est « un terme technique que Guillaume ne définit pas et qui n'est pas facile à définir" »(2). La *Somme de logique* propose bien un énoncé jouant le rôle d'un définition, mais celle-ci est tempérée par un *quasi*. En fait, il semble que tout acte de langage présuppose la supposition.

   Elle est un terme primitif qui permet de définir les autres, y compris ceux qui jouent un rôle fondamental comme celui de signe. Toutefois, ce que veut dire effectivement supposer peut et doit s'expliciter dans les analyses logico-linguistiques qui forment la S*omme de logique*. Il est donc possible de la cerner et de la caractériser à partir de son usage effectif, ce que tente Guillaume dans le chapitre 63 de la première partie." (p. 75)

(1) 1. Ces deux traités ont été admis comme oeuvres authentiques par Ph. Boehner dans « Three Sums of Logic Attributed to William Ockham », in *Collected Articles,* pp. 70-96, et par E. M. Buytaert qui les a édités : « The Tractatus logicae minor of Ockham », in *Franciscan Studies,* 24 (1964), pp. 34-100, et « The Elementarium logicae of Ockham », in *Franciscan Studies*, 25 (1965), pp. 151-276, et 26 (1976), pp. 66-173. Mais, dans leur « Introduction » à l'édition critique de la *Summa logicae,* G. Gäl et St. Brown montrent que ni les arguments externes ni la teneur interne de ces textes ne permettent d'assurer leur authenticité.

Qu'ils aient été conçus dans l'esprit de la logique ockhamiste, voire compilés à l'aide d'ouvrages du *Venerabilis Inceptor*, cela n'est pas douteux, de sorte qu'ils peuvent éclairer certains aspects de sa doctrine. Mais des nuances existent néanmoins sur certains points, et rien ne permet d'affirmer qu'ils sont de la main de Guillaume d'Ockham : cf. *loc. cit.,* « Introduction », c. VI, pp. 62*-66*.

(2) L. Baudry, *Lexique philosophique de Guillaume d'Ockham,* Paris, 1958, p. 258.

4. Ducrot, Oswald. 1976. "Quelques implications linguistiques de la théorie médiévale de la supposition." In *History of Linguistic Thought and Contemporary Linguistics*, edited by Parret, Herman, 189-227. Berlin New York: Walter de Gruyter.

   "Pendant trois siècles environ, du début du 12ème à la fin du 14ème, la notion de supposition (souvent considérée comme une création d'Abélard) a joué un rôle central dans la pensée logique et, dans une bonne mesure aussi, théologique, du moyen-äge. Nous voudrions, à la fois, la présenter en elle-même, et montrer certaines réflexions qu'elle peut suggérer à un linguiste.

   Il est malheureusement impossible, vu les nombreuses variantes et transformations que la notion a subies au cours de son histoire, de donner une définition liminaire de la supposition." (p. 189)

   (...)

"Mais, indépendamment méme de ses applications théologiques, la logique a besoin de cette distinction pour résoudre ses problémes les plus courants, tous ceux, notamment, où sont enveloppés les rapports de l'extension et de la compréhension. Car il est clair que l'ensemble des «suppôts» d'un nom commun constituent son extension, et que la «forme» n'est pas très éloignée de ce que nous appelons la compréhension d'une notion. Des problèmes de supposition vont donc se poser chaque fois qu'on se demande si les conditions de vérité d'une proposition sont déterminées par l'extension ou par la compréhension des mots qui y interviennent. Si, par exemple, je dis «Certains hommes sont menteurs», la vérité ou la fausseté de l'énoncé tient à ce qu'on trouve ou ne trouve pas, parmi les «suppôts» de homme, quelqu'un qui vérifie le prédicat «être menteur». En revanche, pour reprendre un exemple médiéval mille fois discuté, si je vous annonce «Un cheval vous a été promis», on cherchera en vain dans n'importe quel cheval particulier une propriété qui rende vrai ou faux l'énoncé: la valeur de vérité de la phrase semble tout à fait indépendante, ici, des «suppôts» du mot qui en est le sujet. Et de même — autre exemple que nous retrouverons plusieurs fois —, pour l'énoncé «L'homme est la plus digne des créatures»: la considération des êtres particuliers n'est suffisante, semble-t-il, ni pour la démentir ni pour la confirmer. Car la proposition ne dit pas que tous les hommes particuliers, ni même tel ou tel homme particulier, soient les plus dignes des créatures. Pour l'examen logique de ces énoncés, il faut prendre en consdération les rapports de la forme et des «suppôts», chercher quand, et dans quelle mesure, c'est le suppôt ou la forme qui est concerné par l'énoncé." (p. 191)

5. Galonnier, Alain. 1987. "Le *De grammatico* et l'origine de la théorie des propriétés des termes." In *Gilbert de Poitiers et ses contemporains. Aux origines de la "Logica Modernorun"*, edited by Jolivet, Jean and Libera, Alain de, 353-375. Napoli: Bibliopolis.

6. Goubier, Frédéric. 2014. "Dire et *vouloir dire* dans la logique médiévale: Quelques jalons pour situer une frontière."

Methodos. Savoirs et textes no. 14:1-28.

Résumé : "La philosophie médiévale du langage présente deux séries d'affinités remarquables avec les approches contemporaines. L'une se situe du côté des sémantiques formelles et, plus généralement, des analyses logiques des conditions de vérité des énoncés. L'autre relève plutôt de la pragmatique, notamment des perspectives contextuelles sur les actes de langage. Les logiciens, grammairiens et théologiens du Moyen Âge étaient, de fait, pleinement conscients qu'ils avaient à leur disposition deux types d'approche des énoncés, selon qu'ils prenaient en compte les seules propriétés sémantiques de leurs composants ou qu'ils intégraient des considérations extralinguistiques allant de l'intention des auteurs / locuteurs à leur statut, en passant par le contexte d'énonciation. Chacune de ces perspectives a bénéficié d'un certain nombre d'études récentes ; la question que je voudrais aborder est plutôt celle de leur frontière en logique, de son emplacement, ses déplacements, sa porosité éventuelle. La complexité des matériaux en jeu ne permettra pas de proposer plus que quelques points de repères, qui peuvent toutefois aider à évaluer l'hypothèse d'un « projet formel » en sémantique médiévale."

7. Karger, Elizabeth. 1978. "Conséquences et inconséquences de la supposition vide dans la logique d'Ockham." *Vivarium* no. 16:46-55.

   "Ockham peut-il faire figure de précurseur de la théorie de la quantification ?" (p. 46)

   (...)

   "Cependant cette thèse a été vivement contestée par Matthews [2].

   Nous pensons que ses arguments sont bien fondés, mais qu'il n'en a pas dégagé la véritable portée. Nous montrerons que les conclusions qu'impose un réexamen minutieux des textes sont différentes: ce à quoi il

   faut renoncer n'est pas à l'analogie entre applicatifs et quantificateurs, mais à trouver chez Ockham une logique une et

homogène. Nous verrons que deux logiques sont nécessaires pour justifier toutes les inférences tenues pour valides par Ockham." (p. 47)

(...)

"Nous conclurons par quelques réflexions sur la supposition vide dans son rapport avec la théorie des modes de la supposition personnelle. Il apparaît à la lumière de notre étude que le concept de supposition vide est étranger à la doctrine de la supposition personnelle dans son ensemble. En effet la supposition personnelle d'un terme general se subdivise en trois modes principaux, identifiés justement par diverses formes de " descentes". Mais non seulement ces descentes ne sont définies que pour des termes non vides, ce qui est évident à la seule lecture des textes (*SL* i, 70), mais encore les termes vides appartiennent à d'autres formes propositionnelles et à une autre logique. Il aurait donc été impossible à Ockham d'assouplir la théorie de ces modes de façon à y inclure la possibilité de la supposition vide et c'est aller à l'encontre de sa logique que de chercher à le faire.(18) On comprend que dans les chapitres consacrés à la supposition personnelle, Ockham ne mentionne qu'une fois la supposition vide, et ceci seulement dans une réponse à une objection.(19)" (p. 55)

(18) " Comme le fait Loux [9], p. 34.

(1) *SL* 1, 72, 1.113 ss.

Réferences

[2] Matthews, Gareth, *Suppositio and quantification in Ockham*, Noûs, March 1973.

[9] Loux, Michael, *Ockham's theory of term*s. University of Notre Dame Press 1974.

8. ———. 1982. "La supposition matérielle comme supposition significative: Paul de Venise, Paul de Pergola." In *English Logic in Italy in the 14th and 15th Centuries. Acts of the 5th European Symposium on Medieval Logic and Semantics, Rome, 10-14 november 1980*, edited by Maierù, Alfonso, 331-341. Napoli: Bibliopolis.

"Dans une première partie, préambule à notre propos principal, nous exposerons une théorie de la référence aux expressions qui présente l'avantage d'être compatible, au prix d'accommodements de dé tail, non seulement avec la théorie propre d'Ockham, mais encore avec celles de logiciens « post-ockhamistes »(3). Elle représente ainsi une sorte de norme permettant d'apprécier les quelques déviations. Nous en puisons les éléments dans le *Traité des Suppositions* de Paul de Venise.(4)

Dans une seconde partie, nous montrerons en quoi la théorie précédente a paru à certains inacceptable du moment qu'elle est placée dans le cadre de la sémantique due à Ockham. Aussi ces logicien· avaient-ils le choix entre le rejet de cette théorie et la modification de cette sémantique. De ces deux options, d'ailleurs non-exclusive, nous nous attarderons à la seconde à partir de l'ouvrage mentionné de Paul de Venise mais surtout du traité des Suppositions contenu dan· la Logica(5) de Paul de Pergula." (p. 352)

(3) Citons Buridan, Albert de Saxe et Dorp.

(4) Edité par Alan R. Perreiah, Franciscan Institutc Publication·, 1971.

(5) Edité par Sister Mary Anthony Brown, Franciscan Institute Publications, 1961.

9. ———. 1991. "Une définition de la supposition par Guillaume d'Ockham et sa reprise par Albert de Saxe." In *Itinéraires d'Albert de Saxe, Paris-Vienne au XIV Siécle*, edited by Biard, Joël, 51-69. Paris: Vrin.

"Dans le chapitre de la première partie de la *Summa logicae* servant d'introduction à la doctrine de la supposition, Guillaume d'Ockham propose non pas une mais deux définitions de cette notion(1). La première s'avère déficiente dans la mesure où elle caractérise en fait non la supposition en général mais seulement l'une de ses formes, la supposition significative(2). C'est pourquoi Ockham lui substitue une autre définition, au demeurant beaucoup plus complexe, mais qui, selon lui, caractérise effectivement la supposition en général,

significative ou non-significative. C'est cette définition, plutôt que la définition initialement donnée, qui est reprise — non sans modification — par Albert de Saxe dans les premières lignes du second traité de sa Logica(3)

Le présent travail est consacré en premier lieu à l'examen, chez Ockham, de cette définition de la supposition, mon propos étant d'en élucider le contenu et d'en évaluer la validité. Aussi la majeure partie de cet essai consiste-t-elle en une analyse du texte pertinent de la *Summa logicae* (dorénavant *SL*). Sur la base de compréhension qu'à l'issue de cette analyse on aura acquise de la définition ockhamiste, on examinera ensuite la pertinence des modifications que lui apporte Albert." (p. 51)

(1) Dans son excellent article « What does Ockham mean by "supposition" ? », *Notre Dame Journal of Formai Logic,* July 1976, pp. 375-391, Marilyn Adams ne tient compte que de la première de ces deux définitions.

(2) La distinction entre supposition significative (ou personnelle) et non significative (ou non personnelle) est définie plus loin.

(3) En reprenant à son compte cette seconde définition ockhamiste de la supposition, Albert semble faire figure d'exception parmi les logiciens nominalistes postérieurs à Ockham. La plupart d'entre eux en effet adoptent de cette notion une définition essentiellement identique à la première définition ockhamiste, certains, tel Marsile d'Inghen, réussissant malgré tout, à force d'ingéniosité, à définir ainsi une notion commune à la supposition personnelle et non personnelle, tandis que d'autres, tel Buridan, semblent peu se soucier de n'embrasser dans leur définition que la supposition personnelle.

10. Libera, Alain de. 1981. "Supposition naturelle et appellation: aspects de la sémantique parisienne au XIII siècle." *Histoire, Épistémologie, Langage* no. 3 (1):63-77.

"On admet généralement(1) que la supposition naturelle présente un ou plusieurs des caractères suivants : (a) c'est une supposition virtuelle, (b) c'est une supposition non-

contextuelle, (c) c'est une supposition non déterminée contextuellement.

Cette présentation est correcte dans l'ensemble. On constate cependant que, sur certains points, elle est imprécise ou incomplète. C'est ainsi que le premier caractère distingué ne tient pas compte du fait que cc qui est virtuel dans la supposition naturelle, ce n'est pas la supposition elle·même, mais uniquement une partie des *supposita*. En effet, la supposition naturelle n'est pas une propriété virtuelle des termes : ce n'est pas la prédicabilité du terme mais son *acceptio* pour tout ce dont il est prédicable, c'est donc une relation sémantique actuelle entre un terme et des objets dont une partie est composée d'entités virtuelles (*preterita, futura*).

De même, le second caractère laisse de côté le fait que plusieurs auteurs médiévaux admettent qu'un terme soit pris en supposition naturelle tout en étant sujet d'une proposition. Ce même fait rend également problématique le troisième caractère, dans la mesure où il semble que seul le contexte puisse faire qu'un terme suppose naturellement tout en exerçant une fonction à l'intérieur d'une proposition déterminée.

Afin d'échapper à ces con~radictions, nous proposons de distinguer entre la définition de la supposition naturelle et son emploi effectif dans la théorie logique." (pp. 63-64, unenote omise)

(1) Cf. essentiellement De Rijk (1971), [*The development of suppositio naturalis in medieval logic. Part I. Natural supposition as non-contextual suppositionivrium*, 9] 71-107.

11. ———. 1982. "La logique médiévale et la théorie de la supposition." *Travaux d'Histoire des Théories Linguistiques* no. 1:31-57.

12. ———. 1987. "*Suppositio* et *inclusio* dans les théories médiévales de la référence." In *La référence. Actes du Colloque de Saint-Cloud, Ecole Nomale Supérieure de Saint-Cloud, 12-13 octobre 1984*, edited by Danon-Boileau, Laurent and Libera, Alain de, 9-62. Paris: Ophrys.

13. Maierù, Alfonso. 1985. "A propos de la doctrine de la supposition en théologie trinitaire au XIV siécle." In *Medieval Semantics and Metaphysics: Studies Dedicated to L. M. de Rijk*, edited by Bos, Egbert Peter, 221-238. Nijmegen: Ingenium Publishers.

14. Panaccio, Claude. 1979. "*Suppositio naturalis* au XIII siècle et signification chez Guillaume d'Occam." In *Abstracts of the VIth International Congress of logic. methodology, and philosophy of science. Sections 13 and 14*, 137-140. Hannover.

15. ———. 1983. "Guillaume d'Occam: signification et supposition." In *Archéologie du signe*, edited by Brind'Amour, Lucie and Vance, Eugène, 265-286. Toronto: Pontifical Institute of Mediaeval Studies.

16. ———. 1990. "Supposition naturelle et signification occamiste." In *De Ortu Grammaticae: Studies in Medieval Grammar and Linguistics Theory in Memory of Jan Pinborg*, edited by Bursill-Hall, Geoffrey L., Ebbesen, Sten and Koerner, Konrad, 255-269. Amsterdam: John Benjamins.

    "La notion de supposition naturelle, qui, sous une forme ou sous une autre, figure chez presque tous les logiciens du XlIIe siècle, a donné bien du fil à retordre aux commentateurs modernes.

    (...)

    "Il ne s'agit pas là d'une technicalité de détail. C'est l'interprétation globale de la sémantique médiévale qui est en cause dans ce point précis. Je voudrais ici le montrer par une discussion critique de la position claire et provocante originalement défendue par de Rijk, que je résumerai succinctement dans les quatre thèses suivantes:

    (Tl) la supposition naturelle des logiciens du XIIIe siècle est une propriété non-contextuelle (de Rijk 1971);(1)

    (T2) cette notion a été introduite pour des raisons externes à la théorie logique proprement dite, elle n'y joue aucun rôle direct et elle en contredit même l'inspiration fondamentale, T'approche contextuelle' (de Rijk 1967a:577-78, 597);

(T3) en tant que propriété non-contextuelle, elle disparaît entièrement (et à juste titre) de la logique terministe du XIVe siècle à partir d'Occam et de Burleigh (de Rijk 1973);

(T4) si l'expression 'supposition naturelle' réapparaît chez Buridan et quelques autres logiciens du XIVe siècle, c'est pour y désigner une nouvelle propriété qui, elle, est bel et bien contextuelle: la fonction référentielle d'un terme général dans une proposition scientifique omnitemporelle, ou atemporelle comme chez Vincent Ferrer (de Rijk 1973:51ss).

Pour ma part, je souscris sans réserve à Tl, que de Rijk me semble avoir démontrée de façon convaincante, et je n'y reviendrai que brièvement pour mieux situer le débat qui va suivre et pour conjurer du même coup certains soupçons encore exprimés par des interprètes récents (section 1 ci-dessous).

T2, au contraire, me paraît entièrement erronée et T3 passablement trompeuse. J'essaierai de montrer que la supposition naturelle est indispensable à la théorie sémantique du XlIIe siècle (section 2) et qu'elle ne

disparaît pas vraiment chez Occam, mais qu'elle y change simplement de nom pour s'appeler dorénavant 'signification' (section 3). Je retrouverai de la sorte l'image générale proposée — à partir surtout d'un examen de la théorie sémantique des modistes — par Jan Pinborg (1976). Quant à T4, elle est aujourd'hui communément admise et je n'en traiterai pas ici." (pp. 255-256)

(1) Il faut noter cependant que de Rijk (1982:169-70) semble revenir à l'interprétation de Boehner pour ce qui est du texte de Pierre d'Espagne (cf. infra note 6).

(6) Il est étonnant par conséquent que de Rijk ait récemment fait marche arrière pour revenir sans argumentation nouvelle à une interprétation contextuelle de la supposition naturelle chez Pierre d'Espagne: "... in natural supposition the capacity of standing for all particulars involved [...] is completely exploited [...] by leaving aside the actual context in which the term occurs. But natural supposition is unlike signification in that

there is a context, an actual linguistic framework, which is left out of account for a moment" (de Rijk 1982:169-70; les italiques sont de l'auteur).

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Rijk, Lambertus Marie de. 1967a. Logica Modernorum: A contribution to the history of early terminist logic. Vol.2 — Part one: The origin and early development of the theory of supposition. Assen: Van Gorcum.

_____. 1973. "The Development of suppositio naturalis in Mediaeval Logic. Part two: Fourteenth century natural supposition as atemporal (omnitemporal) supposition." *Vivarium* 11.43-79.

_____. 1982. "The Origins of the Theory of the Properties of Terms." *The Cambridge History of Later Medieval Philosophy: From the rediscovery of Aristotle to the disintegration of scholasticism 1100-1600* éd. par Norman Kretzmann, Anthony Kenny & Jan Pinborg, 161-73. Cambridge: Cambridge Univ. Press.

17. ———. 2004. "Tarski et la *suppositio materialis*." *Philosophiques* no. 31:295-309.

"In his 1944 paper *The Semantic Conception of Truth and the Foundations of Semantics*, Alfred Tarski refers in so many words to the medieval idea of "suppositio materialis". The interpretation he suggests for it, however, is historically misleading, and this historical inaccuracy yields in this case what can be taken to be an unfortunate philosophical mistake. In " 'snow is white' is true ", Tarski sees the phrase "snow is white" (between quotation marks) as the name of a certain sentence, while the medieval philosophers would have seen it

rather as an occurrence of that very sentence, but taken in a special use, the suppositio materialis . The paper shows how these two approaches differ exactly and argues that the medieval theory is philosophically preferable in that (1) it is descriptively more adequate with respect to natural languages, (2) it is more appropriate even for artificial languages, which it renders both more effective and more intelligible, and (3) it rests upon the identification of an important phenomenon, the generality of which is missed by the Tarskian type semantics, namely the duality of principle between the extension of a term in itself and the extension it receives within a given propositional context."

18. Panaccio, Claude, and Perini-Santos, Ernesto. 2004. "Guillaume d'Ockham et la *suppositio materialis*." *Vivarium* no. 42:202-224.

    "L'idée de base de la théorie médiévale de la *suppositio* est qu'il y a, pour chaque terme d'un langage quelconque, deux sortes de propriétés sémantiques: celles qu'il possède en lui-même, avant toute insertion propositionnelle, dont la significatio est l'exemple paradigmatique; et celles qu'il acquiert dans le cadre d'une phrase lorsqu'il y est employé comme sujet ou comme prédicat, c'est la *suppositio* sous ses diverses variantes. Selon les théories et selon les contextes, l'écart entre les unes et les autres peut être plus ou moins grand. Pour les sémanticiens réalistes, un terme comme «cheval» signifie en lui-même la nature chevaline et—dans son usage normal— suppose en contexte pour certains chevaux singuliers.(1) Pour le nominaliste Guillaume d'Ockham—qui nous intéressera ici—, le même terme «cheval» signifie (au sens large) tous les chevaux singuliers possibles(2) et— dans son usage normal, la *suppositio personalis*—suppose en contexte phrastique pour certains d'entre eux, ceux, par exemple, qui existent au moment de l'énonciation si le verbe principal est au présent.(3) La théorie, de façon générale, essaie de thématiser dans un jeu complexe de distinctions et de règles les variations de la fonction référentielle d'un terme pris en contexte, par rapport à ce que l'on appellerait aujourd'hui son «extension» totale, c'est-à-dire l'ensemble de toutes les choses présentes, passées,

futures ou même seulement possibles auxquelles le terme s'applique."

(1) Cf. par exemple Pierre d'Espagne, *Tractatus*, VI, 1-9, éd. L. M. de Rijk, Assen 1972, 79-83; Guillaume de Sherwood, *Introductiones in logicam*, V, éd. C. H. Lohr, dans : *Traditio,* 39 (1983), 219-99, en particulier 265; Roger Bacon, *Summulae dialectices,* 2.2, 415-423, éd. A. de Libera, dans: *Archives d'Histoire doctrinale et littéraire du Moyen Âge*, 53 (1986), 139-289, en particulier 265-6.

(2) Cf. Guillaume d'Ockham, *Summa logicae* (désormais *SL*), I, 33, éd. Ph. Boehner, G. Gál et S. Brown, dans: *Guillelmi de Ockham Opera Philosophica*, I (dorénavant *OPh I*), St-Bonaventure, N.Y. 1974, 95-6.

(3) Cf. *SL* I, 72, OPh I, 215-8.

19. Paqué, Ruprecht. 1970. *Le statut parisien des nominalistes. Recherches sur la formation du concept de réalité de la science moderne de la nature*. Paris: Presses universitaires de France.

    Guillaume d'Occam, Jean Buridan et Pierre d'Espagne, Nicolas d'Autrecourt et Grégoire de Rimini.

    Traduit de l'allemand *Das Pariser Nominalistentstatut. Zur Entstehung des Realitätsbegriff der neuzeitlichen Naturwissenschaft* (1970) par Emmanuel Martineau.

    Deuxième partie : Chapitre II. A. Terme et supposition chez Occam 58; B. La doctrine de la supposition chez Pierre d'Espagne 65; D. Terme et supposition chez Jean Buridan 89-97.

20. Piché, David. 2001. "Anselme de Cantorbéry, Thomas d'Aquin et Guillaume d'Ockham sur le thème du discours intérieur: quel est le problème?" *Laval Théologique et Philosophique* no. 57:243-249.

    "The notion of internal discourse (*locutio mentis*, *verbum mentis* or *oratio mentalis*), as it was worked out in the Latin Middle Ages, fulfilled different theoretical functions and aims, depending on the authors who had recourse to it. The following text asks Claude Panaccio a simple question: what problem(s)

exactly do Anselm of Canterbury, Thomas Aquinas and William Ockham attempt respectively to solve by appealing to this notion?"

21. Rijk, Lambertus Marie de. 1985. "La supposition naturelle: une pierre de touche pour les points de vue philosophiques." In *La philosophie au moyen âge*, 183-203. Leiden: Brill.

    Chapitre 8.

22. Valente, luisa. 2010. "Logique et théologie trinitaire chez Etienne Langton : "res, ens, suppositio communis" et "propositio duplex." In *Étienne Langton, prédicateur, bibliste, théologien*, edited by Bataillon, Louis-Jacques, Bériou, Nicole, Dahan, Gilbert and Quinto, Riccard, 563-586. Turnhout: Brepols.

    "Le propos de cet article est de décrire la façon dont Étienne Langton recourt à certaines notions logiques dans les réflexions sur la théologie trinitaire qu'il expose dans son commentaire des Sentences de Pierre Lombard et dans certaines parties de sa *Summa* et de ses questions. L'échantillon des textes tirés de la *Summa* et des *Quaestiones* est choisi parmi les parties de ces ouvrages éditées par Sten Ebbesen et Lars Mortensen : une édition qui a été constituée en vue de mettre en relief l'usage de instruments dialectiques de la part de Langton(2)." (p. 563, une note omise)

    (2) Cf. Étienne Langton, S*umma quaestionum theologiae et Quaestiones*, éd. S. Ebbesen et L. B. Mortensen, « A Partial Edition of Stephen Langton's Summa and Quaestiones with Parallels from Andrew Sunesen's Exaemeron », *Cahiers de l'Institut du Moyen-Âge grec et latin* 49 (1985), p. 25-224, introduction, p. 28.

23. Zarka, Yves Charles. 1988. "Signe, supposition et dénomination. Figure du nominalisme au XVII Siècle." *Revue des Sciences Philosophiques et Théologiques* no. 72 (2):263-272.

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1. Amerini, Fabrizio. 1999. "Il tractatus *De suppositionibus terminorum* di Francesco da Prato O.P. Una rilettura della dottrina ockhamista del linguaggio." *Medioevo* no. 25:441-550.
2. Ammirata, Francesco Paolo. 2013. ""Ego sum Tartarus, et vado investigans viam veritatis". Aspetti teorici della suppositio nel *Liber Tartari et Christiani* di Raimondo Lullo." In *Coexistence and Cooperation in the Middle Ages: IV European Congress of Medieval Studies F.I.D.E.M. (Federation Internationale des Instituts d'Études Medievales), Palermo 23-27 June 2009*, edited by Musco, Alessandro and Musotto, Giuliana. Palermo: Officina di Studi Medievali.
3. Baccin, Nadia Anna. 1977. "Supposizione confusa tantum e descensus." *Medioevo* no. 3:285-300.
4. Giacon, Carlo. 1969. "La *suppositio* in Guglielmo di Occam e il valore reale delle scienze." In *Arts libéraux et philosophie au moyen âge. Actes du quatrième Congrés international de philosophie médiévale. Université de Montréal, Montréal, Canada. 27 Août - 2 Septembre 1967*, 939-947. Montréal, Paris: Vrin.
5. Goubier, Frédéric. 2009. "La teoria della supposizione e le sue cronologie semantiche." *Rivista di Filosofia Neo-Scolastica* no. 101:501-532.

"Ritengo infatti che ci sia un aspetto originale e cruciale della teoria della supposizione che, benché non sia passato inosservato, merita più attenzione. Il riferimento va alla “temporalizzazione” – o “cronologizzazione” – della semantica estensionale, introdotta per determinare le condizioni di verità delle proposizioni. Prestarle la dovuta attenzione può arricchire la comprensione della teoria e della nozione stessa di supposizione.

È con questo scopo che il presente lavoro esamina la formalizzazione, operata dalla teoria della supposizione, della capacità del linguaggio di evocare esistente e non-esistente, attuale e possibile, reale e fittizio, contingente e necessario. Principalmente si cercherà di mostrare che si può comprendere questa dimensione della teoria nei termini dell’articolazione di

tre cronologie semantiche: una corrispondente al soggetto della proposizione, un'altra corrispondente al predicato e una terza riservata alla proposizione stessa. Lo scritto farà del suo meglio per convincere il lettore di due cose. Cogliere quest'aspetto significa accedere al cuore della teoria.

Esprimerlo in termini di cronologie semantiche è darsi la possibilità di comprendere meglio il genere di strumento in cui consiste la *suppositio*, individuando alcuni presupposti semantici alla base della teoria." (p. 502)

6. Maierù, Alfonso. 1972. *Terminologia logica della tarda scolastica*. Roma: Edizioni dell'Ateneo.

   Indice: IV. Confusio

   l. *Suppositio confusa*, 217; 2. Il *sincategorema*, 224; 3. *Confusio* e operatività logica (*descensus* e *mobilitas*), 232; 4. I maestri più noti del sec. XIV, 243; 5. I logici inglesi della metà del sec. XIV, 271 ; 6. I logici italiani, 287

   Appendice 1. La *suppositio* e le sue divisioni nei secc. XIV-XV 306; Appendice 2. La negazione, 318;

   Il capitolo "Confusio" (pp. 217-270) è stato ristampatio in: Riccardo Frediga e Sara Puggioni (a cura di), *Logica e linguaggio nel Medioevo*, Milano: LED Edizioni, 1993, pp. 259-294.

7. Muré, Dafne. 2013. "Nota sugli usi della *suppositio* in Girolamo Saccheri." In *Medioevo e filosofia: per Alfonso Maierù*, edited by Lenzi, Massimiliano, Musatti, Cesare A. and Valente, Luisa, 281-285. Roma: Viella.

   "Girolamo Saccheri (1667-1733) fornisce le definizioni di *suppositio* nel primo capitolo (de terminis, eorumque proprietatibus) della Logica demonstrativa e ne fornisce le *regulae* nel capitolo terzo. Le dottrine legateall'uso della nozione sono pertanto collocate al di fuori della sezione propriamente "analitico-assiomatica" della Logica. Ciò implica in primo luogo che, dal punto di vista della dottrina logica saccheriana, la maggior parte degli enunciati relativi alle *proprietates terminorum* corrispondono a definizioni

nominali: ovvero, come si chiarirà in seguito con più precisione, la cui “realtà” non è accertabile attraverso i soli strumenti della logica.

In secondo luogo, la “teoria” della suppositio, quale corpo articolato di nozioni riguardanti le proprietà dei termini all’interno della proposizione, non è svincolabile dal concetto saccheriano di “analisi” e, perciò, dalla concezione epistemologica e filosofica del gesuita. Al contempo, l’uso della nozione di *suppositio* ha un ruolo centrale nell’opera del Saccheri, sia all’interno della teoria della definizione che nei trattati teologici. È quanto intende mostrare il nostro contributo.

L’articolo non fornisce, perciò, una trattazione esauriente della dottrina della suppositio nell’opera logica e teologica del gesuita, ma presenta elementi essenziali utili per i necessari approfondimenti storico-dottrinali.

Tuttavia, speriamo apparirà chiaro dal nostro contributo che tali studi dovranno tenere presente l’intera opera teologica del gesuita e le sue posizioni filosofiche generali." (pp. 281-283, note omesse)

8. Rijk, Lambertus Marie de. 1993. "La supposizione naturale: una pietra di paragone per i punti di vista filosofici." In *Logica e linguaggio nel Medioevo*, edited by Fedriga, Riccardo and Poggioni, Sara, 185-220. Milano: LED, Edizioni universitarie di lettere, economia, diritto.

   Traduzione italiana del capitolo 8 di : L. M. de Rijk, *La philosophie au moyen âge*, Leiden: Brill, 1985, pp. 184-203.

9. Versace, Giovanni. 1974. "La teoria della *Suppositio Simplex* in Ockham e in Burley." In *Atti del Convegno di storia della logica (Parma 8-10 ottobre 1972)*, 195-202. Padova: Liviana Editrice.

Estudios en Español

1. Beuchot, Mauricio. 1988. "La teoría semántica medieval de la *suppositio*." In *Filosofía y cultura medievales*, edited by

González, Ruiz E., 42-51. México: Universidad Nacional Autónoma de México.

2. ———. 1994. "La suposición semántica y su actualidad. Desarrollo histórico y actualidad de la teória escólastica de la suposición semántica." In *Metafísica, lógica y lenguaje en la filosofía medieval*, 137-143. Barcelona: Promociones y Publicaciones Universitaria.

3. Corti, Enrique C. 1981. "Significación, suposición y verdad en la *Summa logicae* de Guillermo de Ockham." *Cuadernos del Sur* (14):141-155.

4. Coxito, Amândio. 1989. "Las doctrinas de la *significatio* y de la *suppositio* en Pedro Hispano." *Pensamiento* no. 45:227-238.

5. D'Ors, Angel. 1991. "De mixta supositione." In *Encuentro de Lógica y Filosofía de la Ciencia, Madrid, 13-15 noviembre, 1991. Rudolf Carnap and Hans Reichenbach in memoriam*, 73-81. Madrid: Universidad Complutense de Madrid.

6. D'Ors, Angel. 2004. "Propositiones de modo loquendi inconsueto: De mixts suppositione." In *Medieval Theories on Assertive and Non-Assertive Language*, edited by Maierù, Alfonso and Valente, Luisa, 537-567. Firenze: Olschki.

   "La tradición lògica medieval hizo uso de la noción de proposición *de modo loquendi inconsueto* en diverses contextes;(1) pero sólo atenderé a una de las especies de proposiciones comprendidas bajo esa dénomination: aquellas en las que se hace uso de signos extranos a la lengua latina, intro ducidos con propósitos técnicos especifîcos. Asimismo hizo uso en diverses contextes de la noción de suppostilo mixta·,(2) pero sólo atenderé a la noción de suppostilo mixta en cuanto forma especifica de suppostilo personalis que puede convenir a un termino simple." (p. 537)

   (:::)

   "Mi contribución constarà de tres partes. En la primera, presentare los datos que he podido recoger hasta el presente en relación con la historia de està especie de proposiciones *de modo loquendi inconsueto*, en la segunda, me ocuparé de

algunas cuestiones lógicas bàsicas, imprescindibles para la recta comprensión de las cuestiones suscitadas a propòsito de estas proposi ciones; por ùltimo, en la tercera parte, intentaré dar respuesta a esas dos cuestiones suscitadas por Ashworth." (p. 539)

(1) La noción de proposición *de modo loquendi inconsueto* fue utilizada por la tradición lógica medieval para referirse a cualquier tipo de proposición que, por una u otra razón, atentaba contra la forma usuai, consueta, de las proposiciones, ya en razón de su peculiar naturaleza fisica, ya en razón de su peculiar estructura gramatical, extrana al uso ordinario de la lengua latina. Bajo esta noción quedaron comprendidas proposiciones constituidas por piedras, en lugar de palabras o signos escritos; o en parte por signos orales y en parte por signos escritos; o proferidas o escritas en momentos o lugares muy distantes, o en parte por un sujeto y en parte por otro, de manera que quedaba oculta su unidad; o cualesquiera otras proposiciones que presentaban cualquier otro tipo de anomalia semejante. Pero también quedaron comprendidas bajo esta noción diverses tipos de proposiciones, constituidas por palabras comunes pero sujetas a convenciones extranas al uso ordinario de la lengua latina, establecidas con propósitos estrictamente técnicos, y que atentaban contra las réglas ordinarias de la concertación gramatical (termines de genero comûn determina dos por sincategoremas de gènero masculine o femenino), o la libertad del orden de las palabras Las cuestiones relativas al valor lògico asignado al orden de las palabras, y a su importancia corne instrumente para el anâlisis de los problemas relatives a la cuantifîcación multiple y el desarrollo de una lògica de relaciones, han recibido ya una considerable atención. Me he ocupado de esas cuestiones en mi trabajo: A d'Ors, *Hominis asinus/Asinus hominis*, en S. Read ed., *Sophisms in Medieval Logic and Grammar,* Dordrecht-Boston-London, Kluwer Academic Publishers, 1993, pp. 382-397. Mas recientemente, E. Karger se ha ocupado de nuevo de algunas de estas cuestiones: I. Karger, *The 15th and Early 16th Century Logicians on the Quantification of Categorical Sentences,* «Topoi», XVI, 1997, pp. 65-76.

(2) La tradición terminista atribuyó una suppositio mixta a términos complejos cuyas partes tenian, una, *suppositio materialis*, otra, *suppositio personalis·*, o una, *suppositio distributiva*, otra, *suppositio determinata* o *confusa tantum*, o cualesquiera otras combinaciones semejantes.

7. Forcada, Vicente. 1973. "Momento historico del tratado *De suppositionibus* de San Vicente Ferrer." *Escritos del Vedat*:37-89.

8. Freitas, Antonio de. 1999. "La teoria de la suposición en Pedro Hispano." *Revista Venezolana de Filosofia* (23-38).

   Resumen: "Queremos presentar algunos elementos de la lógica medieval y, en particular, una breve exposición sobre la teoría medieval de la suposición en el *Tractatus* VI, (*De Suppositionibus*), de las *Summulae Logicales*, de Pedro Hispano. La teoría medieval de la suposición se basa en que el significado de una palabra en un caso particular puede ser reducido a su significado fundamental *(significatio*), lo cual corresponde a la propiedad natural constitutiva de la palabra, su esencia, en virtud de la cual estará presente en la raíz de cualquier significado particular de la palabra.

   Esta teoría sirvió de hilo conductor a los estudios lógicos. Se pretendía explicar la relación existente entre el pensamiento, el lenguaje y la realidad. Actualmente son temas que interesan a la filosofía del

   lenguaje y a los estudios fundacionales de la Inteligencia Artificial."

9. Garcia Cuadrado, José Angel. 1991. "La teoría de la suposición en los tratados filosóficos de San Vicente Ferrer." In *Excerpta e Dissertationibus in Philosophia*, 325-349. Servicio de Publicaciones de la Universidad de Navarra.

   Extracto de la Tesis Doctoral presentada en la Facultad Eclesiástica de Filosofía de la Universidad de Navarra.

   "Además, el interés del estudio de la teoría de la suposición no se restringe de modo exclusivo al ámbito lógico-formal; en la base de las diferentes propuestas se encuentran a menudo

importantes cuestiones gnoseológicas, epistemológicas y metafísicas, repropuestas de una manera u otra por la filosofía moderna, tal como ha puesto de relieve Vignaux(4) . Ya en su tiempo la teoría de la suposición era el campo de discusión y estudio de problemas no sólo estrictamente lógicos sino también gnoseológicos, metafísicos y, en última instancia, teológicos. Es también el punto de arranque de una epistemología y teoría de la ciencia moderna(5).

Dentro de este contexto de investigación los tratados lógicos de San Vicente Ferrer han abierto un interesante campo de estudio.

Frente a la teoría de la suposición instaurada por Ockham y el nominalismo del XIV se abre paso la doctrina de Vicente Ferrer basada en unos presupuestos filosóficos realistas con los que intenta hacer frente a las soluciones nominalistas. En los últimos años se ha comenzado a prestar una mayor atención a estas obras del dominico valenciano; fruto de dicho interés es la publicación de la primera edición crítica del *Tractatus de Suppositionibus* llevada a cabo en 1977. A dicha edición crítica hay que sumar la reciente traducción castellana de las dos obras lógicas que se conservan de Vicente Ferrer, y los numerosos artículos y estudios centrados en algunos aspectos parciales de la doctrina contenida en dichos tratados." (pp. 328-329)

(4) Cfr. Vignaux, P., «La problématique du nominalisme médiéval peut-elle éclairer des problèmes philosophiques actuels?» en R*evue Philosophique de Louvain*, 75 (1977), pp. 293-331.

(5) Cfr. Bottin, F., La scienza degli occamisti. La scienza tardo-medievale dalle origine del paradigma nominalista alla rivoluzione scientifica, Maggioli, Rimini 1982, pp. 67-97.

10. ———. 1992. "La paradojia del análisis linguistico en la lógica de San Vicente Ferrer." In *Actas del I Congreso Nacional de Filosofía Medieval, Saragosse, 12-14 December 1990*, edited by Lomba Fuentes, J. M., 315-323. Saragosse, Ibercaja.

11. ———. 1993. "Aspectos gnoseológicos de la *suppositio naturalis* de San Vicente Ferrer." *Analogía Filosófica.Revista de Filosófia* no. 7:153-167.

    "The comparison between "suppositio naturalis" by Pedro Hispano and Vincent Ferrer, clearly shows us the gnoseological differences underlining the theory of one supposition from the other. Vincent Ferrer speaks of a "moderate realism" as seen by Thomas Aquinas; Ferrer proposes a new notion and classification of the "suppositio naturalis" which helps to solve some of the logical-semantic problems raised by the theory of supposition by Pedro Hispano."

12. ———. 1994. *Hacia una semantica realista. La filosofía del lenguaje de San Vicente Ferrer*. Pamplona: Eunsa.

13. ———. 1998. "Una fuente inédita de la teoría de la suposición en Vicente Ferrer: la polémica Burleigh-Ockham." *Revista Española de Filosofía Medieval* no. 5.

    Resumen: "La polémica entre Guillermo de Ockham y Walter Burleigh en el siglo XIV propició la aparición de tratados independientes sobre la doctrina de la suposición, como el *Textus de Suppositionibus* de William Sutton. Este tratado presenta coincidencias muy significativas con el *Tractatus de Suppositionibus* de Vicente Ferrer; estas coincidencias llevan a formular la hipótesis de una influencia directa de Sutton en Ferrer."

14. Knabenschuch de Porta, Sabine. 1989. "La téoria de la supósicion y los idiomas modernos." *Revista de Filosofia (Venezuela)*:75-99.

15. Miralbell, Ignacio. 1989. "La transformación ockhamista de la teoría de la suposición." *Sapientia* no. 44:111-136.

    Reprinted in: I. Miralbell, *Guillermo de Ockham y su crítica lógico-pragmática al pensamiento realista*, Pamplona: Servicio de Publicaciones de la Universidad de Navarra, 1998, pp. 51-88.

16. Muñoz Delgado, Vicente. 1986. "La suposición de los términos en Juan de Oria y otros lógicos salmantinos (1510-1535)." In

Homenaje a Pedro Sainz Rodriguez. (Volume IV), 335-367. Madrid: Fundación Universitaria Española.

17. Muñoz Garcia, Angel. 1990. "La 'confusa' suposición sólo confusa." *Analogia* no. 4:113-141.

18. ———. 1991. "A propósito de la suposición habitual." In *Itinéraires d'Albert de Saxe, Paris-Vienne au XIV Siécle*, edited by Biard, Joël, 125-136. Paris: Vrin.

19. ———. 1991. "¿Es la determinada una suposición distributiva?" *Medioevo* no. 17:309-346.

20. Poveda, Eduardo. 1963. "El tratado "De Suppositionibus dialecticis" de San Vicente Ferrer y su significación historica en la cuestión de los universales." *Anales del Seminario de Valencia* no. 3:5-88.

21. Prieto del Rey, Maurilio. 1963. "Significación y sentido ultimado. La nociòn de "suppositio" en la logica de Juan de Santo Tomás." *Convivium (Barcelona)* no. 15-16:35-73.

    Resumo: "Es esta la primera parte de un estudio sobre el problema de la "suppositio", según la interpretación de la "Lógica" de Juan de Santo Tomás; el problema -surgido de Aristóteles- de la palabra como intención objetiva, razón o posibilidad de ser y de conocer Vista la insuficiencia de las soluciones nominalista y conceptualista, pasa el autor a analizar la solución del conceptualismo moderado tomista, la cual "reconoce la necesidad de elevarse al orden de la significación y la de concretar el sentido, para alcanzar su ultimación positiva sin perder su universalidad.

    La palabra sustituye a la cosa en dos momentos en cuanto se da la re presentación ("significatio"), y en cuanto se da el ser ("suppositio") La actualidad trascendente del ser da a la sustitución supositiva concreción y universalidad. Ella es la raíz de la culminación positiva del sentido y la base que "verifica" la comunicación de un sentido y el mutuo entendimiento entre los hombres."

22. ———. 1963. "Significación y sentido ultimado. La nociòn de "suppositio" en la logica de Juan de Santo Tomás.

Continuación." *Convivium (Barcelona)* no. 19-20:47-72.

"Conclusión.

La teoría de la suppositio que hemos desarrollado parte de un hecho: la existencia de expresiones u oraciones *de subjecto non supponente*. Esto implica que el orden del ser, en que los supuestos se dan, se encuentra más allá de cualquier término subjetivo, arbitrario o convencional, del sentido de la expresión. Sólo así puede acontecer que el supuesto de la expresión *non inveniatur*, no se dé según las exigencias del verbo que expresa la actualidad del ser y sus modos o concreciones y, de esta forma, la ultimación del proceso intencional y significativo sea negativa o fallida.

Este hecho supone también que la ultimación del sentido se venfique gracias a una participación -- que como tal siempre es un acto y no un hábito o potencia, sea primera o segunda -- en la plenitud actual del ser.

Ahora bien, una manera de negar esa plenitud es desligar o sacar la expresión o su interpretación de la circunstancia humana en que se produce, del momento existencial, que es el contexto natural de toda expresión, por el que adquiere plenitud de sentido. Tal sucede cuando se habla o se interpreta una locución desde supuestos abstractos o convencionales, sin descender a ese momento de plenitud significativa; p. e., en ese hablar de memoria o por tópicos, sin hacerse cargo de la actualidad existencial que, según Cayetano, llena de sentido las categorías mentales, los géneros y las diferencias.

De aquí que la suppositio sea definida por los escolásticos, como lo hace el P. Urrabarutu, como una propiedad del término *potissimum oralis* (1 19), porque fuera del momento en que se habla, con signos orales o gráficos, etc., la expresión decae de la estricta actualidad significativa.

"De todo lo cual resulta, podemos concIuir con Ortega y Gasset que el sentido real de una palabra no es el que tiene en el Diccionario, sino el que tiene en el instante" (120). Pero un instante que no anule, sino que de plenitud al sentids, representa un presente en la trascendencia actual del ser.

"La más valedera, la más profunda de las comprensiones de un vocablo, dice E. D'Ord, será aquella que penetre el secreto de su sentido" (121), secreto escondido en esa aventura insoslayable por la que el hombre llega a ser un ente metafisico." (pp. 71-72)

(119) P. Urraburus,. J., *Institutiones Philosophise*, v. 1, c. 4, a. 1, Vallisoleti 1890.

120) Ortega y Gasset, *Historia como sistema*, p. 85 se. Ed. Rev. de Occ. 2.ª ed. Madrid, 1942.

(121) D'Ors Eugenio, *El Secreto de la Filosofia*, p. 50.

23. Rijk, Lambertus Marie de. 1969. "Significatio y suppositio en Pedro Hispano." *Pensamiento* no. 25:225-234.

Translated in Spanish by Th. G. Sinnige.

"En este modesto articulo me propongo hablar de la teoria de la suposición de Pedro Hispano en la forma en que esta expuesta en el Tratado No. VI (*de suppositionibus)*. A menudo encontramos la opinion de que la teoria terminística de la suposición en todos los casos haya tenido una base de Indole nominalista. Esta opinion está decididamente equivocada. Basta señalar a un autor como Gualterus Burlaeus para porter en claro que la teoría de la suposición podia muy bien ser interpretada en un sentido realista. Por otra parte se puede comprobar que la teoría de la suposición ya en sus orígenes iba vinculada estrechamente con la teoría de la significación. La evolución de la teoria de la suposición por consiguiente está mezclada Intimamente con las fluctuaciones que se producen en la teoría de la significacion.

En lo que signe me propongo analizar:

1) lo esencial de la teoría de la suposición, teoría que en su origen no era otra cosa sino una teoría sobre la interpretabilidad de un término dentro de la proposición; 2)el estrecho vfnculo que existe entre la teoria de la suposición y la teoria de la significación. Como consecuencia de esto, a principios del siglo XIII et concepto de suposición tiende a extenderse hasta incluir también términos usados fuera del contexto de la proposición (*)" (pp. 226-227)

(*) Para una más amplia información sobre las cosas que se tratan en estas páginas, véase el segundo volumen de mi obra *Logica Modernorum,* en especial las páginas 513-598.

24. Valdivia, Benjamin. 1987. "La suposición semántica en Vicente Ferrer." *Analogia* no. 1 (2):85-91.

25. ———. 1993. "Ockham: Suposición y ontologia." *Analogía Filosófica.Revista de Filosófia*:141-151.

    "Based on Ockham's "Summa Logicae", this article is intended to present the terms classification related to individual entities and inserted in propositions. Essence of signs is discussed, the same as reference to the world. Ockham states that sign is that which supposes a thing making it comprehensible. Supposition is made clear only in a sentence as a whole, for it is the smallest signification unit (and not the separated terms). It presents, too, conceptions of significativity and truth as qualities of sentences, composed by terms which suppose for an individualized reality."

26. Vera Cruz, Alonso de la. 1982. "Sobre la suposición." *Revista de Filosofia (Mexico)* no. 15:349-393.

Estudos em Português

1. Carvalho, Mário A.de Santiago. 1986. "A teoria da *suppositio* na semântica ockhamista." *Biblos* no. 62:91-149.

2. Coxito, Amândio. 1981. *Lógica, semântica e conhecimento na Escolastica Peninsular pré-Renascentista*. Coimbra: Biblioteca Geral da Universidade.

    Capítulo VI. *A teoria da "suppositio",* pp. 201-241.

    Sinopse: "«Este trabalho foi inicialmente apresentado, em dáctilo-composição, à Faculdade de Letras da Universidade de Coimbra, como dissertação de doutoramento em História da Filosofia e da Cultura Portuguesas. Na presente edição, o texto primitivo foi mantido no essencial, tendo-se apenas introduzido algumas alterações de pormenor.

    A ideia que levou à realização deste trabalho teve a sua origem na convicção de que não seria possível compreender

adequadamente o movimento filosófico português e peninsular do século XVI (e nomeadamente a Segunda Escolástica) sem primeiro investigar o período crítico que o antecedeu, isto é, a chamada «Escolástica decadente», com referência à problemática lógica, semântica e gnosiológica.» "

3. ———. 2001. "Pedro da Fonseca. A teoria da suposição e o seu contexto excolástico." *Revista Filosofica de Coimbra* no. 10:285-311.

   Resumo: "Fonseca não se dedica longamente ao estudo da teoria da suposição, apartando-se assim da atitude característica dos lógicos da chamada "escolástica decadente", que sobre ela desenvolveram amplas discussões, em geral áridas e formalistas. De qualquer modo, estuda as principais espécies de suposição que tinham sido consideradas pelos seus antecessores, nomeadamente a pessoal (e suas subdivisões), a própria e a imprópria, a simples e a absoluta. É em relação a estas duas últimas que se verifica em Fonseca a interferência do realismo dos géneros e das espécies na problemática lógica, em oposição ao nominalismo."

4. Morujão, Carlos. 2005. "A *Logica Modernorum*: lógica e filosofia da linguagem na Escolástica dos séculos XIII e XIV." *Revista Filosofica de Coimbra* no. 14:301-322.

   Abstrac:t: "This essay approaches two of the main contributions of medieval logic to the history of logic and the philosophy of language: the doctrine of *suppositio* and that of *consequentiae*. The aim here is to demonstrate that although medieval logic depended on the syntactical structure of Latin, authors managed to reach a high level of understanding regarding strictly logical problems, not only anticipating some theories from modern semantics, but also predicate calculus and sentential calculus. This research, especially after the 13th century, developed in complete isolation from Aristotelian logic, particularly its doctrines of syllogism and declarative sentence. It also revealed enormous originality and creativity regardless of the contribution that stoic logic known from the works of Cicero and Boethius may have had."

Deutsche Studien

1. Apel, Karl-Otto. 1973. "Sprachliche Wahrheit als *richtige* Representation der Wirklichkeit durch ein Zeichensystem (Ockhams Suppositionstheorie)." In *Transformation der Philosophie*, 112-126. Frankfurt am Main: Suhrkamp.

2. Arnold, Erwin. 1952. "Zur Geschichte der Suppositiontheorie. Die Wurzeln des modernen Europäischen Subjektivismus." *Symposion.Jahrbuch für Philosophie* no. 3:1-134.

3. Bos, Egbert Peter. 2000. "Die Rezeption der Suppositiones des Marsilius von Inghen in Paris (Johannes Dorp) und Prag (ein anonymer SophistriaTraktat) um 1400." In *Philosophie und Theologie des ausgehenden Mittelalters. Marsilius von Inghen und das Denken seiner Zeit*, edited by Hoenen, Marten and Bakker, Paul J.J.M., 213-238. Leiden: Brill.

4. Brands, Helmut. 1990. "Die zweifache Einleitung der formalen Supposition bei William of Sherwood." In *Knowledge and the Sciences in Medieval Philosophy. Vol. II*, edited by Knuuttila, Simo, Tyorinoja, R. and Ebbesen, Sten, 445-454.

5. Dufour, Carlos A. 1989. *Die Lehre der proprietates terminorum. Sinn und Referenz in mittelaterlicher Logik*. Munchen: Philosophia Verlag.

   Inhalt: Vorwort 9; Einleitung 11; I. Die historischen Elemente der Theorie 17; II. Die systematischen Voraussetzungen der Theorie 60; III. Auslegung und Rekonstruktion der Theorie: *Significatio* 97; IV. Auslegung und Rekonstruktion der Theorie: Supposition 161; Anmerkungen. Abkurzungen der Quellen 287; Literatur 300;

   Register 309-312.

   "The present volume is a detailed and original study of the traditional, doctrine of terms. It can be regarded as an attempt to tackle the question:,How would the scholastic philosophers have conceived and defended their doctrine bad they bad at their disposal the methods and techniques of contemporary logic and semantics? The answer provided, a systematic

reconstruction of a number of important ideas in the history of logic, is both formally illuminating and entirely faithful to the relevant text.

The work begins with a general exposition of the doctrine of terns oriented around the basic semantic opposition between *significatio* and *suppositio*, analogues of the more familiar notions of sense and reference.

As a means of providing a precise and coherent reconstruction of the doctrine the author does not simply provide the predictable translation of the more amenable passages into the language of predicate logic. Rather he develops, on the basis of a careful systematization of the texts themselves, a formalization of his own, incorporating an ontology of substance and accident. The advantages of this approach are revealed in its capacity to provide both a simple reconstruction of syllogistic logic by means of a sequent-calculus and a natural extension of this logic to a theory of supposition.

Taking into consideration the categories of substance and accident in place of the more usual apparatus of set and element allows the author to develop a formalized theory of objects in which the two categories are allowed to yield composite objects of various sorts. This makes possible an illuminating application of the theory of concreta and abstracta (square of permutations) both to the theory of ampliatio and appellatio and to modal syllogistics.

The work concludes with a sketch of possible further developments and an attempted demonstration of the philosophical relevance of the theory in the light of a critical consideration of the relevant secondary literature."

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   II. *Die semantischen Konzeptionen des Mittelalters*. 3. *Die Lehre von der Supposition* 56-102.

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8. Kann, Christoph. 1990. "Zur Suppositionstheorie Alberts von Sachsen." In *Knowledge and the Sciences in Medieval Philosophy. Vol. II*, edited by Knuuttila, Simo, Tyorinoja, R. and Ebbesen, Sten, 512-520. Helsinki: Yliopistopaino.
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10. ———. 1994. *Die Eigenschaften der Termini. Eine Untersuchung zur Perutilis Logica Alberts von Sachsen*. Leiden: Brill.

    Inhalt: Einleitung 1; 1. Autor und Werk 9; 1.1. Prioritat und Originalität 13; 1.2. Der zweite Traktat 20; 2. Die Eigenschaften der Termini 29; 2.1. Supposition 43; 2.1. 1. Einfache Supposition 56; 2.1.2. Materiale Supposition 69; 2.1.3. Personale Supposition 83; 2. 1.3.1. Descensus und Ascensus 87; 2.1.3 .2. Konfus-distributive Supposition 106; 2. 1.3.3. Alleinkonfuse Supposition 113; 2.1. 3.4. Supposition der Relativa 125; 2.2. Ampliation 137; 2.3. Appellation 152; Bibliographie 160; Namensregister 164; Conspectus Siglorum 166; Perutilis logica - Tractatus secundus 167; Register Lateinischer Begriffe 266-267.

    "Die vorliegende Arbeit hat also das Ziel, einen rekonstruktiven Beitrag zum Verstandnis der Lehre von den Eigenschaften der Termini im 14. Jahrhundert zu leisten. Hierfiir bietet sich der zweite Traktat der *Perutilis logica* Alberts von Sachsen in besonderer Weise an, da es sich urn einen zentralen Text handelt , welchem die Forschung bislang wooer historisch noch systematisch gerecht geworden ist. Dem oben erwahnten und bis heute gelegentlich unkritisch wiederholten Vorwurf, Albert fehle es auch und gerade als Logiker an Originalitat, wird in der

vorliegenden Arbeit nicht nur mit textgeschichtlichen Uberlegungen begegnet,(23) sondern ebenso durch den Nachweis seiner eindeutigen und oft klarenden Eigenstandigkeit in wichtigen Positionen.(24)"

(23) Vgl. 1.1., S. 17 f.

(24) Vgl. besonders 2.1.1. , 2.1.2. , 2.1.3.1

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"This article is the enlarged German version of William of *Ockham on Particular Negative Propositions*, published in "Mind", volume 88, April, 1979, pages 270-275.

The views of the following authors are discussed: P. T. Geach, G. B. Matthews, A. R. Perreiah, R. Price, G. Priest, S. Read, N. Rescher, J. Swiniarski, R. G. Turnbull."

17. ———. 1991. "*Scholasticorum taediosa circa suppositiones praecepta*: Leibniz und die Problematik der Suppositionstheorie." *Archiv fur Geschichte der Philosophie* no. 73:243-260.

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History of Logic

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Semantics and Ontology in the Philosophical Works of Abelard

Introduction

"Abelard composed four works on logic:

1) *Introductiones Parvulorum*, which consists of short glosses on Porphyry *Eisagoge* and Aristotle *Categories* and *De Interpretatione*;

2) *Logica Ingredientibus* (so called because *ingredientibus* is the first word of its text), which consists of longer glosses on the texts covered by the previous work together with Boethius' *De Differentiis Topicis* and was probably written while Abelard was teaching in Paris before 1120;

3) *Logica Nostrorum Petitioni* (so called because *nostrorum petitioni* are the first words of its text), which consists of longer glosses on the *Eisagoge* and may date from the time of his teaching at the hermitage of the Paraclete;

4) *Dialectica*, which has the form of an independent work about the subjects covered by Boethius' logical writings and Victorinus' treatise *De Definitionibus* and seems to contain materials from different periods of Abelard's life but probably did not reach its final form until a late date, perhaps the time of his stay at Cluny shortly before his death. Of these the second and the fourth are the most valuable.

The *Dialectica* indeed, though based, like that of Garland, chiefly on the works of Boethius and written with the prolixity which was all too common among medieval authors, is an original composition of great importance for the development of logic. Abelard's mind was the keenest (though not in all respects the most admirable) that had

been devoted to the subject for more than a thousand years, and he approached his task with the belief that it was still possible to make discoveries: '*Non enim tanta fuit antiquorum scriptorum perfectio ut non et nostro doctrina indigeat studio, nec tantum in nobis mortalibus scientia potest crescere ut non ultra possit augmentum recipere*.' (1) The *Dialectica* survives in a single manuscript which lacks the opening sections. Excerpts from it were published by Victor Cousin in 1836 in his *Ouvrages inédits d' Abelard*. But unfortunately the text was not printed in full until 1956, and before that date it was therefore not possible to appreciate the magnitude of Abelard's contribution to the doctrines we regard as characteristically medieval. (...).

The text is divided into five *tractatus* which correspond to groups of Boethius' writings and are called respectively: I *Liber Partium,* II *De Categoricis,* III *Topica,* IV *De Hypotheticis,* and V *De Divisionibus et Definitionibus*. Of these the first is subdivided into three *volumina* dealing with the *antepraedicamenta* (or *quinque voces* of Porphyry), the *praedicamenta* (or categories of Aristotle), and the *postpraedicamenta* (or questions about meaning raised in the De Interpretatione). (2) But our sole surviving manuscript lacks the whole of the first volume and the opening of the second. This is unfortunate, since the missing part probably contained Abelard's last thoughts about universals. We can be reasonably sure also that it contained an account of the distinction between words of first and words of second imposition, since this was mentioned by Boethius in his commentary on the Categories and is taken for granted later by Abelard." (pp. 203-204, some notes omitted)

Notes

(1) *Dialectica* p. 535.

(2) In later times the name *antepraedicamenta* was used (more naturally) for the subjects treated by Aristotle in his *Categories*, 1-3 (i.e. equivocal and univocal naming, simple and complex expressions, etc.), and the name *postpraedicamenta* for the subjects treated by Aristotle in his Categories, 10-15 i.e. kinds of opposites, kinds of priority, etc.).

(3) *Dialectica* p. 122.

From: William & Marta Kneale, *The Development of Logic*, Oxford: Clarendon Press 1962.

The modern rediscovery of Abelardian logic

"Geyer's editions [...] gave the first decisive stimulus to the study of the Palatine Master's philosophical writings.

Up to 1919 (the year of Geyer's first edition) the known Abelardian writings were limited to those edited by Cousin (7): this French scholar attached the most importance to the comments on Porphyrius, the *Categorie* and the *Topici* of Boetius and the passages of the *Dialectica*. On the whole the material was fragmentary, uncritically sifted and confused with fragments of non-Abelardian comments, which Cousin nonetheless considered were his. De Rémusat's incomplete paraphrase in French of a comment on the *Isagoge* was then added to these texts.

In 1919 Geyer began publishing *Ingredientibus* (8): under this name he has edited a comment on the *Isagoge*, a second on the *Categorie*, and a third on *De Interpretatione*. A prologue (from the beginning of which Geyer took the name *Ingredientibus*) presents these comments as a unit which has a certain compactness; this is confirmed by other observations which are intrinsic to the work, such as the internal cross-references from comment to comment, the persistence of a similar attitude and of an identical -- terminologically as well -- solution when confronted by the problem of universals in all the comments (9), the 'dictum' theory present in the three comments. (10) From internal cross-references that Abelard makes to an essay *De Hypotheticis* (11), Geyer concludes that the work must have included other comments as well as these. From hints dropped by Abelard in *De Interpretatione*, it seems highly likely to me that a comment on *De Categoricis* also belonged to *Ingredientibus*. (12) Dal Pra has shown that the comment on *De differentiis topicis*, edited by him, is clearly distinct from the literal comments, and concluded that this is a comment that comes within the framework of *Ingredientibus*. (13) We thus have four of the seven comments on the usual 'septem codices' (14) that Abelard considered fundamental.

Also part of the *Philosophische Schriften* edited by Geyer is a comment on the *Isagoge* of which Rémusat had edited an incomplete paraphrase in French. In the prologue Geyer singled it out as part of an organic work, called *Nostrorum* (15) by him from the words at the beginning: here too Abelard proposed an entire treatment of the logical corpus usually used by him. Today we still have only the comment on the Porphyrian *quinque voces*.

In 1954 Geyer's edition was joined by the edition of the literal comments edited by M. Dal Pra. In this edition the comments are arranged in the order which Abelard himself indicates at the end of the logical treatise and to which he also holds in *Dialectica*. The comments on the *Categorie* and on *De Interpretatione* thus come after the comment on the *Isagoge*. The presence of a comment on the Boetian *De Divisionibus* indicates that Abelard used the 'seven codes' from the outset and leads one reasonably to suppose that he had worked on other comments of the same type as *De Syllogismis categoricis*, *De Syllogismis Hypotheticis*, and *De Differentiis topicis* which we do not have now. This seems to me to be confirmed by certain references of *Dialectica*, which are remade in the comments on *De Differentiis topici*s and *De hypotheticis* in the *Introductiones parvulorum* (16), identified by Geyer with the literal notes. We have already seen how the comment on *De Differentiis topici*s edited by Dal Pra in the *Scritti Filosofici* must be assimilated, on the contrary, to the corpus of notes in *Ingredientibus*.

In 1956 De Rijk published an edition of *Dialectica* which enhances the picture of the Palatine Master's logical work. *Dialectica* is not a comment but an organic treatise based nonetheless on the 'septem codices'. The most serious gap, by extension and importance, is that which deprives us of the treatise on the Porphyrian *quinque voces* which was certainly included in the work, because Abelard hints at it. Two passages in this work show us Abelard's concept of it (17): the Palatine Master here presented himself as an auctor in line with Aristotle, Porphyrius and Boetius, whose works he would perfect, as he proudly declares.

In *Abaelardiana inedita* edited by Minio Paluello (18), two texts are edited, the first contained in a manuscript now in Berlin, and the second belonging to a manuscript in the monastery of Fleury, both

from the 12th century. The existence of these two manuscripts was not unknown to us. (19) The text of the Berlin manuscript, a commentary on *De Interpretatione*, is three-quarters identical to the Ambrosian manuscript edited by Geyer as a section of *Ingredientibus* and the part that differs is without any doubt more coherent with the preceding part than the Ambrosian manuscript which contained a noteworthy break. The contribution of this new edition consists in a rigour and a greater accuracy in the reading of the Abelardian text: it does not, however, appear that in this last part of the commentary there are motives that complete or at least modify the weight and the general meaning of the commentary itself.

The text of the Fleury manuscript is more interesting, even if, with regard to the attribution, it is more uncertain. This concerns the analysis of a paralogism and of five sophisms that emerge from a nominalistic interpretation of the concept of *totum*." (pp. 2-4)

Notes

(7) Cousin, op. cit., and *Petri Abaelardi opera hactenus seorsim edita* ..., Paris 1859.

(8) *Philosophische Schriften*, Münster 1919, 1921, 1927. Abbreviated to G.G.

(9) See G.G., pp. 16, 127, 403, and G.L., p. 235; G.G., pp. 38, 246, 334-5, and [*Scritti filosofici,* Milan 1954, abbreviated] G.L., p. 221.

(10) See p. 79, note 39.

(11) G.G., pp. 291 (25) and 389 (7).

(12) G.G., p. 394 (10-26).

(12) Dal Pra, 'Introduzione', in G.L., pp. XXIX-XXXII.

(14) *Dialectica*, p. 146 (10-7).

(15) G.G., p. 505 (3-5).

(16) *Dialectica*, pp. 269 (1-3), 329 (4), 482 (4-6).

(17) *Dialectica*, pp. 146 (10-20), 496 (18-26).

(18) *Abaelardiana inedita*, Rome 1958.

(19) *Id*., pp. XIIff., XLI.

From: Maria Teresa Beonio-Brocchieri Fumagalli, *The Logic of Abelard*, Dordrecht: Reidel 1970.

The ancient logical works known at the time of Abelard

"...of whose seven books everyone in this art with an education in Latin should be armed. Only two of Aristotle's books are still known to the use of the Latins, namely the *Categories* and the *De Interpretatione*. One book is Porphyry's: that is the one written about the five 'predicables' (genus, species, difference, property and accident) [the *Isagoge*]; this is an Introduction preparatory to the *Categories*. We usually treat Boethius as four books: that is the *De Divisione*, the *De Topicis*, the *De Syllogismo Categorico* and the *De Syllogismo Hypothetico*. The text of my *Dialectica* will include a very full summary of all of these, and it will see the light -- so that readers can use it -- provided the Creator of our life grants us a little time and Envy relaxes her grip on our works."

From: Petrus Abaelardus, *Dialectica. First complete edition of the Parisian manuscript with an Introduction by L.M. de Rijk*, Assen: Van Gorcum, 1970 (second edition), p. 146, lines 10-20 (cited from M. T. Clanchy, *Abelard. A Medieval Life*, Malden: Blackwell, 1997, p. 98).

"*The Aristotelian texts available to Abaelard.*

The *Introductiones parvulorum* contain short glosses on Porphyry's *Isagoge*; Aristotle's *Categories* and the *Peri Heraineias*; and Boethius' *De topicis differentiis* and the *De divisionisbus et definitionibus*. The *Ingredientibus* contains longer glosses on the texts of Porphry and Aristotle. The *Nostrorum petitione sociorum* elaborates on Prophyry alone. Additional texts available to Abaelard were Boethius's *Introductio ad categoricos syllogismos*, the *De syllogismis categoricis*, the *De syllogismis hypotheticis* and Cicero's *Topics*. Abelard was surely using the extended, newer Boethian translation of the *Isagoge* (secunda editio) rather than the older translation based on Marius Victorinus. The glosses of the

Categories relied on a copy of the *editio composita* of Minio-Palüello (Aristóteles Latinus I) — probably the close redaction, Ms. Chartres 497. Both Minio-Paluello and de Rijk find similarities between Abaelard's and Thierry of Chartres' use of Ms. Chartres 297 , in part, a Boethian translation of the Peri Hermeneias.(1) With respect to the *nova*-texts available to Abaelard, it is certain that he had some acquaintance with both the *Prior Analytics*, cited in the *Dialectica*, and the *De sophistici elenchi*, cited in the *Ingredientibus*. As his acquaintance with the *Prior Analytics* is certainly not from indirect sources, he most likely used the *recensio Carnutensis* Boethian translation found in Ms. Chartres 497 which also contained the *Categories*. A translation of Aristotle's *Topics* is also found in the same codex. While the text is not quoted in any of Abelard's extant writings, it seems probable that he reviewed the text. The *De sophistici elenchi* is found in Ms. Chartres 498. While Abaelard states that he did not always have access to the work (*Ingred.* 400,33-4), it is evident that he knew the text-- probably from this manuscript. While there was an anonymous translation of the *Posterior Analytics* circulating in Abaelard's day, it is highly unlikely that he had ever seen the work. It is not quoted in any of the extant writings. He was certainly unacquainted with the *nova* translations of James of Venice which started to circulate sometime after 1130. Unfortunately, James' translations of the *De anima* and the *Metaphysics* first appeared a few years after Abaelard's death (and, in fact, they had few readers at the time). Aristotle's *Ethics* was not translated until early in the thirteenth century.

From: Daniel F. Blackwell, *Non-Ontological Constructs* Bern: Peter Lang, 1988, pp. 309-310.

Dialectic at the time of Abelard

"When the medievals dealt with dialectics, they meant logic as such, and dialectic in the historic Greek sense of the term that was at issue from the Sophists through Aristotle largely fell by the wayside. For the medievals, then, dialectics was logic at large, the science of demonstration through which rational inquiry sought *veritatis seu falsitatis discretio*.(16) And as such dialectic constituted a key part of the institutional *trivium* of grammar, rhetoric and dialectic (i.e., logic). Thus while the medieval treatment of "dialectic" forms an

important chapter in the history of logic, it can be left aside in the context of the history of dialectic as traditionally understood in its relation to philosophical methodology.(17) However, insofar as dialectic is a feature of the actual practice of academic disputation, it continued to play an important role in higher education throughout the middle ages.(18)" (p. 137)

Notes

(16) Abelard, *Dialectica,* p. 435. For an English translation of a typical medieval treatise on dialectic see John Buridan, *Summulae de dialectica* tr. by Gyula Klima (New Haven, Conn: Yale University Press, 2001). A look at the elaborate table of its Contents shows that with regard to topics that the treatise remains well within the boundaries of Aristotle's logical organon. Not until the Renaissance did Petrus Remus reconstitute the idea of dialectic as the art of disputation (*doctrina dispusandi*. See his *Dialecticae Constitutiones* (1543).

(17) Over and above the standard histories of logic, the following treatments of medieval dialectic are highly instructive: T. J. Holopainen, *Dialectic and Theology in the Eleventh Century* (London: Brill, 1996); J. A. Endres, "Die Dialektik and ihre Gegner im 11. Jahrhundcrt," *Philosophisches Jahrbuch*, vol. 19 (1906), pp. 20-33; N. J. Green-Pedersen, T*he Tradition of the Topics in the Middle Ages* (Munich, Philosophia Verlag, I984); and above all, Eleanore Stump, *Dialectic and its Place in the Development of Medieval Logic* (Ithaca, NY: Cornell University Press, 1989).

(18) On medieval academic disputation see A. G. Little and F. Pelster, *Word Theology and Theologians* (Oxford: Clarendon Press, 1934), pp. 29-56. A vivid account of scholastic disputation is given in Thomas Gilby, O. P., *Barbara, Celarent. A Description of Scholastic Dialectics* (London, New York: Longmans, Green, 1949), see especially Chapter XXXII on "Found Dialectic," pp. 282-93; and see also Bromley Smith, "Extracurricular Disputation: 1400-1650," *Quarterly Journal of Speech*, vol. 34 (1948), pp. 473-96. On medieval and renaissance discussions of Platonic dialectic see Raymond Klibansky, "Plato's Parmenhks in the Middle Ages and the Renaissance" in *Medieval and Renaissance Studies*, vol. I (1941/43), pp. 288ff.

From: Nicholas Rescher, *Studies in Idealism (Collected Papers, volume III),* Frankfurt: Ontos Verlag, 2005.

The semiotics of Abelard

"3. The linguistic theory of Abelard is centred around the correlaion or correspondence between the "word" and the "thing" or the *signifiant* and the *signifié* as we would have them today. According to Abelard, if a word or a sound signifies, it is because something is added to its physical being, *essentia*; this something is the significative function,*officium significandi*. The sound, just like the thing that it represents in a give language, remains the same from one community of speakers to another, it belongs to the sphere of things, which is natural; the significance, on the other hand, changes due to the diversity of languages, it depends upon institution, upon a human convention, *positio hominum, voluntas hominum*.(1) We have already the distinction between the sphere of significance and the sphere of things. The sound or the physically pronounced utterance is of the order of nature while significance is created when "something" is added to its being, and, this "something" is due to human intervention in a human, social institution. For Abelard, words give birth to or "generate" intellection which then correspond to things. Thus, argues Abelard, threre is a double series of correspondence between words and intellections, and between intellections and things, and consequently, between words and things. These are three distinct but related spheres.(2)

In *Peri Hermeneias*, Abelard insists that first of all the words signify "intellections" and only by implication and consequently, the things, otherwise there would be no logic. At the level of utterance, we deal with ideas which are "abstracted" from things but which are not found in any one thing. The reference to things is always indirect, intellective.(3)

Words are imposed upon things by human convention and they do not carry the same significance from one language to another, hence they are "arbitrary", but as they signify "intellection" of a given thing, they operate within the sphere of logic. Words constitute intellections, or what are called "analyses" in the eighteenth century by Condillac and his followers, they represent logical propositions on

the object under study. They do not correspond to the physical, empirical reality of the thing (object) but to its intellective reality. Hence, the move from one word (utterance) to another is in fact a move from one intellection to another. This is why, for Abelard, to say that a word signifies is to say that it manifests an intellection of the one who pronounces it, and that it generates a similar intellection for the one who hears it. To signify is to constitute intellection but the act of communication requires a speaker and a hearer where there must be a similarity of intellection.(4) Abelard continues the argument in *Super Peri* [*Hermeneias*] and explains that linguistic communication is an affair between two thinking beings. (5)

Language thus is not only a matter of forming logical propositions on the perceived reality of things, it is an institution where two thinking beings, beings who reflect upon the nature of things, exchange their intellections or analyses. But the so-called perfect exchange can take place if the same intellection is generated between two persons.

There are three degrees of knowledge, argues Abelard in *Peri Hermeneias*: sensation, *sensus*, imagination, *imaginatio*, intellection, *intellectus*. One can feel without imagination, imagine without thinking but imagination presupposes sensation and, there can be no intellection without image.

Our words turn our attention towards the resemblance of a thing so that it may be applied, not to this resemblance, but to the thing that it represents. This is the role of the image. One may compare it with a statue of Socrates. We apprehend it not as a thing but as a resemblance. Our intellection is not concerned with it, it only represents Socrates. When our sensation perceives it, it orients it towards the real Socrates. Image is thus situated within the mental operation which leads to knowledge. It serves as a substitute for the thing that is absent. An image alone can also be the object of thought, but in that case, it is not really an image, it has to be considered as an object in itself without another image serving as an intermediate. In any case, we see that feeling or sensation, in itself or across an image, serves as the basis of our intellection. But neither sensation nor image is sufficient for our knowledge; in the first case, we remain at the surface, manifest level, in the second, there is confusion. It is

through the application of our esprit that we pass on to intellection. It leads us to the knowledge of the nature and the properties of things which are imperceptible to senses or to imagination.

Our reason leads our esprit to intellection, without it we remain in the domain of confusion which is the characteristic of imagination.

To think is not to subject a given thing (object) to our intellection, but a nature or a property of that thing.

In its simplest form, an image presents only a resemblance of a thing perceived, it is confused, and like sensation, it does not allow us to distinguish the various properties of the thing. It is only a material to work on, to apply our intellection. Moreoever, the validity or invalidity of an intellection has nothing to do with the specific characteristics of an image. These images serve only as signs. Two persons may think of a non-sensible object, like rationality, across two different images, and both of them may formulate valid propositions. What matters is what is aimed at across these images, *attentio rerum per imagines*, and not the arrangement or the aspects of these images, *dispositio imaginum vel forma*.

Intellections may be simple or complex. A simple intellection corresponds to a noun (name), its object is composed of matter and form but it is apprehended in one unique perception, it is thus without any parts. A complex intellection corresponds to *oratio* as animal, rational, mortal; it groups several intellectual acts. The second division refers to an intellection of related or divided things, *intellectio conjunctorum vel divisorum*, on the one hand, and on the other, the intellection that relates or divides, *intellectus conjungens vel dividens*. The former refers to a reunion or a separation already made within the language. It is thus a simple idea, it corresponds to a definite or an indefinite noun as the things are related or divided. The intellection that relates or divides is, on the other hand, a composed or complex intellection; to a term already thought (analysed), it relates another. Such an intellection corresponds to animal + rational + mortal. Furthermore, there is the intellection that divides and the other that abstracts. The former separates one characteristics from the other but considers both in conjunction or disjunction. The latter considers only one term at a time, neglecting the other.

As the primary interest of Abelard is the interpretation of old sacred texts, he argues that as the ancient texts represent specific intellections of the authors, their true understanding would lead us to the understanding of the texts or the intellections, which are different from those of ours, but they would not shed light on the real nature of things, of the objects they refer to, of the mysteries of the Church. Before Abelard, Isidore had taught in the seventh century that once you know the etymology of a word, you know the "reality" of the thing. For Abelard, etymology informs us only of the intellection of the previous author. That intellection is no more related to the reality of the thing than our intellections are today. The etymological analysis gives only a "partial" view of what is really the thing. The etymology, says Abelard, sheds light more on the composition of the word than on the substance of the thing.(6) No wonder, he was excommunicated. For the logician Abelard, there is absolutely no confusion. For him, the science of logic is concerned only with the enunciative propositions and hence finds its precise object at the level of language, and not, at the level of the impression of things. The sphere of ideas is clearly distinct from the sphere of things.(7) It is interesting to note that following this reasoning, Abelard comments upon the ten categories of Aristotle and states that they are due to "human initiative", and hence due to the nature of language, otherwise such a homogeneity between the categories of language and that of the things of the world could not be envisaged. (8) Eight hundred years later, in a now celebrated article, Emile Benveniste makes the same point with the help of the modem Saussurian linguistics.(9) Abelard insists that the formation of words must be understood as a resultant of a certain mental activity and not as a perfectly adequate translation of the nature of things.(10) Furthermore, as the logical proposition is not a transposition of the natural rapports between things, we cannot talk simply of the differentiation between language and logic. Language regulated by simple grammar at the complex but spontaneous level of the construction of words does neither correspond to the logical structures, nor to the nature of things.(11) This three-way interrelation becomes even more complex when we realise that at times, the reference to a thing may be composed of several intellections and as such the utterance that describes this grouping may have a multiple signification. This multiplicity of reference is the

crux of the problem of signification, not sufficiently emphasized in modem semiotics.

A proposition is both simple and multiple. It should therefore lead us, across several terms, to something that is unique, that is numerically one. It expresses something with the help of several words, but this something is not a thing. A proposition is materially composed of a noun and a verb; similarly, the corresponding intellection is constituted with the relations of the intellections of its parts. But what corresponds, in reality, with a proposition, not having any thing as its basis, is not composed of what corresponds, in reality, with the words, *res autem propositionis, cum nullam habeat rem subjectam, ex rebus vocabulorum non constat*. (12) In the sphere of intellection (analysis) of a thing, Abelard insists that it is "nothing", *nil omnino*, "absolutely nothing", *nullam omnino rem*, it is not an existing thing.(13) But what does not exist intellectively is the corporality of the thing. Intellection deals with what is called, the state of things, something like the *sachverhalt* [state of affairs] of phenomenology which corresponds well with the proposition of Abelard: *quidam rerum modus habendi se*.(16)

All experimentation in modem art in the sphere of the correspondence,between form and content point to what Abelard emphasized that there is no such thing as absolute reality, every thing, every object, is under some impact, physical or psychological, whether it is the impact of light for the impressionists or the impact of psychic turbulations for the cubists or surrealists, or economic or social impact for the Marxists. Abelard had realised in the early years of the twelfth century that the object of study is not already given, it has to be defined, it has to be constituted within a specific universe of discourse, and, all intellection and comprehension of this object has to be in the sphere of ideas, in the sphere of the logical propositions of reality. This is what he tried to do with Holy Trinity and he got into trouble with the Church. For Abelard, at the level of things, Father, Son and the Holy Spirit are three different things because there is no such thing as a universal thing. It is only at the level of intellection, at the abstractive level where a certain unity is envisaged in terms of certain definitions of a perceived characteristics that the Trinity becomes *metaphorically* one. It is only in the *enunciative* field of the Christian discourse that the metonymic sequence of

Father and Son is obliterated. The move from individuality to universality is a move in the realm of intellection and not in the realm of empirical realism which the Church wanted to impose purely on the basis of Faith. For Abelard it is a problem of language, which is a problem of intellection par excellence. In fact, it is only in the realm of semiotics that the Unity of the Holy Trinity could be established as indeed did Abelard, but unfortunately he was too advanced for his times.

4. In his *Logica*, Abelard discusses the intellection of the universals and individuals.(15) When intellection acquires a universal term, argues Abelard, we have a common and confused image formed from several realities. On the other hand, when there is an individual term, we have before us a form of one and unique being, a form that has a rapport with only one individual; when we hear the word, man, a certain representation emerges whose rapport with each of the men is such that it is common to all but specific to none. When we hear the word, Socrates, a certain form emerges which expresses a similitude with a given being. This vocable, Socrates, gives birth to a form of a being who is unique, it is a real thing which is certified and determined. For the vocable, man, on the contrary, the implied community leads us to confusion and we do not know which man is in question. In fact, the word, man, signifies neither Socrates nor any other man, it does not refer to any man even though it denominates all.

A real thing abstracted by intellection may signify either a veritable substance of a thing, when for example intellection is based on a sensible perception, or a mental conception of form corresponding a given thing, which, in the absence of such a thing, may correspond to a common or a specific form. By common form is meant a form which has the common similitude of a multiplicity of beings, but which, in itself, is considered as a unique thing.

As for the mental or conceptual forms, Abelard makes a distinction between the divine forms and human forms. He compares God with artisan who conceive mentally the form of the work that they are going to realise later in a specific body. But there is a difference, says Abelard, it is God who creates man, soul or stone, while man creates a house, a statue or a sword. Neither statue nor sword are natural

works, the names which designate them are not based on substance but on accidents, they do not correspond to genres or species. Thus one can say that the Divine thought conceives by abstraction, the natural realities of universal character, while men know things only through senses. Abelard thus rules out the innate faculty of man in the realm of conceptualisation as proposed later by Descartes and further developed in the Port Royal School.(16) In this respect he is the precursor of the empirical school of Condillac in the eighteenth century(17), and consequently, of the basic hypothesis of modem social sciences where all creation is due to bricolage or due to establishing new relationships within the material culture which is already present. Apart from the works of Claude Levi-Strauss, we see this most clearly in the writings of A.G. Haudricourt where he demonstrates a relationship between the methods of plantation and cosmological conceptualisation in New Caledonia.(18)

Our intellection is based on two distinct operations: attraction and synthesis. Form and matter, argues Abelard, do not exist in isolation from each other but our "esprit" has the faculty to consider one or the other at a time or even together in a certain relationship. We abstract a certain element of a synthesis and examine it in its proper nature. When we re-establish a certain specific relation, we operate a synthesis. For example, we may consider the substance of a man, it may be body, animal, man, rationality etc. When we pay attention to any one of these in its material essence excluding all other forms, this operation is abstractive. Inversely, if we pay attention to only the corporality which we relate with the substance, the operation is synthetic.

These abstractive operations could be considered false, for here we perceive things not as they exist in reality; no abstracted element can exist in isolation. However, it is not so, for it is a question of intellection, of paying attention at a time to a specific element. The isolation of an element, substance or form is only intellective and not in its subsistence. It is a matter of considering a certain quality or characteristics separately and not as separated. For example, if we have a statue made of half gold and half silver, we can consider separately either gold or silver even though within this statue they do not have separate existence. The same is true of all complex realities whose comprehension is possible only if at times, we consider their

constituents in their abstracted forms, and at others, by operating certain specific syntheses.

The same principle operates in the prevision of the artisan who conceives forms in advance of their realisation. This prevision is of the order of senses as it is based on establishing intellective relationships within the elements of things already present. These so-called pre-conceived forms of the artist are thus not based on nothing. It is simply an affair of the mental application of the operations of abstraction and synthesis. The creative process or the prevision of the artist involves the establishment of metaphoric relations, the relations which bypass the sequential relations of time and space in a metonymic, sequential or syntactic realisation within a given enunciative field." (pp. 4-12)

Notes

This study in Abelardian Semiotics was conducted during my stay at the Maison des Sciences de l'Homme, Paris as a Visiting Professor of Semiotics in 1987.

(1) *Glossae super Peri Hermenias*, 320, 12,27, ed. B. Geyer, Munster i.w. 1919-23.

(2) *Glossae super Prophyrium* III, 524, 3-10, ed. B. Geyer, Munster, i.w. 1919-23.

(3) *Peri Hermeneias*, 309, 1-13, V. Cousin, *Ouvrages inedits d'Abélard*, Paris, 1836.

(4) *Glossae super Peri Hermenias*, 307, 31 ed. B. Geyer, Munster, i.w. 1923.

(5) ibid; 374, 21.

(6) *Dialectica*, 128, 29-32, ed. L.M. De Rijk, Assen, 1956.

(7) *Sup. Per*. 3674, 21.

(8) *Sup. Porph*. 11, 24.

(9) E. Benveniste: *Problèmes de linguistique générale* I, Gallimard, Paris, 1966, pp. 63-74. [the essay is: "Catégories de pensée et catégories de langue", first published in *Les Etudes Philosophiques*,

13: 1958 pp. 419-429 and translated in: E. Benveniste, *Problems in General Linguistics*, Coral Gables: University of Miami Press, 1971]

(10) *Sup. Per*, 72-74.

(11) *Sup. Porph*. 11, 54, 34.

(12) *Sup. Per*. 308, 36.

(13) *Dial*. 157, 15

(14) *Dial,* 160, 35.

(15) *Oeuvers choisies d'Abélard*, M. De Gandillac, Paris, 1945, pp. 110-26.

(16) A. Arnauld and P. Nicole: *La logique*, 1644 edition, reprinted by Vrin, Paris, 1981.

(17) Condillac: *Traité de 1'art de penser*, 1796 edition, reprinted by Vrin, Paris, 1981.

(18) *Nature et culture dans la civilisation de l'Islam*, L'Homme, 4, 1964: 93-104.

From: Harjeet Singh Gill, The Abelardian Semiotics. In *Abelardian Semiotics and Other Essays*. New Dehli: Bahri Publications 1989. pp. 1-29.

Abelard's modes of signification

"For Abelard there are primarily six modes of signification.

1. *By imposition*. The word, man, signifies mortal rational animal, for this signification is imposed on the word, man. The signification is thus due to human or cultural fact.
2. *By determination*. Rational or man referring to the substances whose predicates they are, also determine the characteristics of rationality. This is why Aristotle states in his *Categories* that the genre and species determine a quality with reference to a substance, a substance on which their names are imposed because of a given quality.
3. *By generation*. The intellection constituted in the word pronounced generates a similar intellection for the one who

hears it.

4. *By negation*. A thing designated by a definite noun is in a way signified by an indefinite word. The word, non-man, attributed to an object because it is not a man, signifies in a way also the notion of man. It may signify many other things not covered by the word, man.
5. *By adjunction*. The name Socrates, signifies also a number of his accidental characteristics. The barking of a dog refers to its anger.
6. *By consecution*. When I say that I am his father, it is understood that he is my son. The signification is created within a relational space of reciprocity and simultaneity (*)

It is in the discussion of the nature of universals that we follow the development of Abelardian theory of signification. The problematic revolves around the relation between the signifier and the signified, the word and the thing, and its numerous implications for the general theory of semiotics (9). To signify or to designate is the function of words, to be signified is that of the things. A universal is that which by nature can serve as a predicate of several subjects, a singular, which cannot. It seems that both words and things can be considered as universals, one has to see how the definition of universal can be applied to things. Abelard states that some thinkers attribute universality to things by arguing that there is essentially the same substance in things which are different on in form. If we take away the forms, there would be no difference in things. The difference lies in form or accidents and not in essence. There is the same substance of man which becomes here Plato, there, Socrates, due to their respective accidents.

Abelard argues that this theory does not stand the test of "physics". Suppose that there is in fact a being essentially the same, even though it appears in different forms, exists in different subjects. It must follow that the thing that is within this form be the same in another form. For example, an animal inhabited by rationality be also the animal inhabited by irrationality, thus the rational animal is at the same time, the irrational animal; is such the two contraries exist in the same subject. Moreover, they will not really be contrary as they would co-exist in the same absolutely identical essence. In

fact, the contraries cannot be together in the same subject, even under different rapports, as it is the case with relational and other attributes.

These contraries are presented by some thinkers under different perspective by stating that one should not formulate the proposition as "rational animal is irrational animal". A being can be rational from a certain point of view and irrational from another, the forms which correspond to he same subject are no more opposing forms. And, one does criticize propositions such as "rational and mortal animal" or "white animal and animal that walks", for man is not mortal inasmuch as he is rational or he is white inasmuch as he walks. The one and the same animal can have two properties under different rapports.

Then we come to the Aristotelian theory of ten essences or ten most general genres, for in each case we find the same essence diversified only due to different forms. Thus substances are absolutely the same beings, he same is true of all qualities and all quantities. The realities signified by Socrates and Plato are absolutely the same for essentially they are no more different than the substances to which they are attached as the quality of Socrates and the quality of Plato, for both are qualities. They do not differ from each other in the nature of their qualities or the nature of their substances as the essence of their substance is the same.

Abelard refutes this theory. First of all, why should one restrict only to ten essences. There can be more or less. And, how can we perceive a numerical multiplicity in substances if only the forms are different? We do not consider Socrates as numerically multiple just because he may have multiple forms. Another affirmation that does not stand the test of verity is he statement that the individuals are made by their proper accidents. If the individuals derive their being from their accidents, the accidents should precede them. If man differs from other species because of the difference n form, the individual named, Socrates, is distinguished by his accidents. Socrates thus cannot exist without his accidents nor man without his differences. Socrates is not the substratum of his accidents. If the accidents are not in the individual substances, they are not in the universal substances also.

The theory that states that an absolutely identical essence is found simultaneously in different beings is illogical, asserts Abelard.

There are others who have a slightly better theory of universality when they state that the individuals do not differ from each other only due to their forms, they are also individually distinct in their very essence. Matter and form are both different in every individual. Even if the forms are suppressed, their individual distinctions stay because of the diversity of essences. But there is an impasse, for the theory of universality is not abandoned in this case. It is argued that the distinct beings are the same thing, not by essence but by non-difference. Thus the individual men are distinct from each other but they have the same being in man. They do not differ in the nature of humanity. This universality is due to this non-difference.

Abelard continues to present the divergent views within this doctrine of non-difference. There are some thinkers, he says, who perceive this universal element in the collection constituted of several elements. For them, Socrates and Plato by themselves do not represent a species, but all men taken together constitute the species, man, and all animals together form a genre. A certain unity is attributed to this collectivity, for without this one cannot have a predicate of several individuals. A universal thing will not have multiple subjects and the universals will not be as numerous as the singulars. As such, Socrates inasmuch as he is a man is dissociated from himself as Socrates. He cannot be his own genre or his own species if he is not in one way or the other different from himself, for the relative terms must oppose each other.

Abelard thus refutes this theory of collection. How can a collection of men taken together as one species be a predicate of several subjects and thus be universal while taken in its totality we do not attribute it to subjects taken one by one. If we accept that there is a predicate of different subjects according to its parts, it has nothing to do with the community of the universals, which according to Boethius, should entirely be in each subject. It is this that distinguishes it from the common base, which following its parts, is like a field whose different parts belong to different masters. We could then attribute the predicate, Socrates, to several subjects which would be his different parts, and he would himself be universal. Moreover, we will

have to consider a universal any plurality of men put together. Similarly, we will make a unique universal substance from any collection of bodies and souls, and in that case the entire collection of substances will be one of the most general genres. In fact, argues Abelard, if one of the substances is subtracted, the remaining collection is not the most general genre while it is a universal substance. It must be a species of the genre of substance and should have a species which corresponds to it under the 1 same genre. A part is not identical with the whole but the species is always identical with the genre. How can then the entire collection of men be equivalent to an ensemble of animals?

Finally, Abelard presents the theory of those who consider individuals as universals inasmuch as they correspond with others, and accept that they are predicates of several subjects not because they are essentially multiple but because these multiple subjects correspond with them. But argues Abelard, if to be predicated of multiple subjects is equivalent to corresponding with these multiple, how can we say that the predicate individual is accorded to another that is isolated? How the fact of being predicate of several subjects distinguishes the universal from the singular? For, man, inasmuch as he is a man, corresponds with several subjects, but neither man, inasmuch as he is Socrates, nor Socrates inasmuch as he is Socrates, corresponds with others.

Man in Socrates and Socrates himself do not differ from each other. Nothing can be different from itself. This is why Socrates as white and Socrates as grammarian, even though with two different characteristics, is not different from himself, for he is not a grammarian in a way that he is not himself, nor when he is considered white. When they say that Socrates and Plato correspond with each other in "man", how can we believe this, for it is certain that all men are different from each other in matter and in form.

It is obvious that the things, whether they are taken one be one or together, cannot be considered universals, i.e., predicates of several subjects. Thus we must attribute this universality, argues Abelard, to words alone. The grammarians consider some nouns as "appelative", others, "proper". Similarly, for the dialecticians, some simple terms are "universals", others, "particulars", or "singulars". The universal is

a vocable that is instituted to serve as a predicate of several subjects taken separately, as the noun, man, that one can join with specific men due to the nature of the real subjects to whom it is attributed. The singular is that which can be a predicate of any one subject, like Socrates." (pp. 38-41)

(...)

"Abelard's theory of signification is further crystallized in *Logica Nostrorum* where he makes a distinction between *vox* and *sermo*. The universals are neither things nor sounds, votes, they are due to *sermones* which may be singular or universal. A noun or a term is due to human institution but a thing or a sound is due to nature. The signifying act is thus a human fact, a cultural fact, as opposed to the physical aspect of the word that is purely natural. Abelard compares this phenomenon with the creative act. A stone and a statue are one and the same "thing" but they are derived from different sources. The stone is the work of God (nature) while the statue is the work of man (culture). The *sermones* are universal because they are created by man, they are predicates of several subjects. The sounds and things are not at all universal even if in physical reality votes and *sermones* are not different. Abelard's theory of signification is presented in an important article by L. M. De Rijk (**) where he distinguishes between Abelard's views on the signification of words and propositions. To signify, *significare*, with words, *dictiones*, is to generate an intellection in the soul of the hearer. The same is applicable to the denotation of external things, and in this case, the verb is synonymous with *appellare, nominare, demonstare, designare*. To signify with complete sentences, *propositiones,* is to generate an intellection which is constituted with the liaison of the intellections with its parts, *dictiones*. For Abelard the words first signify intellections, then the things which correspond them. The words generate intellections and with these we arrive at the knowledge of things. Intellections thus play an intermediary role. We have now to enquire about the exact status of things. For Abelard, the race, *cursus*, and he runs, *currit,* refer to the same things as it is considered in *essentia*, the race, and in *adiacentia*, he runs. Jean Jolivet believes that this linguistic approach is more concerned with the mental activity than with the exact nature of things. This is true if we think only of the external aspect of things. In this case,

Abelardian theory is different from that of Aristotle. Aristotle's emphasis is on the external things and Abelard is primarily interested in the domain of the spirit or the domain of intellections. As such, we can say that the things signified by words are things as thought of or as produced by intellection. This difference with Aristotle is manifest most clearly in Abelardian theory of the proposition, *propositio*. Even though for Abelard the signification of a proposition is definite, its signified, *significatum*, is not a thing, it is a sort of a half-thing, quasi-res. It depends upon three aspects of the proposition. One may consider it as a verbal phrase, as an intellection expressed by words, or as a thing that is the object of the verbal phrase or the intellection. Abelard states that our expressions have a *consignificatum* rather than a signification so-called, and the task of the proposition is to present a mode of conception, modus *concipiendi*. It does not have a specific content, *in istis nulla imagine nititur intellectus*, but it is derived from it.

The signification of a proposition is further explained by means of the logic of implication, *si rosa est, flos est*. The logic of this necessity lies in the fact that what is stated by the antecedent, *rosa est*, cannot be stated without what is stated by the consequent, *flos est*. If the antecedent is taken either as a grammatical construct or as an act of intellection, it can be without the consequent which can be taken separately as a grammatical or an intellective construct. On the contrary, the antecedent taken as a fact of logic implies the logical existence of the consequent. This necessity is purely relational, *quidam rerum modus habendi se* and it does not concern the relation between the external aspect of things, nor between intellections taken as psychological or rational acts. It is a relation between the contents of intellections. In other words, these relations are purely logical or formal. The dictum of Abelard is neither an external thing, res, nor a mental act as such, but the objectivated content of this act, which being neither a thing nor an act, is called half-thing, quasi-res." (pp. 43-44)

Notes

(*) CF. Petrus Abaelardus, *Dialectica*, ed. L. M. de Rijk.

(**) L. M. de Rijk, "La signification de la proposition (*dictum propositionis*) chez Abélard", in: Jean Jolivet, Louis René (eds.),

Pierre Abélard - Pierre le Vénérable. Les courants philosophiques, littéraires et artistiques en Occident au milieu du XII siècle, Paris: Editions du Centre national de la recherche scientifique 1975, pp. 547-555.

From: Harjeet Singh Gill, "The Abelardian Tradition of Semiotics", in: Harjeet Singh Gill and Giovanni Manetti (eds.), *Signs and Signification*. Vol. I, New Delhi: Bahri Publications 1999, pp. 35-67.

The signification of thoughts and the signification of things

"Although Abelard draws the material for his studies on logic from such traditional sources as Boethius in the field of dialectic and Priscian in the field of grammar, many of his reflections are so fresh and original that in the history of the problems concerning the bearers of truth and falsity he belongs among the few pioneers who really broke new ground and contributed insights which were a lasting source of inspiration for later generations. The following survey is based upon his glosses on Porphyry's Introduction to the *Categories* and Aristotle's *Categories* and *De interpretatione,* which are found in the so-called *Logica ingredientibus* (1) *,* and upon his systematic treatise *Dialectica (*2).

Abelard defines a word *(dictio) as* a sound significant by convention none of whose parts is significant in separation *(D* 147, 21). Some words, namely nouns and verbs, have a definite signification by themselves; other words, namely conjunctions and prepositions, have an indefinite signification by themselves *(D* 117, 26). The definite signification of nouns and verbs, which for certain purposes include also pronouns, adverbs, conventional interjections, and participles *(D* 121, 8, 18; *G* 334, 23), is twofold: they signify thoughts *(intellectus)* and they signify things *(res)*. Thoughts are the affections of the soul or the *noemata* of which Aristotle speaks in the first chapter of *De interpretatione;* Abelard interprets *an intellectus as an* act of attending to the nature or a property of a thing which is either present to the senses or put before the mind by means of a mental image *(G* 20, 30; *G* 312, 36; *G* 328, 18). In connection with a thought the verb *significare* either has the same meaning *as exprimere* or*manifestare intellectum* -- the speaker or the word he

uses expresses the speaker's act of thinking -- or, more often, it has the same meaning *as constituere3* or *generare intellectum:* the speaker or the word he uses produces a certain act of thinking in the hearer's mind *(G* 307, 30). For this meaning of *significare* I shall commonly use the phrase 'to produce a thought'. Further, nouns and verbs signify things; for this kind of signifying Abelard uses, apart from *significare,* such verbs *as appellare, demon-ware, denotare, designare,* and *nominare.* For this meaning of *significare* I shall employ the phrase 'to denote a thing'. Although for several reasons Abelard regards the signification of thoughts as more important, in the context of his reflections on *De interpretatione,* than the signification of things *(G* 308, 19), there is some difference between his conception of the signification of nouns and verbs and Aristotle's. For the latter nouns and verbs primarily signify thoughts; they can only be said to signify things because of the fact that the thoughts which they signify are the likenesses of things. In Abelard, on the other hand, this difference between the directness of the signification of thoughts and the indirect character of the signification of things is less prominent; both significations are treated, so to speak, on the same level.

That conjunctions and prepositions have an indefinite signification is the view defended by Abelard in his *Dialectica* (118-120). When, for instance, the preposition *de* and the conjunction *et* are uttered in isolation, they have a signification which is vague and undetermined: the hearer's mind is kept in suspense about that to which they are to be attached. Only when the open places by which they are accompanied have been filled is their imperfect and indefinite signification rendered precise and definite. In the *me* of *homo et lapis,* for example, the general signification of *et,* namely that things are conjoined, has been made specific by the meanings of the two nouns: we now know that we are dealing with the conjunction of a man and a stone. In the glosses on *De interpretatione,* however, Abelard objects that this view makes it impossible to draw a clear distinction between, on the one hand, conjunctions and prepositions and, on the other hand, nouns and verbs; for the latter, too, can be said to have a signification which is not precise until they are combined with other words*(G* 337, 41). He therefore prefers to say that conjunctions and prepositions when uttered by themselves have

no signification at all; they signify only in combination with other words *(consignificant),* but in that case they contribute a clearly distinguishable part to the meaning of the whole. It is necessary to hold that they have a signification of their own when they are used in combination with other words, since otherwise they cannot be differentiated from letters and syllables.

Whichever of the two views one adopts, there is a problem about the *intellectus* and the *res* which are produced and denoted by conjunctions and prepositions. If those words have a signification, either in isolation or only in combination with other words, they must produce some thought; and they can produce a thought only if there is a thing or a mental image of a thing to which the thought is directed *(G* 338, 41). According to Abelard some authors held that words with an indefinite signification produce a thought but do not denote a thing, in the same way as *propositiones (D 119,* 3). But it is hard to see how they could produce a thought if there is nothing to which the thought is related. Some grammarians tried to solve this difficulty by suggesting that prepositions denote the thing which is denoted by the noun to which the preposition is attached; but in that case the denotation of the noun would be superfluous. Abelard's own view is that conjunctions and prepositions denote a certain characteristic *(proprietas)* with regard to the thing that is denoted by the adjoining nouns or verbs. In the combination *in domo,* for instance, the preposition *in* denotes the characteristic of the house that consists in its containing something; and the conjunction *ergo,* placed between statements, denotes the characteristic that consists in the circumstance that the premisses prove the conclusion and the conclusion is proved by the pre-misses. Abelard finds it difficult, however, to state clearly the thought which belongs to each preposition and conjunction; it is as hard, he says, as stating explicitly the thought that belongs to utterances that are not used for the purpose of making a statement, such as 'Come to me' *(D* 118, 29).

The copulas *est* and *non est* get a separate treatment. They neither produce a thought nor denote anything, but they contribute to the affirmative or negative import of *a propositio (ad vim affirmationis* or *ad vim negationis proficit)* by causing the mind to combine or separate the things thought of (the *intellecta* or *intellectae res;* cf. *D* 154, 25-27). In understanding a *propositio* the mind performs three

acts: it thinks of each of the two parts, the subject and the predicate, and it combines or separates the things thought of. Although the act of combining or separating the things thought of is not itself an *intellectus*, it nevertheless is part of the thought produced by the whole*propositio* (G 339, 20). Similarly, the conjunctions *si* and *non si* have no signification, but they unite or separate significant sounds by inclining the mind to a certain mode of conceiving (*animum inclinant ad quendam concipiendi modum*; cf. also G 329, 29).

The same expression *modus concipiendi* is used in connection with the difference between a finite verb such as *currit* and a noun such as *cursus*. The verb and the noun denote the same thing, running, but the different mode of conceiving it causes a difference in the thought produced (*diversus modus concipiendi variat intellectum*). The distinction between parts of speech pertains to a difference in thought produced rather than to a difference of denotation (*G* 308, 25).

In D 124, 11, a distinction is made between the principal signification of a noun and its accidental significations, which have to do with the modes of signifying. The difference between singular and plural is said to be a difference of accidental signification. Differences in case and gender, on the other hand, are not related to any difference in signification, but only to the position which nouns can occupy in constructions (Cf. G 364, 2). Similarly, such pairs as *comedere/vesci* ('to eat') and *carere/non habere* ('to lack') have the same signification but they play different roles in constructions (D 125, .33; G 369, 27). The same is true of such forms as *curro, curris, currit, curritur*. They all have the same signification but the ways in which they are completed into a full *propositio* by the addition of such pronouns as *ego, tu, tile, a me, a te, ab illo* are different. In other words, differences in person are not connected with any difference in signification, whereas differences in number, tense, and mood are differences in (accidental) signification (G 138, 31)." (pp. 139-142)

Notes

(1) Edited by B. Geyer, *Peter Abaelards philosophische Schriften, Beitrage zur Geschichte der Philosophie and Theologie des*

Mittelalters XXI, 1-3, Münster, 1919-1927; I shall refer to this work by means of the letter *G,* followed by page and line.

(2) Edited by L.M. De Rijk, Assen, 1956 (revised edition 1970); I shall refer to this work by means of the letter *D,* followed by page and line.

I Abelard *D* 112, 6; *G* 308, 11; *G* 357, 29) and others connect the phrase *continuere intellectum* with Aristotle, *De int*. 16 b 21:*histesi -- ten dianoian* had been translated by Boethius as *constituit intellectum*. They apparently took *intellectum as* referring to the hearer's thought.

From: Gabriel Nuchelmans, *Theories of Proposition. Ancient and Medieval Conceptions of the Bearers of Truth and Falsity*, Amsterdam: North-Holland 1973.

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History of Logic

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Theories of the Copula in the Logical Works of Abelard

The use of copula in Abelard's logic

"With Abelard, the term 'copula' enters into western thought. In fact, although widely attested, the use of the term 'copula' in reference to Aristotle's work is totally anachronistic. (16)

What led to this term? In his *Dialectica*, Abelard was mainly concerned with the way syllogisms can be construed. The interest of the copula was in fact derivative from this main concern. As Kneale and Kneale (*The Development of Logic*, 1962: 206) put it, 'it is clear that for his [Aristotle's] theory of syllogism he assumes in every general proposition two terms of the same kind, that is to say, each capable of being a subject and each capable of being a predicate'. Thus, since the only linguistic entities that can play these two roles are nouns (in modern terms, noun phrases), it is easy to understand why the copula became central. Abelard pursued the Aristotelian theory by emphasizing the role of be as the element that can turn a noun into a predicate in a syllogism rather than as the element that provides the sentence with a time specification (see *Dialectica* 161).

It is this conceptual shift that underlies the invention of the term 'copula', which is cast on the Latin *copulare* meaning 'to link'. For example, in sentences like *a man* is a mammal and *Socrates is a man* the copula allows the noun phrase *a man* to play the role of the subject, in the first, and that of the predicate, in the second.

Clearly, in such a framework the assumption that the copula can be interpreted as a predicate meaning 'existence' cannot be maintained (...). We have an explicit argument by Abelard to overcome this

problem. Let us reproduce it synthetically as follows. A sentence like *Socrates est* (Socrates is), where *est* (is) just occurs with a subject, potentially undermines the theory of the 'copula' as link between a predicate and a subject like in *Socrates est homo* (Socrates is man). To avoid this inconsistency, Abelard appeals to a typical *reductio ad absurdum* (*Dialectica* 137, 162)."

We interpret *Socrates est* as meaning *Socrates est ens* (Socrates is existing, where *ens* is (the Nominative, singular form of) the present participle of *esse*, be). Suppose that *est* means *est ens*, that is, *est* is a predicate meaning existence. Then nothing would prevent a sentence like Socrates *est ens* from being interpreted as *Socrates est ens ens*, and that from being interpreted as Socrates *est ens ens ens*, etc., ad infinitum without reaching a stable meaning.(17)

Thus, Abelard concludes, in the sentence Socrates est, the predicate of existence is just not expressed.(18)

Notes

(16) See for example J. L. Ackrill's comment on *De Interpretatione* (Ackrill 1963). Aristotle always avoids employment of a special name for the copula: rather he refers to actual instances of εἶναι (be). Not all translators seem to be aware of this fact. In the *De Interpretatione* (*De Int*. 3, 16b, 25), for example, Aristotle says that εἰναι προσσημαίνει δε` σὐνθεσὶν τινα. Ackrill's translation says "but it additionally signifies some combination" (Ackrill 1963: 45). Cooke, instead, renders it as "but imply a copulation [sic] or synthesis" (Cooke 1938: 121).(...)

(17) For a discussion on this matter see Kneale and Kneale (*The Development of Logic*, 1962) and Pinborg (*Logik und Semantik im Mittelalter*, 1972).

(18) Correspondingly, the common use of *to be* (or *being*) as a shortened form of *to be* (or *being*) *existent* is to be treated in the same way. The following passage pointed out to me by Giulio Lepschy illustrates the point: *Dixit Deus ad Moysen: ego sum qui sum. Ait: sic dices filiis Israel: qui est, misit me ad vos* (*Exodus*, III 14). From a linguistic point of view, however, this should not be surprising. A similar case is that of to do (or doing) as a shortened form of to do (or doing) something. Interestingly, the term 'existence'

is not etymologically related to the copula *essere* / εἶναι but to a locative predicate *sisto* and a locative particle *ek*-.

From: Andrea Moro, *The Raising of Predicates. Predicative Noun Phrases and the Theory of Clause Structure,* (Appendix: *A Brief History of the Copula*, pp. 248-261), Cambridge: Cambridge University Press, 1997.

"Before embarking on a discussion of Abelard's views on sentential predication and the role of the copula, it seems useful to summarize our author's basic views on the noun and verb.

1) 'Nomen' (noun, name) is defined (in the Aristotelian-Boethian tradition) as 'a spoken sound having a signification by convention, without the notion of time, of which no parts are meaningful in separation' (*Dialectica* 121,28-9; cf. 129,4-5 and *Glosses in Peri hermeneias* 334,18ff.). It should be borne in mind that like the Ancients the Medievals too, were in the constant habit of not sharply distinguishing between a noun's (or verb's or any other significative expression's) significate and the 'thing' (whether substantial or accidental) signified in the outside world. (1)

2) Verbum ('verb') is defined (*Dialectica* 129,11-3) as: 'a spoken sound, having a signification by convention, which, in its finite forms, is designative of the present time, of which no part have meaning in separation'.

3) As a logician Abelard is quite explicit throughout his works about the semantic difference between categorematic words (nouns and verbs) and syncategorematic ones (prepositions, conjunctions etc.). As to the differences between the noun and verb his opinions are less stable, it seems. So much seems to be certain, on the semantic level Abelard recognizes a close affinity between the noun and verb as, in his opinion, they are just various tools to convey identical sememes [so e.g. 'cursus' ('course') and 'currere' ('to run')], whereas they only differ by the different ways in which they convey the common sememe ('*modus significandi*').

4) Both nouns and verbs have the job of naming and determining, whereby the difference between 'naming' and 'determining' is only of a syntactic nature, it seems. On the level of naming and determining

(onomazein-level), the noun and verb convey, each in their own ways (nominally or verbally, respectively), some semantic content ('sememe'). By this, they constitute some 'idea' ('*conceptio', 'conceptus', 'intellectus'*) in somebody's mind (the speaker's or the hearer's that is), but still without conveying any complete thought or sense.

5) Contrariwise, on the level of 'statement-making' (*legein* level) the (finite) verb when actually used (2) comes to be really 'statement making', to the extent indeed that it performs this job together with some noun(s) but nonetheless being itself the statement-maker, properly speaking." (pp. 98-99)

Notes

(1) For this phenomenon, see e.g. De Rijk, *Plato's Sophist. A Philosophical Commentary,* Amsterdam, North-Holland, 1986, Index, s.v. *Name*. For Peter Abelard, see e.g. *Glosses in Peri hermeneias* 126,35-127,13; *Dialectica* 564,6-9 and all the passages in which he explains the *significatio rerum* (vs. *intellectuum*). The distinction always concerns the opposition of *res significata* to *intellectus significans res*, rather than the *intellectus* as such.

(2) For this condition, see N. Kretzmann, *The Culmination of the Old Logic in Peter Abelard*, p. 495, n. 33, cf. De Rijk *Plato's Sophist. A Philosophical Commentary,* 15.23. 15.32 and 16.4 and below p. 101

From: L. M. de Rijk, "Peter Abelard's Semantics and His Doctrine of Being", *Vivarium*, 24, 1986, pp. 85-127.

"The distinction of nouns or names (a category that includes adjectives) from verbs was as much argued over in Abelard's day as in ancient times, and it provided Abelard with an entry to matters that lie at the heart of his philosophy. He rejects Aristotle's view that verbs differ from nouns in having a consignification of time, for he sees no reason not to ascribe a similar consignification to nouns:

For just as 'run' or 'running' indicate running in connection with a person as presently inhering in him. so 'white' determines whiteness in connection with a substance as presently inhering, for it is called white only because of present whiteness. (1)

Abelard is equally unhappy with the idea that verbs, as distinct from other parts of speech, signify only actions and passions, or what might better be called 'receptions' (*passiones*, i.e. the passive correlates of actions). This view runs afoul of the copula which although accepted as a verb can he used to 'join' (*copulare*) to its subject any sort of entity whatsoever.'(2)What distinguishes verbs, in Abelard's view, is that they provide the 'completeness of sense' (*sensus perfectio*) characteristic of whole sentences (*orationes perfectae*) as distinct from mere phrases (*orationes imperfectae*). What is the difference, he asks, between 'A man runs' and 'a running man'? Of constructions such as the latter he remarks:

But a completeness of sense has not yet been brought about in them; for when this expression has been uttered the mind of the hearer is suspended and desires to hear more in order to arrive at completeness of sense, for example. 'is' or some other acceptable verb. For without a verb there is no completeness of sense.' (3)

Verbs can perform this function because they propose the inherence of what they signify in the subject.

Thus we see that this completeness of sense depends mainly on verbs, since only by them is inherence of something in something indicated in a manner expressive of different mental states; without this inherence there is no completeness of sense. When I say 'Come to me' or 'If only you would come to me', in a way I propound the inherence of coming to me in a manner expressive of my order or my desire; in the one case I order that coming should belong to him, in the other I have a desire, namely, that he come.' (4)

The talk of 'inherence', however, must be treated delicately, for it is not Abelard's view that any verb, even the copula, signifies some relational property of inherence. Rather verbs generally signify that which 'inheres', while the copula, according to one of Abelard's accounts of it, signifies nothing at all. If any verb were to signify 'inherence', then it would be unable to perform the 'linking' function, i.e., the function of the copula, which is to 'link' what the predicate signifies to the subject. 'Runs' signifies running and 'links' it as well. The copula 'is' really expresses just this linking function implicit in all verbs; if it were to signify anything on its own it could no more

take a predicate noun or adjective and link its significate to a subject than can 'runs'. (5)

This view is taken still further when Abelard separates 'to be' used as a copula from 'to be' used to mean 'to exist'. If the separation is not made we have problems with sentences such as 'Homer is a poet' and 'A chimera is conceivable', where the subjects are non-existent or even impossible. Abelard's solution is to treat the whole phrase consisting of copula plus predicate noun or adjective as a single verb-phrase and in this way eliminate any idea that 'to be' on its own is predicated of the subject.

Thus it seems to me if I may dare to speak freely, that it would be more rational and satisfying to reason that ... we understand as a single verb 'to be a man' or 'to be white' or 'to be conceivable'. Aristotle indeed says that in 'Homer is a poet-to be' is predicated *per accidens*, i.e., 'to be' is predicated accidentally of Homer in that the poem belongs to him, but it is not predicated per se of Homer that he is. But since 'to be', as was said, is not a verbal unit, to be predicated *per accidens* is not to be predicated; rather 'to be' is part of the predicate."

Abelard in effect wants us to treat the copula as what a modem grammarian would call an auxiliary, and indeed Abelard draws support for his view from the implausibility of dividing up '*erit sedens*' (will be sitting) into two parts, because of the conflict of tenses between auxiliary and participle."

The copula, then, turns out to be a verb-phrase-maker, taking as complements nouns, participles, and whole clauses and turning them into verb phrases. But the process should not be thought to leave the complement with the same meaning it has in isolation, for this leads to logical absurdities. As we have seen, the noun following the copula has in isolation a tense of its own (generally the present), and this can conflict with the tense of the copula. For example, 'This old man was a boy' will be necessarily false if we treat 'boy' as retaining its signification of present time, for then the sentence is equivalent to 'This old man was one of those who is presently a boy." What we must do, Abelard says, is treat the whole copula plus predicate noun as a single verb having the tense of the copula. He shows how only in this way can the rules of conversion and syllogistic inference be made

to apply to sentences with verbs in tenses other than the present.' (6)" (pp. 144-146, Latin text in the notes omitted)

Notes

(1) Abelard, *Dialectica* p. 122.22-5

(2) Ibi *Dialectica*, 130.32 - 131.7

(3) Ibi *Dialectica*, 148.26-30

(4) Ibi *Dialectica*, 149.20-6

(5) See Abelard *Philosophische Schriften. I. Die Logica 'Ingredientibus',* 1919-1927 p. 362.25-9

(6) Abelard, *Dialectica* p. 138.11-22

From: Martin Tweedale, "Abelard and the Culmination of the Old Logic", in: Morman Kretzmann, Anthony Kenny, Jan Pinborg (eds.), *The Cambridge History of Later Medieval Philosophy: From the Rediscovery of Aristotle to the Disintegration of Scholasticism, 1100-1600*, Cambridge: Cambridge University Press 1982.

The diffusion of Abelard writings

"The surviving manuscript books containing works by Abelard and by his students and disciples have a history and reveal much about the activities of the anonymous students of Abelard's thought. They were produced, exported, copied and read at great labour and for particular reasons. In their character, in the markings which they bear, in the frequency with which they are encountered in libraries, in the relationship of the copies to each other, can be found indications of the kinds of interests which were aroused by Abelard's teachings and of the uses to which they were put. This is as true of copies of Abelard's own works as of those of his disciples. The study of the diffusion of these manuscripts is complex but it is also the study of the geography of twelfth-century thought and learning; it assists our appreciation of the widespread interest in Abelard's writings and by implication in those of other masters. Our main concern is with manuscripts produced before 1500 and containing the major doctrinal works of Abelard and of his disciples. The poems, the personal correspondence with Héloise, the smaller occasional

letters and pieces are less instructive in this respect than the logical writings, the biblical commentaries, the *Theologia* and *Sic et Non* in their many versions, the *Ethica* and the *Dialogu*s. Manuscripts produced after the twelfth century are less relevant, but are none the less valuable because they presuppose earlier exemplars and because they witness to the history of the copying of particular works.

Several of Abelard's writings are wholly lost. The glosses on Ezechiel which Abelard delivered at Laon and then finished at Paris were transcribed and circulated but do not now survive.(1) The letter in which Abelard attacked Roscelin of Compiegne is only known through Roscelin's reply(2) and from a reference in a letter which Abelard wrote to the bishop of Paris. His *Grammatica* is lost,(3) as is the *Exhortatio* which he delivered to the monks of St Denis.(4) Heloise received from him a *Psalterium* which consisted perhaps of a series of collects to follow the recitation of the Psalms.(5) It is even possible that Abelard wrote both an Anthropologia (the counterpart in his teaching about man of the *Theologia* which concerns God and the Trinity) (6) and a *Rhetorica*.(7) He may also have written glosses on the *De syllogismo categorico* and *De syllogismo hypothetico* in his *Introductiones parvulorum*,(8) a commentary on the *De syllogismo hypothetico* in his *Logica Ingredientibus* (9) and further commentaries in the *Logica Nostrorum*. Even of Abelard's surviving works the varying versions and revisions are not fully available. Analysts of Abelard's texts have posited the existence of two versions preceding the surviving version of the Dialectica (10) as well as of other versions of his Logica.(11) Fr Buytaert believes that the earliest version of the *Sic et Non* is lost. (12) Moreover, among the extant versions completeness is all too infrequently found. Losses have occurred too among the writings of Abelard's followers. The authors of the *Sententie Hermanni*(13) and of the *Sententie Parisienses I* (14) may have composed commentaries on St Paul's *Epistle to the Romans*, while a *Liber Sententiarum*, containing opinions which appeared to be derived from Abelard's teaching, crossed the path of Bernard of Clairvaux in the period before the council of Sens.(15)

The surviving copies of Abelardian works are, however, numerous enough to permit a consideration of the extent and the manner of their diffusion and appeal. Of Abelard's own major works the *Theologia* is found in eighteen manuscripts, the *Sic et Non* in ten, the

*Ethic*a in five, the *Dialogus* in three, the commentary on the *Hexaemeron* in four and that on *Romans* in three. A single manuscript contains a fragment of the *Apologia* and there are single copies of Abelard's logical works.(16)" (pp. 60-62, notes renumbered)

Notes

(1) *Hist. Calam.*, 11. 196-248.

(2) Ed. Josef Reiners, *Der Nominalismus in der Frühscholastik*, Münster 1910, pp. 63-80; an earlier edition is in PL. 178, 357-72, and see Abelard, *Epist. ad G. episcopum Parisiensem*, (PL. 178, 355-358). Also D. Van den Eynde, *'Les Ecrits perdus d'Abelard*', (*Antonianum*, 37, 1962, pp. 467-480), p. 469 and H. Ostlender, *PeterAbaelards Theologia 'Summi Boni'*, BGPTMA [Beiträge zur Geschichte der Philosophie und Theologie des Mittelalters], XXXV, 2/3, 1939 pp. XVIII-XX.

(3) References from the *Theologia Christiana* and *Theologia 'Scholarium'* are analysed by Van den Eynde, *Ecrits perdus*, pp. 473-6. See also M. Dal Pra, Pietro Abelardo. *Scritti filosofici*, Roma-Milano, Bocca, 1954, p. XXXIII, n. 20.

(4) Van den Eynde, *Ecrits perdus*, pp. 469-73.

(5) Ibid., pp. 476-80.

(6) Cf. Abelard, *Expositio in 'ad Romanos'* (PL. 178, 901A); also Buytaert, 'Critical Observations on the "Theologia Christiana" of Abelard', (*Antonianum*, vol. 38, 1963, pp. 384-433) p. 402, n. 4.

(7) References in Abelard's *Super Topica Glossae*, ed. Dal Pra [*Scritti filosofici*], p. 263, 1. 25, p. 267, 1. 16; also ibid., pp. XXII-XXIII.

(8) *Pietro Abelard. Scritti filosofici*, ed. Dal pra, pp. XXV and XXVI.

(9) References, as to a work yet to be written, are in the *Logica 'Ingredientibus'* ed. Geyer, p. 291, *l.* 25 and p. 389, *l.* 7 and in the *super Topica Glossae*, ed. Dal Pra, p. 325, *l.* 10. Further evidence in M. Grabmann, 'Kommentare zur aristotelischen Logik aus dem 12. und 13. Jahrhundert in MS. lat. fol. 624 der Preussischen Staatsbibliothek in Berlin'. (*Sitzungsberichte der Preussischen Akademie der Wissenschaften*, 1938, pp. 185-210), p. 200.

(10) N. d'Olwer, 'Sur la date de la Dialectica d'Abélard', *Revue du moyen âge latin,* 1, 1945, pp. 375-90 and L. M. De Rijk, Petrus Abaelardus. *Dialectica*, Assen, 1956, pp. XXII-XXIII.

(11) Geyer, *Untersuchungen.* Peter Abaelards Philosophische Schriften, II, (BGPTMA, vol. 21, 4, 1933, pp. 589-633), pp. 611-12.

(12) 'The Greek Fathers in Abelard's Sic et Non', (*Antonianum,* vol. 12, 1966, pp. 413-453) p. 414.

(13) Cf. Ostlender, 'Die Sentenzenbucher der Schule Abaelards', *(Theologische Quartalschrift*, vol. 117, 1936, pp. 208-252) pp. 214-I5.

(14) *Sent. Paris.*, ed. Landgraf, p. 29; also Ostlender in *Bulletin Thomiste*, VIII (1931), p. 229.

(15) See above, p. 14.

(16) The commentary on the *De interpretatione* in the *Logica 'Ingredientibus'* is an exception; two copies are known, see below, p. 89.

From: David E. Luscombe, *The School of Peter Abelard. The Influence of Abelard's Thought in the Early Scholastic Period,* Cambridge,: Cambridge University Press 1969.

"The very important cod. Milan, Ambrosiana M. 63 sup. which contains on ff. 1r-72r a large part of the *Logica 'Ingredientibus'* in a copy of the late twelfth or early thirteenth century has been in the Ambrosian Library since its foundation in the early seventeenth century; (1) it was received by Cardinal Federigo Borromeo as a gift from Camillo Bossi of Modena in 1605, but its earlier history is not known.(...) The last part of the commentary on Aristotle's *De interpretatione* contained in this manuscript has been shown by Dr Minio-Paluello(3) to have issued from a circle in which were debated problems similar to those discussed by Abelard, and the same manuscript also contains on ff. 72v-81v a commentary on Porphyry's *Isagoge* composed by a disciple of Abelard.(4) Dr. Minio-Paluello believes that the authentic and complete version of Abelard's commentary on the *De interpretatione* in the *corpus* of his *Logica 'Ingredientibus'* is found in a copy made by an Italian scribe of the late twelfth century in cod. Berlin, Deutsche Staatsbibliothek lat. fol.

624, ff. 97r-146r. This manuscript belonged to St Victor in Paris in the later middle ages.(5)" (pp. 88-89)

Notes

(1) Ed. from this manuscript by B. Geyer; for descriptions see Geyer, *Abaelards Philosophische Schriften*, 1, X, and L. Minio-Paluello, *Abaelardiana Inedita*, p. XVI. The manuscript was noted by B. Montfaucon, *Bibliotheca Bibliothecarum*, I, 521n and in the *Histoire littéraire de la France,* XII (1763), 130.

(3) *Abaelardiana inedita*, pp. XVI-XXI.

(4) *Glossae super librum Porphyrii secundum vocales*, ed. C. Ottaviano [*Testi medioevali inediti. Fontes Ambrosiani, III*. Edited by Carnelo Ottaviano. Firenze, Olschki, 1933]; incomplete ed. by B. Geyer. See also Geyer, *Untersuchungen*, pp. 601-12.

(5) The commentary was discovered by M. Grabmann, 'Kommentare', pp. 203-5, and the latter part of it is ed. by Minio-Paluello, op. cit., pp. 1-108. For descriptions of the manuscript see Grabmann, 'Kommentare', especially pp. 185-6, and Minio-Paluello, op. cit., pp. XII-XVI.

From: David E. Luscombe, *The School of Peter Abelard. The Influence of Abelard's Thought in the Early Scholastic Period,* Cambridge,: Cambridge University Press 1969.

"The evidence of all these manuscripts contributes to an understanding of the nature of the appeal of Abelard's writings and of those of his followers to twelfth-century scholars. Manuscripts containing Abelard's logical writings are relatively few in number. Although, as John of Salisbury shows in his Metalogicon and Abelard in his Historia Calamitatum, logic was the subject of passionate disputes arousing widespread interest, documents presenting these debates are not abundant.(2)

Of Abelard's logical writings some are lost and only one (the commentary on the *De interpretatione* in the *Logica Ingredientibus)* survives in more than a single copy. Yet in comparison with the works of contemporaries, those of Abelard survive extremely well for the logical writings of Roscelin, William of Champeaux, Master

Alberic, Jocelyn of Soissons, Bernard of Chartres and Robert of Melun are entirely lacking while from Adam of the Petit Pont we have only two copies of the *Ars disserendi*.(3) The habit of publishing one's logical teaching may have been under-developed among the logicians and quite possibly manuscripts of logic have had a poorer chance of surviving through the centuries. Those of Abelard are for the most part exceptional in bearing clear, contemporary indications of their author. The evidence collected suggests that the logical teaching of Abelard and of other masters was discussed not only in Paris but also in several other centres, at Fleury on the Loire, in the circle of Robert of Torigny, in some of the religious houses of Germany and possibly too in Italy. Copying, however, appears to have ceased in the thirteenth century and it is then that a new period begins in the history of logic characterized by the work of such masters as Lambert of Auxerre, William of Shyreswood and Peter of Spain and by the absorption of further translations of Aristotle's logical writings." (pp. 93-94)

Notes

(2) To say this is not to ignore the series of discoveries made by the late M. Grabmann in several of his more recent articles.

(3) Ed. L. Minio-Paluello.

From: David E. Luscombe, *The School of Peter Abelard. The Influence of Abelard's Thought in the Early Scholastic Period,* Cambridge,: Cambridge University Press 1969.

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History of Logic

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Selected Bibliography on Abelard's Logic and Ontology. First Part A - Gui

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   Available at ProQuest Dissertation Express. Order number: 3161106.

   Contents: 1. Introduction 1; 2. Introduction to mereology and the metaphysics of mereology 12; 3. Boethius and the early mereological tradition 62; 4. Abelard's mereology and its role in metaphysics 141; 5. Pseudo-Joscelin and the Moderate critique of Abelard 243; 6. Conclusion 304; List of references 316-338.

   Abstract: "The study of parts and wholes, or mereology, occupies two of the best philosophical minds of twelfth-century Europe, Abelard and Pseudo-Joscelin. But the contributions of Abelard and Pseudo-Joscelin cannot be adequately assessed until we come to terms with the mereological doctrines of the sixth century philosopher Boethius. Apart from providing the general mereological background for the period, Boethius influences Abelard and Pseudo-Joscelin in two crucial respects. First, Boethius all but omits mention of the classical Aristotelian concept of form. Second, Boethius repeatedly highlights a rule which says that if a part is removed, the whole is removed as well. Abelard makes many improvements upon Boethius. His theory of static identity accounts for the relations of sameness and difference that hold between a thing and its part. His theory of identity also provides a solution to the problem of material constitution. With respect to the problem of persistence, Abelard assimilates Boethius' rule and proposes that the loss of any part entails the annihilation of the whole. More precisely, Abelard thinks that the matter of things suffers annihilation upon the gain or loss of even one part. He also

holds that many structured wholes, namely artifacts, are strictly dependent upon their parts. Yet Abelard insists that human beings survive a variety of mereological changes. Abelard is silent about objects which are neither artifacts nor persons. I argue that Abelard has the theoretical resources to provide an account of the persistence of these types of object, so long as some forms are ontologically robust. Pseudo-Joscelin rejects the thesis that the removal of any part entails the destruction of the whole. The annihilation of a whole follows only from the removal of essential parts. Pseudo-Joscelin employs two basic principles in his theory of persistence. First, forms and the functions encoded in them play a primary role in identity and persistence. He also makes use of a genetic criterion. Pseudo-Joscelin expands both principles and employs them when he vigorously defends the thesis that a universal is a concrete whole composed of particulars from Abelard's criticisms."

2. ———. 2007. "Abelard's Assault on Everyday Objects." *American Catholic Philosophical Quarterly* no. 81:209–227.

   Abstract: "Abelard repeatedly claims that no thing can survive the gain or loss of parts. I outline Abelard's reasons for holding this controversial position. First, a change of parts compromises the matter of the object. Secondly, a change in matter compromises the form of the object. Given that both elements of an object are compromised by any gain or loss of a part, the object itself is compromised by any such change. An object that appears to survive change is really a series of related, but non-identical, objects. I argue that, for Abelard, this series of objects is not itself an object. Finally, I examine an apparent exception to Abelard's claim that no thing can survive a gain or loss of parts, and I show that this specific case does not undermine his general thesis."

3. ———. 2012. "Peter Abelard on Material Constitution." *Archiv für Geschichte der Philosophie* no. 94:119–146.

   Abstract: "Some scholars have suggested that Peter Abelard has a solution to Allan Gibbard’s [*] famous puzzle concerning a lump of clay and the statue that the clay composes.

Although Abelard does not explicitly address an analogue of this puzzle, I claim that an Abelardian solution can be constructed based on principles drawn from his discussions of sameness and difference in his later theological writings. In this study, I first summarize the puzzle and several standard solutions to it. I then present and analyze Abelard's account of sameness and difference, with special emphasis on his description of the ways in which the matter of a statue is both the same as and different from the statue. I then show how we can reconstruct an Abelardian solution to the problem from these remarks. Finally, I consider whether this Abelardian solution is coherent and plausible. In doing so, I show how the Abelardian solution reveals an underlying tension in Abelard's later ontology."

[*] Gibbard, A. 1975. "Contingent Identity", *Journal of Philosophical Logic* 4, 187–221. Reprinted in *Material Constitution: A Reader*. Edited by Michael Rea, Lanham, MD: Rowman & Littlefield, 1997, pp. 93–125.

4. ———. 2012. "Parts, Wholes, and Identity." In *The Oxford Handbook of Medieval Philosophy*, edited by Marenbon, John, 445–467. New York Oxford University Press.

"Abelard's ingenious solution to the problem of whether a whole is numerically the same as its part is to ground numerical sameness and difference in the more basic relations of sameness and difference in *essentia*. In this part of Abelard's works, a thing's *essentia* should not be thought of as that thing's quiddity, but rather its concrete being. (12) Thus, in Abelard's view, my *essentia* just is the composite of all my

material bits and some forms. Given that my *essentia* is a composite, Abelard insists that we must keep track of these parts when we are determining whether some things are the same or different in *essentia*. Specifically, according to Abelard, A is the same in *essentia* as B if and only if the *essentia* of A coincides with the *essentia* of B. (13) Discrete things, such as Socrates and Plato, clearly fail to coincide mereologically, and hence, they are different in *essentia*. Yet, given that mereological coincidence is necessary for essential sameness, A

and B can differ in *essentia* even if some parts are shared. For example, Socrates's hand is different in *essentia* from Socrates.

This is true because, while Socrates's hand is included along with the other parts 'in the quantity of the whole', the quantity of Socrates's hand's *essentia* does not exhaust the quantity of Socrates's *essentia*." (p. 448)

(12) In Abelard's works 'essentia' has a number of meanings. See De Rijk (1981, 19–24).

(13) *Theologia Christiana* IV, § 12 (Abelard 1969, 271).

References

Peter Abelard 1969. *Theologia Christiana ,* ed. E. M. Buytaert. Turnhout, Belgium: Brepols (*Corpus Christianorum Continuatio Mediaevalis*, no. 12).

De Rijk, L. M. 1981. 'Abailard's semantic views in the light of later developments'. In English Logic and Semantics: From the End of the 12th Century to the Time of Ockham and Burleigh, ed. H. A. G. Braakhuis, C. H. Kneepkens and L. M. de Rijk, 1–58. Nijmegen, the Netherlands: Ingenium Publishers.

5. ———. 2013. "Some Twelfth-Century Reflections on Mereological Essentialism." *Oxford Studies in Medieval Philosophy* no. 1:83–112.

Abstract: "Peter Abelard held two views that imply a form of Mereological Essentialism: first, a thing is nothing other than all its parts taken together and second, no thing has more parts at one time than it does at another. This paper situates Abelard's theses within their historical context. The paper first examines Boethius's suggestive remarks about the dependence of the whole upon its parts and it highlights several of the choices that were open to twelfth-century students of Boethius's mereology. Then there is a brief survey of Abelard's understanding of Mereological Essentialism. Finally, the paper examines some of the more interesting challenges to Mereological Essentialism that were posed by Abelard's contemporaries. The paper focuses in particular on a set of

fragments that have been attributed to the school of Joscelin of Soissons."

6. Astroh, Michael. 2001. "Petrus Abaelardus on Modalities *De re* and *De dicto*." In *Potentialität und Possibilität. Modalaussagen in der Geschichte der Metaphysik*, edited by Buchheim, Thomas, Kneepkens, Corneille Henri and Lorenz, Kuno, 79–95. Stuttgart: Frommann-Holzboog.

   "The distinction between modalities *de re* and *de dicto* Abaelard discusses in his *Glossae super Peri hermeneias* (1) presents itself as a topic of traditional predication theory. The two varieties of alethic modality are bound to opposite forms of predication. In spite of their uniform linguistic appearance their basic structures are different. Modal propositions de dicto are semantically, not just grammatically, impersonal whereas modal propositions *de re* are truly personal constructions.(2) Nevertheless Abaelard explains the meaning, scope and purpose of according modal operators in so uniform a manner that he can set forth rules of inference between modal propositions *de re* and their logical correspondents *de dicto*.

   A systematic presentation of Abaelard's theory pertains to all constitutive features of predication. The grammatical, but even more so the semantical, impersonality or personality of a categorical proposition, its quality and if appropriate its quantity, and finally its temporality and existential presupposition -- each of these features predetermines the manner in which modalities *de re* or *de dicto* contribute to a proposition's meaning and validity. These basic aspects of Abaelard's account of predication do not obstruct his intuitive conception of alethic modality as determining either *de re* or *de dicto* a predicate's inherence or remotion.(3)" (p. 79)

   (1) The text of the relevant treatise will be quoted according to its critical edition by Klaus Jacobi and Christian Strub: Petrus Abaelardus, *Glossae super Peri Hermeneias,* Turnhout: Brepols (Corpus Christianorum. Continuatio mediaevalis), forthcoming [2010]. As this new edition presents the text with reference to the edition by L. Minio-Paluello: *Twelfth Century Logic. Texts and Studies. Vol.* 2: *Abaelardiana Inedita, 1.*

Glosse Magistri Petri Abaelardi super Periermeneias Rome 1958, quotations will refer to the latter one (abbreviated with: G).

(2) For Abaelard's account of semantical impersonality cf. Klaus Jacobi, "Diskussionen über unpersonliche Aussagen in Peter Abaelards Kommentar zu Peri Hermeneias", in: E. P. Bos (ed.), *Mediaeval Semantics and Metaphysics. Studies dedicated to L. M. De Rijk on the occasion of his 60th Birthday*, Nijmegen 1985, 1-63.

(3) The usage of this distinction draws on Abaelard's terminology in *Dialectica*, cf. for example 191,6. The text of *Dialectica* is quoted with reference to the De Rijk edition: Petrus Abaelardus, *Dialectica*, ed. L. M. de Rijk, Assen 1970 (abbreviated with: D).

7. Beonio Brocchieri Fumagalli, Maria Teresa. 1970. *The Logic of Abelard*. Dordrecht: Kluwer.

   Translated from: *La logica di Abelardo*, Firenze: La Nuova Italia, 1964.

   Second edition 1969, with a new foreword.

   Contents: Premise V; Foreword to the Second Edition VII; Introduction 1; I. What Abelard Means by Logic 13; II. The Problem of Meaning 28; III. The Meaning of Universal Nouns 42; IV. The Meaning of the Proposition 71; V. The 'Argumentatio' 80; Appendix: *Abaelardiana Inedita* 90; Bibliography 100; Index of Names 101.

   "The purely 'philosophical' importance of logical Abelardian research has been emphasized by Mario Dal Pra in his introduction to the edition of the *Glosse Letterali*. In this volume it seems important in my eyes to illustrate not only the interest of Abelardian dialectic techniques (which are at times penetrated by positions which are still realistic), but also, and above all, the importance of his total attitude towards the 'scientia scientiarum', stated in advance by a freer and braver mentality that is later to use this instrument for its rigorous definition of philosophical research.

When studying Abelardian dialectic I have preferred to follow the line of development of his inquiry, from meaning to syllogistic calculation. This line does not, however, coincide perfectly with the expositive progress of the various commentaries, from the *Isagoge* to the Boethian texts; the trail has thus been marked out for me by some of the Palatine Master's statements rather than by the order of the comments.

The perspective of this research is, generally speaking, given from the viewpoint of contemporary formal logic, a viewpoint that is nevertheless implicit, even, I think, if it is at work in inquiry. In fact, in an attempt to have a clearer picture of the historical importance of the author and his meaning in a dialogue which is mediaeval, I have tried, as far as possible, to keep the language constantly in the tone of those times, and I have tried to avoid certain equations - unprecise and sterile in my opinion - between Abelardian logical formulae and contemporary logical formulae. I hope that what will be of interest from a modern viewpoint is Abelard's total attitude." (Premise, p. V).

8. Binini, Irene. 2018. "'My Future Son is Possibly Alive'. Existential Presupposition and Empty Terms in Abelard's Modal Logic." *History and Philosophy of Logic* no. 39:341–356.

   Abstract: "The aim of this paper is to investigate the problem of existential import in Abelard's modal logic, and to ask whether the system of logical relationships that he proposes for modal propositions maintains its validity when some of the terms included in these propositions are empty. In the following, I first argue that, just as in the case of non-modal propositions, Abelard interprets modal propositions as having existential import, so that it is a necessary condition for the truth of propositions like 'It is possible for my son to be alive' or 'it is necessary that all men are animals' that their subjects' referents exist. Then, I present the schemata of inferences that Abelard proposes to describe the logical behaviour of de rebus modal propositions. I argue that these systems of relations are valid only as long as all the terms contained in the formulas have an existing referent. I also claim that Abelard was aware of this

difficulty (at least in the *Logica Ingredientibus*), and, accordingly, he explicitly decided to restrict the validity of his modal system to propositions that do not contain empty terms."

9. ———. 2020. "Abelard's Treatment of Logical Determinism in Its Twelfth-Century Context." *Vivarium* no. 58:1–28.

   Abstract: "This article investigates Abelard's defence of the compatibility between universal bivalence and the existence of future contingent events. It first considers the standard strategy put forward by twelfth-century commentators to solve Aristotle's dilemma in *De Interpretatione* 9, which fundamentally relies on Boethius' distinction between *definite* and *indefinite* truth values. Abelard's own position on the dilemma is then introduced, focusing on a specific deterministic argument considered in his logical works that aims to demonstrate that, given the determinacy of present-tense propositions such as '"that Socrates will eat tomorrow" is true', future contingent events such as that Socrates will eat tomorrow are determinate in advance. In addition to presenting Abelard's reply to the argument, the article offers an analysis of his notions of *contingency*, *determinacy,* and *future events*, and a comparison between Abelard's position and other twelfth-century discussions on future contingents."

10. ———. 2020. "The Role of *Differentiae* in Abelard's Arguments for the Identity and Persistence of Substances." In *Mereology in Medieval Logic and Metaphysics*, edited by Amerini, Fabrizio, Binini, Irene and Mugnai, Massimo, 109–134. Pisa: Edizioni della Normale.

11. ———. 2021. "Some Further Remarks on Abelard's Notion of Nature." In *Women's Perspectives on Ancient and Medieval Philosophy*, edited by Chouinard, Isabelle, McConaughey, Zoe, Ramos, Aline Medeiros and Noël, Roxane, 239–251. Cham (Switzerland): Springer Verlag.

    Abstract: "The notion of nature is central not only to Abelard's theory of cognition and to his treatment of universals, but also to Abelard's modal logic, to his discussion of future contingents and to his theory of conditionals. In this essay, I emphasize how

the notion of nature—despite its pervasiveness in Abelard's philosophy and despite the attention that has been paid to it—still raises puzzling questions to interpreters. One of these puzzles has to do with Abelard's idea that different individuals may be "of a same nature (*eiusdem naturae*)," a claim that according to some is hardly compatible with the nominalist position he endorsed. Another interpretative issue is raised by Abelard's claims in *De Intellectibus* that substances have more than one nature, and that we might consider things as being of a different nature depending on which of their properties we pay attention to. Given Abelard's essentialist framework, his assertions on the multiplicity of natures associable to a single individual may sound perplexing. Other issues that I take into account are Abelard's attribution of natures to non-existent things such as chimaeras or horned men, and his remarks concerning the accessibility of natures to our knowledge."

12. ———. 2022. *Possibility and Necessity in the Time of Peter Abelard*. Leiden: Brill.

    Contents: Acknowledgements XI; Introduction 1;

    PART 1

    Early 12th-Century Debates on Modal Propositions 14

    1 The Received Views on Modalities 15; 2 The Grammar and Syntax of Modal Claims 45; 3 The Nature of Modalities and the Signification of Modal Terms 75;

    PART 2

    Abelard's Modal Logic

    4 Abelard on *de re* and *de dicto* Modalities 120; 5 The Existential Import of Modal Propositions 142; 6 The Logic of Modal Propositions 157; 7 Simple and Determinate Modal Propositions 177;

    PART 3

    Abelard on the Metaphysics and Epistemology of Modalities

    9 Abelard on the Many Senses of Possibility 230; 10 Necessity, Determinacy, and Contingency 271;

Conclusion 308; Bibliography 311; Index 324-326.

"Part I of this book aims to present the logical and grammatical context in which Abelard's modal theories originated, considering the debates on modalities that are put forward in published and unpublished treatises and commentaries of his time. I shall start by taking into consideration the sources on which Abelard and his contemporaries relied for construing their modal thought." (p 14)

(...)

"Having investigated Abelard's and his contemporaries' definitions of modes and their analysis of the syntactic structure of modal propositions in Part I, in the second part of this book I focus on Abelard's modal theory by taking into consideration its logical core, namely, the system of relations of opposition and equipollence that he establishes among propositions about possibility, impossibility, and necessity." (p. 118)

(...)

"The last part of this book is dedicated to Abelard's theory on the nature of modalities, and to the questions he raises concerning how we may come to know that something is possible or necessary." (p. 200)

13. ———. 2022. "The *De Re–De Dicto* Distinction. A Twelfth-Century Logical Discovery." *Vivarium* no. 60:162–191.

Abstract: "The identification of two possible readings – de re and de dicto – of modal claims is considered one of the greatest achievements of Abelard's logic. In the Dialectica and the *Logica "Ingredientibus,"* Abelard uses this distinction as a basis for his modal semantics and theory of modalities. Rather than focusing on Abelard's own theory, the aim of this article is to pay attention to a number of sources that – like Abelard's logical works – are datable to the first decades of the twelfth century, to investigate whether the d*e re–de dicto* distinction was already adopted and debated in them. It argues that, even if there is no systematic theorization of the distinction in these sources, Abelard's contemporaries put forward a number of

questions concerning the syntax and the signification of modal claims that contributed to set the stage for the distinction's identification and later development."

14. Bird, Otto. 1960. "The Logical Interest of the *Topics* as Seen in Abelard." *The Modern Schoolman* no. 37:53–57.

    "Father Ong in his *Ramus* describes Peter of Spain as giving "short shrift" to the doctrine of places and explains this by saying: "The notion of the places is not scientific in any precise logical or psychological sense, since the exact application of the local analogy in play here is very difficult, if not impossible to determine." (1) Leaving aside the analogy, the question may be raised whether there is any "precise logical" interest in the doctrine of places, or of "topics," as I prefer to call them. There may be little in the Renaissance logics which are the main object of Father Ong's study. But it is quite a different matter for medieval logic, as is evident from a consideration of perhaps the first great figure in the development of a specifically medieval logic. I refer to Peter Abelard, whose main work on the topics is now available in the recent, edition of the *Dialectica* by L. M. De Rijk, where it takes up 160 of the 548 pages of text. (2)?

    What I propose to do here is to show from Abelard's analysis that there is a precise logical interest in the topics and incidentally to indicate how at least some of the matters of traditional topical concern fall within the scope of modern logic.

    Abelard begins his consideration of the topics (De Loci.s) immediately after that of the syllogism, as does Peter of Spain in his Siunmulae, which became the classical text in elementary logic from the thirteenth century on. In it he is still concerned with inference, the great object of the logician's interest. Rut in turning from the syllogism to the topics, he passes from what ho calls perfect to imperfect inference." (p. 53)

    (1) Walter J. Ong, *Ramus, Method, and the Decay of Dialogue: From the Art of Discourse to the Art of Reason*, Chicago: The University of Chicago press 1958, p. 117.

(2) Petrus Abaelardus, *Dialectica, First complete edition of the Parisian Manuscript* by L. M. De Rijk, Assen: Van Gorcum 1956, *Tractatus tertius - Topica - Liber primus - De locis*, pp. 253-413.

15. Blackwell, Daniel F. 1988. *Non-Ontological Constructs: The Effects of Abaelard's Logical and Ethical Theories on His Theology: A study in Meaning and Verification*. Bern: Peter Lang.

    Contents: Abbreviations III; Introduction V-XII; I. The Works and their Problems 1; II. The Logic of Affairs and Causes 72; III. Revelation, Verification, and Meaning in the Continuum 180; Appendix I: The Aristotelian texts available to Abaelard 309; Appendix II: Abelard and contemporary literature 311; Bibliography 317-327.

    "In the *Ingredientibus* and the *Dialectica* Abaelard sees himself following in the tradition of Aristotle. Throughout the three *Theologies* he shows a marked respect for Platonic and neoPlatonic philosophy. While the origin of much of his thought lies in both traditions, significant is the use which he makes of his sources. For example, the content of much of the grammatical and logical texts is based on Aristotle. Yet, by rejecting just one fundamental Aristotelian logical principle--namely, the logical significance of the notion that qualities 'inhere in' subjects qua substances— his grammatico-logical methodological presuppositions become so at odds with those of the *Organon* that he can be called an Aristotelian only in the broadest sense of the term.

    (...)

    The problem in which Abaelard was involving himself was that of sense and reference. Maintaining the position that the subjects of meaningful statements needn't refer to things, he had to find a verification principle for propositional statements which did not depend on an ontological inherence theory. Turning his attention to impersonal constructs, he notes that all statements of this type contain *dicta,* or descriptive assertions of facts about things.

(...)

Near the end of the *Ingredientibus* Abaelard notes that modal propositions (e.g. *Possible est*...) are also impersonal grammatical constructions. In fact, all existential statements imply a tacit '*verum est*....' It is here that the grammatical origins of the logic become apparent: All existential statements may be transformed into impersonal constructions which contain *dicta*. 'That which is true' is the meaning described by the *dictum*. Truth is not concerned with the existence or non-existence of some substance, but with meaningful descriptions about some state of affairs in the world which happens to occur or not occur. Hence, it is the meaning of a statement which is its principle of verification.

Unlike existential statements, general statements of necessary truth cannot be verified by dicta because they do not describe individual states of affairs. The general or universal terms contained in conditional statements do not refer to things.

(...)

While much of Abaelard's theology in the TSB [*Theologia Summi Boni*] is concerned with definitions, he also stresses the importance of similies and analogical descriptions of divine Realities. Insofar as analogies are descriptive, they parallel propositional dicta. Although they do not describe worldly states of affairs, like dicta, the truth of analogical statements is closely associated with their meaning." (pp. V-IX)

"In one of the most sustained recent studies of Abelard’s thought, *Non-ontological constructs. The effects of Abaelard's logical and ethical theories on his theology: a study in meaning and verification* (Berne/Frankfurt/New York/Paris, 1988) (Basler und Berner studien zur historischen und systematischen Theologie 56), Daniel Blackwell gives an account of Abelard’s logic which gives pride of place to his theory of non-things and relates his approach to theology to it. Interesting though many of his observations are, the investigations of the preceding chapters would suggest that he has distorted the balance of Abelard’s thought; and his

reconstruction of Abelard’s intellectual progress relies on a dating of the works which few scholars would now find acceptable." (John Marenbon, *The Philosophy of Peter Abelard*, Cambridge: Cambridge University Press 1999, p. 209, n. 15)

16. Boler, John F. 1963. "Abailard and the Problem of Universals." *Journal of the History of Philosophy* no. 1:37–52.

    "The effect of Abailard's analysis on the later Middle Ages is considerable.

    Nearly all writers after Abailard make use of the distinctions of two-fold signification, first and second imposition, word and term--in one form or another. But in some of these later writers, one finds what seems to be a return to the pre-Abailardian concern with things rather than terms. It is no surprise, really, for one wonders, even upon reading Abailard, whether he has been fair in his evaluations of his predecessors.

    Coming, as it does, after a criticism of the earlier positions on universals, Abailard's remark that universality pertains to terms and not to things might lead us to believe that he intends to solve the problem of universals by speaking only of terms. It is true that, from the time of Porphyry, the problem of universals had been cast in the language of genus and species; but Abailard's proposal to take genus and species as second imposition -- laudable enough in itself--does not seem adequate to the problem which these men had, however imprecisely, suggested. Even through Abailard's presentation of their positions, one can see that they were concerned with the question of what it is for Peter and Paul to be the same as men; and neither second imposition nor "significatio de intellectibus" meets this problem head on.

    (...)

    What I have tried to suggest in the present paper is that, behind the "clear idea" that universality pertains to terms and not to things, there lies a proposal which, if it is not metaphysics, is also not logic: namely, that the understanding achieves a peculiar transformation in the process of arriving at the

"status," where what is known is something different from the individual thing as individual. Abailard may be correct in holding this, but I do not find either a clear analysis or adequate justification for it in his writings. (34) Without such analysis, the statement that universality pertains to terms and not to things cannot serve as sufficient evidence of the character of Abailard's position on the problem of universals." (pp. 50-51)

(34) The lacuna which I find in Abailard's theory is, according to Geyer, more than adequately filled by Abailard's theory of abstraction. (See the articles cited in note 10, above. ["Die Stellung Abaelards in der Universalienfrage," *Beiträge* . . . . Suppl. I (1913), pp. 101-127]) I cannot help but feel, however, that Geyer is (at best) reading a thirteenth-century interpretation into Abailard.

And his insistence that the analysis of abstraction shows what a sharp psychologist Abailard was only serves to further disaffect me. A shift to psychology at this point in the problem would seem to me more unfortunate than laudable.

17. Brower, Jeffrey E. 1996. *Medieval Theories of Relations before Aquinas: 'Categories' Commentaries, A.D. 510--1250 (Aristotle, Boethius, Peter Abelard, Saint Albertus Magnus)*, University of Iowa.

    Available at ProQuest Dissertation Express. Order number: 9715116.

    Table of Contents: Vol. I: List of Abbreviations X; I. Introduction 1; II. Aristotelian Background 49; III. Boethius's Commentary on *Categories* 100; IV. Abelard's Two *Categories* Commentaries 226; V. Albert's Commentary on *Categories 7* 176; Vol. II: Appendix A. Preface to translations 221; B. Boethius's Translation of *Categories 7* 228; C. Composite edition of *Categories 7* 246; D. Boethius *in Categorias Aristotelis* 264; E. Abelard's *Logica Ingredientibus* 346; F. Abelard's *Dialectica* 418; G. Albert's *Liber de Praedicamentis* 446; Bibliography 533-544.

From the Abstract: "In the dissertation I focus on the texts of three medieval philosophers writing before Aquinas: Boethius (480-524), Abelard (1079-1142), and Albert the Great (1200-1280).

These texts are all commentaries on Aristotle's short treatise, the *Categories*. In the *Categories* Aristotle identifies relations (or relatives, *pros ti*) as one of the ten irreducible kinds of beings (*onta*), and he devotes an entire chapter the seventh chapter of his treatise to

analyzing their nature and ontological status. I take Categories 1 as a starting point for my dissertation, and devote its first chapter to outlining Aristotle's discussion and identifying the important philosophical and interpretive questions to which it gives rise. In the remainder of the dissertation, however, I examine the medieval commentary tradition that grew up around the *Categories* during the years 510-1250 A.D.

(...)

None of the texts I consider in the dissertation has ever been translated into a modern language. As an aid to their recovery, I include (as appendices) English translations of all the following: (1) Boethius's Latin translation of *Categories* 7, (2) chapter 7 of the early medieval composite edition of the *Categories* (the so-cailed *Editio Composita*), and (3) all the relevant portions of Boethius's, Abelard's, and Albert's *Categories* commentaries." (Abstract, pp. V-VII)

Texts of Abelard translated:

[Latin Text: *Logica ingredientibus* in *Peter Abaelards Philosophische Schriften*, Beitrage zur Geschichte der Philosophie des Mittelalters, Band XXI, 1-3, ed. Bernhard Geyer (Munich, 1919-1927), 200-223.], pp. 346-417.

[Latin Text: *Dialectica*, ed. L.M. de Rijk, 2nd ed. (Assen, 1956), 83-92.], pp. 418-445.

18. ———. 1998. "Abelard's Theory of Relations: Reductionism and the Aristotelian Tradition." *The Review of Metaphysics* no. 51:605–631.

"In what follows I focus on the work of Peter Abelard (1079-1142), an influential medieval logician who developed his theory of relations in the course of commenting on *Categories* 7.(4) Like other Aristotelians, Abelard accepts the view that relations are reducible to the monadic properties of related things. On his theory, however, the relation between Simmias and Socrates is not to be explained by a set of peculiar monadic properties--say, being-taller-than-Socrates and being-shorter-than-Simmias. Rather it is to be explained by a pair of ordinary heights--say, being-six-feet-tall in the case of Simmias and being-five-feet-ten in the case of Socrates. Indeed, according to Abelard, the relation between Simmias and Socrates is nothing over and above the possession by these individuals of their respective heights.

Although Abelard commits himself to a form of reductionism about relations, we shall see that his theory is perfectly compatible with the advances made by twentieth-century logicians. Abelard is careful to distinguish questions about ontology from questions about logic, and to commit himself to reducing relations only at the level of ontology. Thus, he argues that Simmias's being taller than Socrates is nothing but Simmias, Socrates, and their respective heights. Nonetheless, he denies that relational statements of the form "Simmias is taller than Socrates" can be reduced to complex non-relational statements of the form "Simmias is six-feet-tall and Socrates is five-feet-ten."

The rest of the paper is divided into three parts. As will emerge, there is an important distinction to be drawn between Abelard's theory of relations and his account of relatives. hi the first part of the paper (sections I-II), I present and explain the account of relatives. Here I focus on one of Abelard's most important logical works, his Logica 'ingredientibus,' but since the relevant portion of this work follows the subject matter and arrangement of *Categories* 7, I begin with a brief sketch of Aristotle's text. In the second part of the paper (sections III-V), I indicate what Abelard's account of relatives tells us about his own theory of relations. Although, this requires some reconstruction on my part, it is possible to determine with

some accuracy to what sort of theory he committed himself. In the third and final part of the paper (sections VI-VII), I turn to the defense of Abelard's theory. My purpose in this last part is to begin the project of rehabilitating a much denigrated tradition in the history of philosophy." (pp. 605-606)

19. Cameron, Margaret. 2007. "Abelard (and Heloise?) On Intention." *American Catholic Philosophical Quarterly* no. 81:323–338.

    Abstract: "For Abelard, the notion of “intention” (*intentio, attentio*) plays a central and important role in his cognitive and ethical theories. Is there any philosophical connection between its uses in these contexts? In recent publications, Constant Mews has argued that the cognitive and ethical senses of “intention” are related (namely, the cognitive sense evolves into the ethical sense), and that Abelard is repeatedly led to focus on intentions throughout his career due to the influence of Heloise. Here I evaluate Mews’s arguments by examining and comparing the cognitive and ethical senses of the term. Although the basis for Mews’s claim seems to be false, I argue that there is nonetheless an important philosophical relationship between cognitive and ethical *intentiones* in Abelard’s thought, the recognition of which leads to a new and more precise understanding of his ethical theory of intention."

20. ———. 2011. "Abelard's Early Glosses: Some Questions." In *Arts du langage et théologie aux confins des XIe et XIIe siècles*, edited by Rosier-Catach, Irène, 647–662. Turnhout: Brepols.

    "Peter Abelard’s first known glosses on *Isagoge, Categories, On interpretation* and *On division* – variously referred to as the « Editiones », the « Introductiones parvulorum », or literal commentaries – were supposedly written very early in his career, probably around 1102-1104 when he was in his early twenties.

    (,,,)

    The *editiones* are commonly considered to be Abelard’s « vocalist », or *in voce,* commentaries, thought to display more than anything else the influence of his former teacher, Roscelin

of Compiègne, who has been long characterized by historians of philosophy as a nominalist, and more recently as a « vocalist ». These works are supposed to reflect the kind of teaching that Abelard would have received under Roscelin. Despite their important role in the narrative of Abelard's career and of early medieval logic more broadly, the early glosses have not been examined in close detail.

Although they have been attributed to Abelard and treated as a set, serious questions need to be raised regarding the evidence used to defend these claims. The evidence is fivefold. First, the editiones were written in the same, twelfth century hand and are found in one manuscript. Second, the *Isagoge, On interpretation* and *On division* glosses bear titles that attribute the works to Abelard. Third, elsewhere in his corpus Abelard himself refers to « introductiones parvulorum » that he has written. Fourth, versions of the *Isagoge and On interpretation* glosses are found in another manuscript, manuscript Munich, Bayerische Staatsbibliothek, clm 14779, where there appear to be self-referential examples using the name « Petrus » given.

Finally, it has been argued that the *Categories* gloss, despite being untitled, bears strong similarities (namely, linguistic and doctrinal parallels) to Abelard's commentary on *Categories* found in the *Logica* « Ingredientibus » collection.

Possibly none of the questions raised in this article on its own is sufficient to overturn the attribution, but taken together they raise serious difficulties for anyone who wishes to continue to defend that the *editiones* were written by Abelard. There do, however, seem to be extremely good reasons to break up the set of the editiones by excluding the gloss on *Categories* from the rest: unlike the others, it is an anonymous fragment, different in style and has required a special defence for its inclusion in the set. In what follows, I will examine each of the five pieces of evidence. I will argue that there are insufficient reasons to continue to attribute these works to Abelard or to consider that they form a set (1)." (pp. 647-648)

(1) In « A note on the Attribution of the Literal Glosses in Paris, BnF, lat. 13368 », Christopher Martin will examine the

doctrinal content of the *Isagoge, On interpretation* and *On division* glosses and compare it with views Abelard is known to espouse elsewhere in his writings.

21. ———. 2011. "When does a word signify? Debates from Peter Abelard's milieu and the early thirteenth century." *Archives d'Histoire Doctrinale et Littéraire du Moyen Age* no. 78:179–194.

    Abstract: "The shift of focus from spoken to mental language in medieval philosophy is well known.

    What has not been noticed is the role played by the recognition of various paradoxes and problems of signification due to the physical character of spoken utterances.

    This essay examines these paradoxes and their solutions in the work of Peter Abelard, his contemporaries, and some authors in the early thirteenth century."

    "As is well-known, Abelard eventually shifted his attention away from consideration of the physicality of utterances towards their cognitive status.

    Abelard concedes that the material nature (*essentia*) of utterances (*voces*) and significant words (*sermones*) is virtually the same, but they differ in origin (34): spoken utterances (*voces*), like the things signified by words, are due to nature, whereas significant utterances *(sermones*) are products of human institution. In his latest works, it is clear that Abelard has shifted altogether away from the analysis of utterances considered as physical, natural items and towards words considered as significant as a product of human institution, connected most closely with human understanding." (pp. 18-189)

    (34) (34) Abelard, *Logica nostrorum petitioni sociorum*, ed. P. Geyer, *Peter Abaelards philosophische Schriften*. II. Die Logica « Nostrorum Petitioni Sociorum » : Die Glossen zu Porphyrius, Münster 1933, p. 522.17-22: « Quid enim aliud est nativitas sermonum sive nominum quam hominum institutio ? Hoc enim quod est nomen sive sermo ex hominum institutione contrahit. Vocis vero sive rei nativitas quid aliud est quam

naturae creatio, cum proprium esse rei sive vocis sola operatione naturae consistat ? Itaque nativitatis vocis et sermonis diversitas, etsi penitus in essentia identitas ».

22. ———. 2011. "The Development of Early Twelfth Century Logic: a Reconsideration." In *Arts du langage et théologie aux confins des XIe et XIIe siècles: textes, maîtres, débats*, edited by Rosier-Catach, Irène, 677–694. Turnhout: Brepols.

    "It is important to evaluate the most recent account of the development of early twelfth century logic put forward, in separate works, but by way of mutual influence, by Y. Iwakuma and J. Marenbon. I will call their version « The Current Story ». According to it, Abelard developed a philosophical position called « Vocalism » upon aving argued with his former teacher William of Champeaux over universals. Prior to this confrontation, the young Abelard (and others associated with his teacher Roscelin of Compiègne) practiced what Marenbon has called « *in voce* exegesis» and what Iwakuma calls «proto-vocalism ». The inspiration for their account came in part from a series of arguments concerning the chronology of Abelard writings given by C. Mews (1985).

    (...)

    "In the end, I hope to show that the Current Story is wrong. To do so, I will first summarize it as it has been told by Marenbon and Iwakuma. I will try to sort out a basic confusion about the meaning of ontological neutrality upon which it relies. The evidence supporting the Current Story crucially depends on the dating and characterization of Abelard's so-called earliest glosses, the «*Introductiones parvulorum*» (referred to as the «editiones» below). Elsewhere (see my article in this volume) I have argued that there is insufficient evidence to attribute these *editiones* to Abelard. Furthermore, as I will show, regardless of their supposed connection to Abelard, the *editiones* has been mischaracterized. I argue that there is a much more plausible and defensible way to understand the character and purpose of these early glosses and others like them. By altering our understanding of these glosses, however, we are forced to abandon the Current Story altogether." (pp. 677-679)

References

M. Cameron, *Abelard's Early Glosses: Some Questions* same volume, pp. 647-662.

23. ———. 2012. "Meaning: Foundational and Semantic Theories." In *The Oxford Handbook of Medieval Philosophy*, edited by Marenbon, John, 342–362. New York Oxford University Press.

"What follows is a very brief overview of some of the major developments in semantic and hermeneutic theory, focusing especially on the issue of using names other than as they were imposed to signify.

One of the first efforts to account for this phenomenon can be seen in the early twelfth century during Peter Abelard’s milieu, during which they refined a notion of linguistic translation (*translatio*). As Rosier-Catach (1997, 1999) has shown in detail, signification by way of translation or semantic transference (not from one language into another, but from one sense into another) was introduced in order to handle

cases of metaphorical language.

(...)

As Abelard notes, there is only a conflict of meaning (*oppositio vocis*) if the expression is interpreted according to the way the terms were originally imposed, but not according to the way it is accepted in a given context of use (1927, 478, 28–479, 2). The doctrine of semantic transference was of great use for hermeneutics, specifically for the interpretation of theological language: given that imposition is a human act, names were ‘instituted in order to designate the creatures that humans were able to conceive’ (Abelard, 1983 , II § 70–78). Accordingly, when human words are used to talk about God and God’s nature, they ‘necessarily exceed their proper institution (or imposition)’ (ibid.)" (p. 353, a note omitted)

References

Peter Abelard 1927. *Glossae super Periermeneias Aristotelis*, ed. B. Geyer. Vol. 3 of *Peter Abaelards philosophische Schrift en: Die Logica ‘Ingredientibus*’. Münster, Germany:

Aschendorff (Beiträge zur Geschichte der Philosophie und Theologie des Mittelalters 21.3).

Rosier-Catach, Irène. 1997. ‘Prata rident’. In *Langages et philosophie: hommage à Jean Jolivet*, ed. A. De Libera, A. Elamrani-Jamal and A. Galonnier, 155–76. Paris: Vrin.

———. 1999. ‘La notion de translation, le principe de compositionalité, et l’analyse de la prédication accidentelle chez Abélard’. In *Langage, science et philosophie au XII e siècle*, ed. J. Biard, 125–64. Paris: Vrin.

24. ———. 2015. "On What is Said: The Stoics and Peter Abelard." In *Linguistic Content: New Essays on the History of Philosophy of Language*, edited by Cameron, Margaret and Stainton, Robert, 55–73. Oxford: Oxford University Press.

"A novel kind of meaning shows up, apparently independently, in the philosophy of the Stoics and of Peter Abelard (1079–1142). For the Stoics it is the *lekton*, or ‘sayable’ (or, more precisely, the *axioma*, or ‘assertible’, which is one type of *lekton*), and for Abelard it is the *dictum*. The extent of similarity between their doctrines is surprising, especially because there is no evidence of a historical connection between them: as far as we know, Abelard did not have access to any Stoic writings, or reports of Stoic views, on the topic of linguistic content. (1) The similarity is more surprising still, given that Abelard was working within the context of Aristotle’s logic, which contains no comparable doctrine. Historians of philosophy have noticed this similarity.(2) When the comparison is drawn it is with reference to the fact of their shared recognition of this new type of content—propositional content. But there are other remarkable points of similarity in their views. First, both seem to have been motivated, at least in part, by the need to disambiguate the notion of predication in the ancient philosophical tradition. Second, both the Stoics (at least beginning with Chrysippus, the third head of the school) and Abelard were driven by a commitment to anti-realism, and by the need to present an anti-realist, or at least deflationary, metaphysics. After a brief outline of each of their doctrines, I will compare their views on the points mentioned here." (p. 55)

(...)

"Conclusion. In conclusion, what happens to this new type of linguistic content after Abelard? Theories of propositional content emerge, disappear, and re-emerge throughout the medieval and scholastic periods. The interest is preserved in the continuation of the logical tradition, still rooted in Aristotelian logic, beginning in the twelfth century. Some theorists seemed to have been entirely unconcerned with the ontological implications and underpinnings of these sorts of linguistic content. For example, the author(s) of a thirteenth-century logical textbook called the *Ars Burana* explain(s) that it is best considered to be an extrapredicamental thing (that is, not countenanced in what exists in an Aristotelian ontology of substances and accidents): Note that whether it is called a *dictum propositionis* or the *significatum propositionis* or the *enuntiabile*, it is the same. The enuntiable is that which is signified by the proposition . . . If you inquire what kind of thing it is, whether it is a substance or an accident, it must be said regarding the enuntiable, just as regarding the predicable, that it is neither a substance nor an accident nor is it of any other category. For it has its own per se mode of existing. And it is called 'extrapredicamental', not for the reason that it does not belong to any category, but because it does not belong to any of the ten categories that Aristotle distinguished. It is therefore of a certain category which can be called the 'enuntiable category'. (53) Later, some philosophers attempted to defend a view that took the opposite tack— that is, to defend a view of propositional realism, only to encounter some of the same sorts of anti-realist challenges.(54)" (p. 71)

(1) While Augustine's *De dialectica* contains some version of the Stoic doctrine, his treatise does not appear to have circulated until the thirteenth century. Another possible source might have been Cicero, but I know of no evidence to support such a transmission.

(2) Martin (2004), who cites Nuchelmans (1973) and Schenkeveld (1984). See also Jacobi (1983) and Lenz (2005). But see Nuchelmans (1973: 152): it is hardly necessary to add

that the Abelardian term *dictum* has nothing to do with the Stoic term *lekton*.'

(53) *Ars Burana* (1967: 208). See De Libera (1981); Martin (2004).

(54) The best study of this topic is Cesalli (2007).

References

Ars Burana (1967). Anon., *Ars Burana,* in L. M. de Rijk (ed.), *Logica modernorum: A Contribution to the History of Terminist Logic*. Assen: Van Gorcum, 175–213.

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De Libera, A. (1981) 'Abélard et le dictisme', *Cahiers de la revue de théologie et de philosophie*, 6: 59–92.

Jacobi, K. (1983).'Abelard and Frege: The Semantics of Words and Propositions', in *Atti del convegno internazionale di storia della logica*, ed. V. M. Abrusci (San Gimignano: CLUEB), 81–96.

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Nuchelmans, G. (1973). *Theories of the Proposition: Ancient and Medieval Conceptions of the Bearers of Truth and Falsity*. Dordrecht: North-Holland.

Schenkeveld, D. M. (1984).'Stoic and Peripatetic Kinds of Speech Act and the Distinction of Grammatical Moods', *Mnemosyne*, 37: 291–351.

25. ———. 2015. "The Logic of Dead Humans: Abelard and the transformation of the Porphyrian Tree." *Oxford Studies in*

Medieval Philosophy no. 3:32–63.

"Is a dead human still a human? Is it the same human, or even the same body? What is the correct meaning of the sentence, “Humans die”? These sorts of problems, which are being actively debated today, were also recognized in the early twelfth century in Paris by Peter Abelard and others who adhered to the classical definition of man, or human, as ‘rational mortal animal.’ Their concerns were not, as far as I know, ethical, although they were likely to an extent theological.(1)

Instead, they recognized a problem with the logic of living and dead humans based on the doctrine of substance found in Aristotle’s Categories and in the division of substance, as outlined by Porphyry to exemplify the logic of genus and species relations in the *Isagoge*. Abelard (1079–1142) held the view that there is no such thing as a dead human, and this provoked an intense response from his contemporaries.

(...)

I will first outline the reasons for Abelard’s claim that there are no dead humans, as well as his theory of what a human being is. There is plenty of evidence that Abelard’s view was faced with criticism, and in section 1 I will run through some of those criticisms. This period is best known for the debates over the status of universals, which were presented to us by Abelard himself in his commentary on *Isagoge*, and as it turns out, the debates over the implications of Abelard’s view that there are no dead humans were tightly bound up with the debates over the status of universals. The debates found in the anonymous commentaries have to do with how to understand the so-called Porphyrian tree, which was regarded as a fixed and inviolable structure of the category of substance. Specifically, the anonymous commentators try to defend the view known as Material Essence Realism (or MERealism), or at least a version of realism very similar to it, against Abelard’s criticisms of it. By tracking the problems generated by Abelard’s view that there are no dead humans we acquire greater insight into these early twelfth-century debates over the status of genera and species,

especially those prompted by the difficulty of trying to make sense of the logic of dead humans." (pp. 33-34)

(1) The theological implications of the substantial status of human beings are, obviously, far reaching. In addition to debates over the Trinity, there are also implications for the real presence of Christ in the Eucharist and the endurance of Christ's body in the tomb.

26. ———. 2019. "Peter Abelard on mental perception." In *Philosophy of Mind in the Early and High Middlle Ages*, edited by Cameron, Margaret, 18–34. New York: Routledge.

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"My primary interest in this chapter is to identify the ancient sources that inspired Abelard's own theory, and more narrowly to investigate the language of mental perception that lies at its foundation. Abelard turned to three well-known ancient writings available to him in the early twelfth century:

Boethius' *Commentary on Porphyry's Isagoge* and his *Consolation of Philosophy*, as well as Augustine's *On the Trinity*. King (1982) first emphasized the importance of acts of attention in Abelard's philosophy. The explicit link with Augustine's theory was elaborated by Rosier-Catach (2004). Their interpretations of Abelard on attention differ considerably from one another, and my own differs from both of theirs. Without access to Aristotle's *De Anima*, which was first translated into Latin in the late twelfth century (and even then it took a number of years before it began to be seriously studied), Abelard is left to come up with a theory of mind, ultimately rooted in sense experience, that can account for our true understanding of things that have no correlates or denotata in the reality that we presently sense." (p. 19)

References

King, P. (1982). *Peter Abailard and the Problem of Universals*, 2 vols. PhD thesis, Princeton University.

Rosier-Catach, I. (2004). "Les discussions sur le signifié des propositions chez Abélard et ses contemporains," in (eds.) A.

Maierù and L. Valente, *Medieval Theories on Assertive and Non-assertive Language* (Acts of the 14th European Symposium on Medieval Logic and Semantics, Rome, June 11–15, 2002), Florence: Leo Olschki, 1–24.

27. ———. 2020. "The Constraints of Nature(s): Abelard on Modality, Understanding and Linguistic Meaning." In *The Origin and Nature of Language and Logic: Perspectives in Medieval Islamic, Jewish, and Christian Thought*, edited by Germann, Nadja and Harvey, Steven, 369–386. Turnhout: Brepols.

"According to Peter Abelard (1079-1142), the nature of things *(natura rerum*) imposes strict constraints on what is possible, impossible and necessary: the possible is what nature allows, the impossible what is contrary to nature, and the necessary what nature demands.(1) Species, which are natural kinds, have natures; for example, humans by nature are rational, mortal animals. These natures constrain modal parameters for individuals of those species by determining those individuals' capacities and incapacities. What is possible, impossible or necessary for individuals is thereby broadly determined by their species-level capacities.

This aspect of Abelard's modal theory has been acknowledged by recent scholars. What has not been noticed is the remarkable extent to which Abelard's views on the constraints of nature for modality are consistent with his views on the ways nature constrains both understanding and linguistic meaning. In other words, Abelard's modal theory is complemented by a psychological theory about how we come to know these modalities as well as by a theory of linguistic meaning that explains how names come to be. In what follows I will outline how nature constrains modality, understanding and linguistic meaning according to Abelard. To appreciate the consistency of his views, we will need to investigate what Abelard means by "nature", and how it is able to effect the constraints at each level: reality, understanding and linguistic meaning. As a result, it will become perfectly clear, contrary to some earlier interpretations of Abelard's philosophy (see below, section II of this paper), that while Abelard is a non-realist about many

things (e.g., universals, causes), he is a realist about natural kinds and is committed to a one-world theory of modality, rendering any possible-worlds-style interpretation of his philosophy inappropriate." (pp. 369-370, notes omitted)

28. Courtenay, William J. 1991. "*Nominales* and Nominalism in the Twelfth Century." In *Lectionum Varietates. Hommage à Paul Vignaux*, edited by Jolivet, Jean, Kaluza, Zénon and Libera, Alain de, 11–48. Paris: Vrin.

    Reprinted as Chapter Four in: W. J. Courtenay, *Ockham and Ockhamism: Studies in the Dissemination and Impact of His Thought*, Leiden: Brill, 2008, pp. 39-80.

    "Since the *Nominales* are first mentioned as active in Abelard's last years or shortly after his death and the application of the theory of the nomen to the problem of the object of faith does not appear before Abelard, it seems plausible that his teaching was, at the very least, influential in the development of the positions of that group. At the same time it must be noted that (1) Abelard made use of a theory of nouns and *enuntiabilia* that was already in circulation and that the label *Nominales* was first and foremost tied to a theory of the *nomen* that Abelard shared with many others; that (2) it is unclear how many of these positions were original or unique to Abelard; and that (3) several of the positions attributed to the *Nominales* were attributed variously to several other groups or schools as well, such as the *Parvipontani, Melidunenses, Montani*, and *Cappauces*. Abelard had considerable sympathy for a theory of *nomina* and a technique of problem solving that his colleague, Alberic, found objectionable. This is another illustration of the Platonic current within Abelard's thought that has not received sufficient attention.

    Alberic could well have included Abelard among the *secta Nominalium*, but the latter is probably a larger category and not identical with Abelard or his disciples. If the first major twist in this problem requires us to acknowledge the Platonic background of the nominalist theory, the second major twist is that Abelard was a Nominalist or proto-Nominalist, but on a far different set of issues and viewpoints than previously imagined.

And if we include Abelard among the *Nominales*, then we should include Peter Lombard and his closest followers.

On the basis of our present knowledge, however, it might be more accurate simply to describe Abelard as a major source and Lombard as heavily influenced by nominalist theory." (pp. 78-79 of the reprint)

29. ———. 1993. "*Nominales* and Rules of Inference." In *Argumentationstheorie. Scholastische Forschungen zu den logischen und semantischen Regeln korrekte Folgerns*, edited by Jacobi, Klaus, 153–160. Leiden: Brill.

    Reprinted as Chapter Five in: W. J. Courtenay, *Ockham and Ockhamism. Studies in the Dissemination and Impact of His Thought*, Leiden: Brill, 2008, pp. 81-87.

    "Among the positions attributed to the *Nominales* in the twelfth and thirteenth centuries are several that can be categorized as rules of inference or are related to theories of entailment. A list of these along with other nominalist opinions was recently assembled by Calvin Normore in a very stimulating and perceptive article(1) Although the entire list of positions attributed to the Nominales seemed initially to Normore to be quite disparate and unrelated, he concluded that the positions had two things in common. First, that they were all positions held by Peter Abelard who, on the basis of this and other long-known evidence, was credited with the establishment of the Nominalist school. And second, that the principal issue that linked most of the nominalist theses was not the issue of universals but rather the question: what makes propositions true?" (p, 81 of the reprint)

    (1) C. Normore, “The Tradition of Mediaeval Nominalism,” in *Studies in Medieval Philosophy*, ed. J.F. Wippel (Washington, 1987), pp. 201–217.

30. Cranz, Edward F. 2006. "Boethius and Abelard." In *Reorientations of Western Thought from Antiquity to the Renaissance*, edited by Struever, Nancy, 1–20. Aldershot: Ashgate.

"Let me conclude with two brief general addenda. First, I have tried to outline the main development of Abelard's logic and the one most dependent upon Boethius. What we have seen may be summarized by saying that, where Boethius closely connects, sometimes even identifies, intellections, universals and propositions with *'res*' or beings, Abelard shifts all these relationships to a new context and then denies them all: intellections, universals and propositions are not *'res*" as physical things. To repeat a phrase; he desubstantializes them all.

But Abelard never stops thinking. Sometimes his conclusions are more new questions than new answers, and his second treatment of a problem is sometimes very different from his first. Some scholars have described the last stage of his thought as a 'return to Platonism': but I think he is more creative and original. He has changed Boethius' res into 'physical things,' and he has denied that intellections or meanings were 'physical things' and turned them into 'nothings.' But there are hints, and there is no time to analyze them here, that at the end he began to move to another new solution in which meanings from having been nothings turn into the ultimate realities. If I had to suggest parallels to his last stage, Petrarch, Lorenzo Valla and Nicholas of Cusa come to mind. So if I have tried to describe Abelard's transformation of Boethius, what was left, and I don't believe it was ever completed, might be called Abelard's transformation of Abelard.

Second, while Abelard's writings had no wide dispersion and while he was not followed by any school or even by very many pupils, I believe his diffuse influence was greater than one might expect. The reorientations of thought one finds in his logic and elsewhere often spread more widely in his own time than did his specific ideas; they were not destroyed by the reception of Aristotle and in some ways provided a context within which Aristotle was received. So in concluding I cannot resist noting that, while I have characterized what happened as a transformation of Boethius, let us not in this group forget that it was a transformation of Boethius." (p. 20)

31. Donato, Enrico. 2022. "Abelard on Eternal Truths." *Vivarium* no. 60:226–247.

    Abstract: "This article reconstructs Abelard's account of eternal truths as it is presented in the *Dialectica,* in the so-called *Sententiae Parisiense*s, and in the *Theologia "Scholarium."*

    It first shows how in the *Dialectica* Abelard had to transform the traditional account of topical inferences in order to make sense of the idea that true conditional propositions express eternal truths. It clarifies Abelard's claim that eternal truths are grounded on the "nature of things" and explains why Abelard thought that these truths hold even when there are no things. The article then considers Abelard's reply to an objection according to which eternal truths have in fact been false in the past. It examines Abelard's mature views on eternal truths as we find them in the *Sententiae Parisiense*s and *Theologia "Scholarium."* Here, Abelard grants the status of eternal truth also to what is expressed by contingently true categorical propositions. These truths are grounded on the "events of things" that exist eternally as the proposition-like objects of God's will and foreknowledge."

32. ———. 2025. "Alberic the Logician." *Journal of the History of Philosophy* no. 63:357–377.

    Abstract: "Alberic of Paris (fl. 1130s) was one of the most prominent philosophers of the twelfth century, and Peter Abelard's main rival. In this paper, I argue that the aim of Alberic's logical program was to propound a realist conception of logic. That is, Alberic rejected the nominalistic theorem according to which logic deals only with names, and argued that logic also deals with things, both particular and universal. In this regard, Alberic's logic hinges on a clear commitment to the existence of universals.

    To show this, I examine the core elements of Alberic's logic and contrast them with their nominalistic counterparts. My analysis shows that Alberic, unlike Abelard and the Nominales, systematically construed logical relations and operations with reference to things and their universal natures. Moreover, I

demonstrate that Alberic's realism was in many ways an attempt to recover the original spirit of Boethius's logic from the unorthodox and profound transformations that had been introduced by Abelard in the 1110s."

33. Dutilh Novaes, Catarina, and Bosman, Bianca. 2017. "Formal, Material, and Hybrid Grounding for Consequence: Peter Abelard and John Buridan." In *Miroir de l'amitié. Mélanges offerts à Joël Biard à l'occasion de ses 65 ans*, edited by Grellard, Christophe, 229–242. Paris: Vrin.

34. Eco, Umberto. 1984. "Signification and Denotation from Boethius to Ockham." *Franciscan Studies* no. 44:1–29.

    Section IV. *Abelard*, pp. 7-9.

    "It has been remarked that in Abelard the logical terminology is not definitely assested and that he frequently uses the same terms in an equivocal sense. Nevertheless Abelard is the first author in which the distinction between the intensional and the extensional aspects of semantics is substantially (if not always terminologically) posited with a great care. It is true that he speaks indifferently of "significado de rebus" and "significatio de intellectibus," but it is equally true that for him the primary sense of "significatio" is an intensional one, on the Augustinián line of thought- where "significare" is "constituere" or "generare" a concept of the mind." (p. 7)

35. Fredborg, Karin Margareta. 2003. "Abelard on Rhetoric." In *Rhetoric and Renewal in the Latin West 1100-1540: Essays in Honour of John O. Ward*, edited by Mews, Constant J., Nederman, Cary J. and Thomson, Rodney M., 55–80. Turnhout: Brepols.

    "The only time we hear about the famous dialectician and theologian Peter Abelard being engaged in studying rhetoric is when he resumed his studies with William of Champeaux some time between 1108 and 1113 in Paris. As in other situations, Abelard started an argument and came out victorious:(1)

    (...)

Why a dispute about the universals should come up during a disputation in a course of rhetoric, we are never told. Early twelfth-century French rhetorical commentaries, however, including those by William of Champeaux, do deal with philosophical matters. Three times in his commentaries we find phrases like ‘res universalis’ or ‘invincible reasons for saying genus est res’(3) which could have sparked off such a dispute over the universals. Unfortunately, no extant Ciceronian commentary or traces of Abelard’s own teaching on, for instance, the *De inventione* or the *Rhetorica ad Herennium* exist today, but we know that Abelard was interested in Cicero. (4(We also possess an interesting twelve-page digression on rhetorical argumentation in his glosses to Boethius’ *De differentiis topicis* which I intend to re-edit here.[*]" (pp. 55-56, two notes oitted)

(1) *Historia calamitatum*, ed. by Jacques Monfrin (Paris: Vrin, 1967), p. 65.(...)

(3) Fredborg, [‘The Commentaries on Cicero’s De Inventione and Rhetorica ad Herennium by William of Champeaux’, *CIMAGL,* 17 (1976), 1-39] p. 13, 29, 30.

(4) Gabriella d’Anna, ‘Abelardo e Cicerone’, Studi Medievali, Ser. 3a, 10 (1969), 333-419; David Luscombe, ‘The School of Abelard Revisited’, Vivarium, 30.1 (1992), 127-38 (p. 132).

[*] <De questione circumstantiis implicita et de locis>, pp. 62-890

36. Freddoso, Alfred J. 1978. "Abailard on Collective Realism." *Journal of Philosophy* no. 75:527–538.

Comments by Eileen Serene, pp. 539-540.

Abstract: "In the "Logica ingredientibus" Abailard attacks the theory according to which universals are collections of individuals. I argue that Abailard's principal objection to this 'collective realism', viz, that it conflates universals with integral wholes, is actually quite strong, though it is generally overlooked by recent commentators. For implicit in this objection is the claim that the collective realist cannot provide a satisfactory account of predication. The reason for this is that

integral wholes are not uniquely decomposable. In support of my thesis I first explicate the medieval distinction between integral and subjective parts and then discuss its application to collective realism."

37. Gill, Harjeet Singh. 1989. "The Abelardian Semiotics." In *Abelardian Semiotics and Other Essays*, 1–29. New Dehli: Bahri Publications.

    "The linguistic theory of Abelard is centred around the correlation or correspondence between the "word" and the "thing" or the *signifiant* and the *signifié* as we would have them today. According to Abelard, if a word or a sound signifies, it is because something is added to its physical being. *essentia;* this something is the significative function, *officium significandi.* The sound, just like the thing that it represents in a give language, remains the same from one community of speakers to another, it belongs to the sphere of things, which is natural; the significance, on the other hand, changes due to the diversity of languages, it depends upon institution, upon a human convention, *positio hominum, voluntas hominum*.(1) We have already the distinction between the sphere of significance and the sphere of things. The sound or the physically pronounced utterance is of the order of nature while significance is created when "something" is added to its being, and, this "something" is due to human intervention in a human, social institution. For Abelard, words give birth to or "generate" intellection which then correspond to things. Thus, argues Abelard, there is a double series of correspondence between words and intellections, and between intellections and things, and consequently, between words and things. These are three distinct but related spheres.(2)" (pp. 4-5).

    (1) *Glossae super Peri Ermenias,* 320, 12, 27, ed. B. Geyer, Munster i.W. 1919-23.

    (2) *Glossae super Prophyrium* III, 524, 3-10, ed. B. Geyer, Munster, i.W. 1919-23.

38. ———. 1996. *The Semiotics of Conceptual Structures*. New Delhi: Bahri Publications.

Second edition Jawaharlal Nehru University 2016.

First part: Abelardian Discourse: Pierre Abélard 19; Abélardian Theory of Mental Images 37; Abélardian Discourse 46; Abéelardian Tradition 55-71.

"We can summarise Abélardian reflections on the nature and function of language as a human institution where the words are imposed on things by human will, by human convention. At this stage they may be considered arbitrary but in the evolutionary process, the words not only refer to things, but also, and at times primarily, to their concepts, hence, they are not so ·arbitrary. Their semantic ranges are extended on the basis of analysis and analogy. These analogies are based on our perception of similarities as "soft" in soft wood, soft iron, soft cotton, soft drink, soft colour etc. We always begin from a physical sensuous experience which is then reorganised, rearranged in the domain of imagination. It is this imaginatively reconstituted concept of the thing (experience) that is the object of our intellection. Our expressions have three levels of articulation: the *physical*, the *grammatical* and the *conceptual*. We first proceed from the physical to the conceptual as we call "mother" Ganges on the basis of a certain perception of our own mother, then reciprocally, our mother acquires the characteristics of mother Ganges.

Furthermore, all conceptual relations are *reciprocal* as father and son derive their "fatherhood" and "son-hood" from each other, or metonymic and metaphoric relations, where chronological, syntagmatic, sequential and non-sequential, metaphorical concepts play a major role. Finally, language is a vehicle of communication between *thinking* beings where the interlocutors exchange words or expressions which are the resultants of their mental *activity*. They represent conceptual realities which are different from both Platonic universal realism and Aristotelian individual nominalism. (pp. 54-55)

39. ———. 1999. "The Abelardian Tradition of Semiotics." In *Signs and Signification. Vol. I*, edited by Gill, Harjeet Singh and Manetti, Giovanni, 35–67. New Delhi: Bahri Publications.

40. ———. 2023. *Abelardian Theory of Mental Images And Pure Forms*. Delhi: Aakar Books.

Second edition. First edition with the title *Mental Images and Pure Forms: Study in Abelardian Theory* New Delhi: Bahri Publications 1991.

"4.3. The controversy over universals or mental images common to a number of individuals in the Middle Ages presents two opposing propositions. The realists, following Plato, believed that these universals like rationality and mortality have an intrinsic existence outside our bodies. They have a separate, real existence. The nominalists, following Aristotle, insisted that the universals subsist always in the sensible. It is a question of substance in act. This nature of animal that is designated by a universal word, which due to a certain transfer, is called universal, is found nowhere other than within a sensible body. For the realists, this universal conserves its being even outside all sensible substance.

Abélard says that we have to assign to these universal terms a third signification, other than the one which is based on the real thing and the one that is based on its intellection. This reality that Abélard assigns to these universals is a conceptual reality. It has neither the Platonic independent existence nor the Aristotelian reality confined only to the individual, sensible beings.

4.4. Abélard then explains the process of abstraction. Matter and form do not exist in isolation from each other but our esprit has the faculty to consider either one or the other in itself, paying attention, at times, to form only, at others, to matter, and even if it so desires, to consider them both in a certain combination. In the first two cases, it is an affair of an abstractive operation, an act with which our esprit abstracts an element from a synthesis to consider it in its own nature. In the third case, it is an operation of synthesis. For example, we have the substance of man. It is body, animal, man, it is covered with indefinite number of forms. When we pay attention to this substance in its material essence avoiding all forms, this operation is abstractive. Inversely, when we pay attention only

to the corporeality that we relate with the substance, our operation of comprehension is synthetic with rapport to the one that consists of considering only the nature of the substance, but it is at the same time, abstractive with rapport to other forms of corporeality like animation, sensibility, rationality etc., to which now we do not pay any attention. These abstractive intellections could be considered false and empty for they conceive things in a manner other than they really are. Paying attention to either form or matter in isolation when neither form nor matter subsists in isolation, we conceive things different from the way they really are, and consequently, they are completely false." (pp. 54-55)

41. Gracia, Jorge J. E. 1984. *Introduction to the Problem of Individuation in the Early Middle Ages*. München: Philosophia Verlag.

    Chapter IV. *The Tradition Based on Boethius' Logical Works: Peter Abailard and John of Salisbury*, pp. 196-254.

    I. Peter Abailard 196. A. The Accidental Theory of Substantial Individuation 196; 1. Abailard's Criticism 198; B. The Essential Theory of Individuation 210; 1. Abailard's Response 212; C. The Formalist Theory of Individuality and Its Criticism 212; D. Word View of Individuality 215; E. Numerical Diversity in the *Theologia christiana* 227; II. John of Salisbury 236; Notes 241-254.

    "Abailard, like most medieval writers before the thirteenth century, does not give separate consideration to the problem of individuality. He raises it in the context of his treatment of universals, contenting himself with only occasional and always incidental comments; the notion of individuality comes up when it can be used to shed light on the more controversial notion of universality. Moreover, the impact of his comments is mainly negative, given their critical character. The positive view of individuality he proposes is largely restricted to a logical dimension of the problem of individuality, as we shall see, and even then it is rather brief and cursory. In spite of this, and owning in particular to the sharp criticism of his opponents he presents, Abailard's discussion of individuality is in some ways

more subtle and interesting than much of what had been done before him.

There are only two works in which individuality is discussed to any serious degree.(6) The most developed view is contained in the *Logica ingredientibus*, a logical treatise written for beginners. A less complete account is given in the *Logica nostrorum*, of later date. Both works consist of commentaries on Porphyry and, as it should be expected, make extensive use of Boethius' Commentary on the "Isagoge". (p. 196, a note omitted)

(6) The existing books of the *Dialectica* contain very little of interest about individuality. In the lost books, however, most likely Abailard dealt with this issue, particularly in the book on *genus* and *species*, where he certainly must have raised the question of universality.

Moreover, there are other works of Abailard which are now lost and which may have contained matter relevant to the problem of individuality. See A. Van den Eynde, "Les ecrits perdus d'Abelard", *Antonianum* 14 (1975), 263-272 and N. M Häring, "Abailard Yesterday and Today", in *Pierre Abelard-Pierre le Vénérable* (Paris: CNRS, 1975), pp. 341-403. One of these reputed lost works was called *De universalibus et singularibus ad Oliviarum filium suum tractatus*, listed in *Histoire litteraire de France*, vol. 12 (Pans, 1763), p. 130.

42. ———. 1999. "Metaphysical, epistemological and linguistic approaches to universals: Porphyry, Boethius, and Abailard." In *Medieval Masters: Essays in Memory of Msgr. E. A. Synan*, edited by Houser, Rollen Edward, 1–24. Notre Dame: Notre Dame University Press.

43. Greene, Virginie. 2014. *Logical Fictions in Medieval Literature and Philosophy*. Cambridge: Cambridge University Press.

    Chapter 1: *Abelard's donkey: the nonexistent particular*, pp. 13-32.

    "In this chapter I will examine Abelard's thoughts about imagination and the status of its products in the soul. This will be a little dry for a while, but the appearance of Browny the

Donkey in Abelard's commentary of Porphyry's *Isagoge* will bring comic relief while introducing my own theory about fiction as a mental process of creating imaginary particulars. I will then return to the *Roman de Renart* and a chivalric romance involving animals: Chrétien de Troyes's *Yvain or The Knight with the Lion*, in order to underscore their way of imagining particulars. I will also use Bernard de Clairvaux's astute criticism of chivalric fictions to compare his understanding of imagination with Abelard's theory and Chrétien's practice." (p. 14)

44. Guilfoy, Kevin. 1999. *Abelard's Theory of the Proposition*, University of Washington.

    Available at ProQuest Dissertation Express. Order number: 9936410.

    Abstract: "In Peter Abelard's writings, the *dictum* performs the role a twentieth-century philosopher would assign to a proposition. A *dictum* is what is said or asserted by a sentence. We are able to call a sentence "true" or "false", "possible" or "necessary", if the *dictum* asserted by the sentence is true, false, possible, or necessary. It is clear that the *dictum* is the central element in Abelard's theory of the proposition. Nonetheless, that the *dictum* performs an important role, is perhaps the only claim about Abelard's theory of the proposition to which there is general agreement among current thinkers. There is a good deal of dispute and confusion with regard to the proper interpretation of Abelard's theory of the proposition. Much of this dispute centers on the fundamental question: What is the *dictum*? This dissertation is an extended attempt to answer this question. There are three parts to the dissertation. In part one the dissertation disputes the common assumption that *dicta* are composed of status. This discussion serves to separate Abelard's theory of the proposition from his theory of universals. The second part of the dissertation argues that Abelard, at different times, advanced two distinct theories of the proposition, one in his *Dialectica* the other in his *Logica Ingredientibus*. The dissertation contends that Abelard's more mature view is found in his *Logica lngredientibus*. The

remainder of the dissertation is an account of Abelard's theory of the proposition as it is found in the *Logica Ingredientibus*."

45. ———. 2002. "Abelard's Rejection of the Tarski Biconditional." *Logical Analysis and History of Philosophy* no. 5:143–158.

    Abstract: "In a fairly opaque passage in his commentary on Aristotle's Categories Peter Abelard denies both directions of a biconditional sentence very much like a Tarski biconditional: "A man exists" is true iff a man exists. "A man exists" is taken to be a sentence token and the right hand element is taken to be the existence of a man. Neither Abelard's argument nor his reason for making the argument is clear. It at first appears that Abelard may be claiming that each of the corresponding conditionals is false. Such a claim could amount to a rejection of the correspondence theory of truth and would naturally have serious repercussions for the study of Abelard's logic. In this paper I argue that Abelard does not deny the truth of the biconditional only its necessity. Abelard makes this argument in response to Boethius and certain twelfth-century masters (I suggest Thierry of Chartres), who argue that there is a logically necessary connection between words and things, and hence between sentence tokens and what is the case in the world. Abelard is not expressing any serious reservations about the correspondence theory of truth. He is demonstrating the logical importance of the conventionality of language. Arguing against authorities, and twelfth-century peers, he shows that there is no logically necessary connection between words and things, hence the Tarski biconditional is not necessarily true."

46. ———. 2004. "Peter Abelard's Two Theories of the Proposition." In *Medieval Theories on Assertive and Non-Assertive Language*, edited by Maierù, Alfonso and Valente, Luisa, 35–57. Firenze: Olschki.

47. ———. 2004. "Mind and Cognition." In *The Cambridge Companion to Abelard*, edited by Brower, Jeffrey E. and Guilfoy, Kevin, 200–222. Cambridge: Cambridge University Press.

    "In this chapter I provide a systematic introduction to the central elements of Abelard’s account of cognition and

philosophy of mind.

I begin with a brief assessment of Abelard's place in the Aristotelian tradition (§ i). Following this, I discuss Abelard's account of sensation, imagination, and understanding (§ ii); it is in this section that I develop Abelard's account of cognition. I turn next to a discussion of abstraction and universal understandings (§ iii). Finally, I conclude with a brief discussion of opinion, knowledge, and intelligence – the epistemic issues involved in Abelard's account of mind (§ iv)." (p. 201)

48. ———. 2006. "Imagination and Cognition of Insensibles in Peter Abelard." In *Intellect et imagination dans la philosophie médiévale / Intellect and imagination in medieval philosophy / Intelecto e imaginação na filosofia medieval / Actes du XIe Congrès international de philosophie médiévale de la Société internationale pour l'Étude de la philosophie médiévale (S.I.E.P.M.): Porto, du 26 au 31 août 2002*, edited by Pacheco, Maria Cândida and Meirinhos, José F., 895–902. Turnhout: Brepols.

"Cognition, especially the cognition of insensibles is a key element in Abelard's semantics: words signify items by generating understandings of these items. If we could not form an act of understanding an item we could not use a word to signify the item. Each of Abelard's discussions of the semantics of universal terms are accompanied by an account of the cognition of insensibles. In brief, the cognition of a particular insensible nature or property is a necessary intermediate step to the formation of a universal understanding. We must understand the particular insensible nature, this-humanity, before having the pure universal act of understanding humanity. To use Abelard's own terms an understanding must be *sola* and *nuda* before it can be *pura*. Abelard made at least two attempts to explain the initial cognition of particular insensibles. But, ultimately he was not content with either. His final pronouncement on the topic is to claim that, whatever the cognitive process, our cognition of insensibles is sufficient to provide a semantics for universal terms. Abelard expresses little confidence in this claim and even this slight confidence

may be unwarranted. Abelard is committed to 3 theses, which I will explain below and that present a seemingly insurmountable obstacle to the initial cognition of particular insensibles." (p. 895)

49. Guilfoy, Kevin Stephen. 1999. *Peter Abelard's Theory of the Proposition*, University of Washington.

    Abstract: "In Peter Abelard's writings, the dictum performs the role a twentieth-century philosopher would assign to a proposition. A dictum is what is said or asserted by a sentence. We are able to call a sentence "true" or "false", "possible" or "necessary", if the dictum asserted by the sentence is true, false, possible, or necessary. It is clear that the dictum is the central element in Abelard's theory of the proposition. Nonetheless, that the dictum performs an important role, is perhaps the only claim about Abelard's theory of the proposition to which there is general agreement among current thinkers. There is a good deal of dispute and confusion with regard to the proper interpretation of Abelard's theory of the proposition. Much of this dispute centers on the fundamental question: What is the dictum? This dissertation is an extended attempt to answer this question. ;There are three parts to the dissertation. In part one the dissertation disputes the common assumption that dicta are composed of status. This discussion serves to separate Abelard's theory of the proposition from his theory of universals. The second part of the dissertation argues that Abelard, at different times, advanced two distinct theories of the proposition, one in his Dialectica the other in his Logica Ingredientibus. The dissertation contends that Abelard's more mature view is found in his Logica lngredientibus. The remainder of the dissertation is an account of Abelard's theory of the proposition as it is found in the *Logica Ingredientibus*."

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History of Logic

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Selected Bibliography on Abelard's Logic and Ontology. Second Part Ham - Mar

Bibliography

1. Hamelin, Guy, and Maia, Danilo Luiz Silva. 2015. "Nominalism and Semantics in Abelard and Ockham." *Logica Universalis* no. 9:155–190.

   Abstract: "Peter Abelard and William of Ockham represent the two main figures of the nominalism of the Middle Ages. Both share the fundamental thesis of that doctrine, according to which only individual entities exist.

   The repercussions of nominalism are quite evident in relation to the question of universals, which constitutes a subject that, until now, won the attention of the majority of contemporary studies on the two most important logicians of their time. Nevertheless the nominalism of each of these two protagonists apparently diverges in a significant manner, especially in respect to the role exercised by the mind in the semantic process. Ockham seems to distance himself definitely from his predecessors, including Abelard, when he transfers grammar and semantic functions of conventional language to the level of mental language. In the present article, the chief intention is to expound the theory of sign and signification of each of the authors under consideration. The ultimate objective is to compare their respective semantic positions and indicate the principal points of agreement and disagreement, keeping in mind the hypothesis according to which these two medieval nominalists should have more theoretical elements in common than not."

2. Hansen, Heine. 2024. "Abelard’s Ontology of Forms: Some New Evidence from the Nominales and the Albricani." *Open Philosophy* no. 7:1–13.

Abstract: "This article concerns existents as a contentious issue in contemporary Abelardian scholarship.

More precisely, it concerns the ontological standing of forms in Abelard's metaphysics. Take, for example, the apple on my desk. What ontological standing does its redness have? Is it an actual entity over and above the apple or is it in some sense "reducible" to it? Abelard, famously, was a nominalist, so the question is not about some purported universal redness. Rather, it is about the particular redness of the particular apple on my desk. The issue is contentious in that the best current accounts of Abelard's metaphysics disagree strongly about how to answer this question. Here, rather than focusing on Abelard's own writings – which so far have yielded no definitive answer – I will consider some anonymously transmitted and mainly unedited logical texts from the twelfth century and show how his contemporaries understood Abelard's view and how the followers of his philosophical nemesis, Alberic of Paris, reacted to it."

3. Hellemans, Babette. 2010. "The 'Whole Abelard' and the Availability of Language." In *How the West Was Won. Essays on Literary Imagination, the Canon and the Christian Middle Ages for Burcht Pranger*, edited by Otten, Willemien, Vanderjagt, Arjo and de Vries, Hent, 349–376. Leiden: Brill.

   "In what follows I want to point out the 'philosophical' implications that a distinctively Abelardian 'questioning' of the status of language and its provision might involve. This singular type of inquiry in order to understand the human condition is what I mean by Abelard's 'epistemological project.' My hopes are modest, since the topic is extremely complex. So when I speak of 'Abelard', the topic is selected with the intent of demonstrating his skeptical method of understanding language within a specific historical context.(8) Such an investigation cannot be based upon some consenting or dissenting reference to Abelard in some of his works, or on the status of his work as it was shaped by the nature of his 'profession' (master, logician, philosopher, theologian, lover and so forth). Thus, to get a grip on Abelard's epistemological project, I will refrain, as far as possible, from applying external categories to his work. Instead,

the hermeneutical problem which underlies the (in)accessibility of ‘Abelard’, in his works as well as in the factual information concerning his historical persona, is my approach of understanding his epistemological project." (pp. 351-362)

(8) I use the term ‘skeptic’ and ‘skepticism’ with the caveat that we do not mean quite the same thing when we speak of skepticism as conceived by a thinker conditioned by a Christian *Weltanschauung* as when we speak of skepticism as a philosophical enterprise.

In the case of Abelard, his skeptical method of questioning can be illustrated by his famous aphorism in the prologue of Sic et Non: “By doubting we come to examine, and by examining we reach the truth.”

4. Hennig, Boris. 2015. "Instance Is the Converse of Aspect." *Australasian Journal of Philosophy* no. 93:3–20.

   Abstract: "According to the aspect theory of instantiation, a particular A instantiates a universal B if and only if an aspect of A is cross-count identical with an aspect of B. This involves the assumption that both particulars and universals have aspects, and that aspects can mediate between different ways of counting things. I will ask what is new about this account of instantiation and, more importantly, whether it is an improvement on its older relatives. It will turn out that the part of it that is new is the notion of cross-count identity among aspects. As I will show, this notion is both dubious and unnecessary. I will end by presenting a simplified aspect theory of instantiation that does not involve cross-count identity."

5. Henry, Desmond Paul. 1985. "Abelard's mereological terminology." In *Mediaeval Semantics and Metaphysics: Studies Dedicated to L. M. de Rijk, Ph. D. on the Occasion of His 60th Birthday*, edited by Bos, Egbert P., 65–92. Nijmegen: Ingenium Publishers.

6. ———. 1990. "Master Peter's Mereology." In *De Ortu Grammaticae: Studies in Medieval Grammar and Linguistic Theory in Memory of Jan Pinborg*, edited by Bursill-Hall,

Geoffrey L., Ebbesen, Sten and Koerner, Konrad, 99–115. Amsterdam: John Benjamin.

"The paradox of the *Sententie*, at least in relation to the question of Abelardian authorship, is that the objections to which the piece is mainly engaged in replying evince a higher degree of generality than do the replies.

Again, the objections are for the most part coherent with well-known, if not notorious, Abelardian theses. At the same time those misdirected replies are not lacking in their own sort of mereological acumen. The fact that the objections are attributed to the partisans of *voces* (utterances) could suggest that the piece is an early one, dating from near to the time when Abelard was hearing the 'insane' arguments of his master Roscelin. It can be suggested that such arguments are intended to call attention to quite valid points in the mereological area (cf. HMT). The later, and more general Abelard could then have taken over the marrow of those points, thus explicating the known Abelardian nature of some of the objections themselves.

Thus in the end it may well be possible, given a progressive sharpening of our appreciation of the significance of the discussions contained in the Sententie, to hypothesise more definitively as to whether Abelard was indeed the author of the piece. One might even emit conjectures as to the point in the chronology of his works at which it could feasibly be situated.

For this, however, a more comprehensive perspective of the mereological aspects of his work is required, and this, for the moment, is lacking." (p. 114)

References

HMT = Henry, D.P. "Abelard's Mereological Terminology." *Medieval Semantics and Metaphysics: Studies dedicated to L.M. de Rijky Ph.D. on the occasion of his 60th birthday*, 65-92. Nijmegen: Ingenium Publishers.

7. ———. 1991. *Medieval Mereology*. Philadelphia: Grüner.

Chapter 2: *Abelard and His Contemporaries*, pp. 64-217.

"0.1 Mereology, Ancient and Contemporary

0.11 Mereology is, strictly speaking, the theory of the part in its concrete (as opposed to abstract) sense; it may hence, by implication, deal with wholes also, although this need not necessarily be so. Systematic work on these topics was produced in 1916 by the Polish philosopher S. Lesniewski; his paper on the general theory of sets was in that year published in Moscow (cf. SLM, LF). My own acquaintance with his mereology is due to the teaching of Czeslaw Lejewski, who studied under Lesniewski."

(,,,)

"0.2 Medieval Mereology and Metaphysics

0.21 Nevertheless, the mereology covered by the present work remains within the confines of the medieval Latin West, but without in any way claiming that it was an exclusive property of that West. The temporal scope will range forward from the time of that precursor Boethius whom we may sometimes call 'the Roman' (470 - 525 A.D.) in order to distinguish him from another Boethius, namely Boethius of Dacia (flourished 1270 - 80), a Danish philosopher to whom we are to be indebted hereunder for his excellently clear elucidations. The main final figure will be Paul of Venice (c. 1369 - 1429) whose monumental embodiment of what for him was all possible logic, the *Logica Magna*, contains sections expressly devoted to mereology (section 8 below). The later John of St. Thomas has also been incidentally included, given his prologations of certain of Aquinas' theses (section 3.75)." (pp. 2-3)

(...)

"0.7 Summary

In brief, it has been contended above that the medieval section of the history of mereology may be recounted, understood, and appreciated in the light of an introductory exploitation

of the present-day form of the discipline, as axiomatised by S. Lesniewski and his successors. The medieval philosopher, Boethius of Dacia, has been shown to explain the theoretical location of mereology in relation to metaphysics in a way which

is compatible with and corresponds to contemporary axiomatised bodies of knowledge, of the sort outlined in the Presuppositional Explicitation (section 10 below). Further, a likewise elementary version of a contemporary form of logical grammar, ultimately overlapping in its aims with the speculative grammar established by Boethius of Dacia (i.e. the resolution of grammatical ambiguity by recourse to quasi-universal grammar) has already inaugurated the task of keeping under control the logical-grammatical situation of material with which a history of medieval mereology is going to have to deal. Although by this present point applications of such grammar have been excessively elementary, it and the categorial language constituted by Lesniewski's ontology on which it is based are quite essential for any thorough understanding and appreciation of texts in which quidditative-level terms mingle with collective-class discourse (e.g. in the work of the ps-Joscelin of Soissons, or in the commentaries of Gilbert of Poitiers: cf. 2.7). It should be clear, of course, that the importation of Boethius of Dacia has not been for the purpose of using him as some sort of authority, but chiefly in order to bear witness to the continuity of the medieval and present-day disciplines, as well as to illustrate the sympathy between the two. In some respects such was also the intention of Lesniewski himself, as LSE reminds us." (pp. 30-31)

References

LF= Lesniewski, Stanislaw, *Sur les Fondements de la Mathématiqu*e (fragments: traduit du polonais par G. Kalinowski) Hermes, Paris, 1989

LSE= Lejewski, C. , 'Aristotle's Syllogistic and its Extensions', *Synthese*, XV, 1963

SLM = Sobocinski, B., 'Studies in Lesniewski's Mereology', *Yearbook of the Polish Society of Arts and Sciences Abroad*, 1954-5

8. ———. 1991. "Abelard and Medieval Mereology." In *Peter Geach: Philosophical Encounters*, edited by Lewis, Harry A., 49–64. Dordrecht: Kluwer.

"It is a pity that the stock story of early medieval thought tends to concentrate on something called the 'universals controversy' and does so in a way which inappropriately subsumes the twists and turns of a highly complex situation under somewhat ill-fitting headings. Although a start has now been made on a saner account of the matter both in general (1) and insofar as it affects Abelard, (2) nevertheless the usual connotations of a term such as 'realism' when applied to the topic of universals render somewhat startling the realisation that one such theory attacked by Abelard was the polar opposite of any otherworldly Platonic-style theory, namely the '*collectio'* theory. It is yet a greater pity that in his attack on this theory (3) Abelard by no means does justice either to it or to his own wide-ranging account of part/ whole relations. At the time of his attack his maturer thoughts (in the *Dialectica)* were still to come, yet some of the essentials of that later work are already to be found in his gloss on Boethius' *De Divisione,* a gloss dated as belonging to the end of his first teaching phase. (4)

In II below is presented a brief and inadequate characterisation of some of Abelard's theories and themes; in III these are applied to contemporary discussions which have a bearing on his own sad fate and on that of a certain cat to whom we have been genially introduced by Professor Geach."

(1) E.g. De Rijk, *Logica Modernorum* (3 volumes), Van Gorcum, Assen, 1962-7; Kretzmann Article on "Semantics, History of", in Paul Edwards (ed.), *The Encyclopedia of Philosophy*, New York, Macmillan, 1967, vol. 7, pp. 358-406, the *Cambridge History of Later Medieval Philosophy* and various of the *Cahiers de l'Institut du Moyen-age Grec et Latin* of the University of Copenhagen.

(2) Tweedale *Abailard on Universals*, Amsterdam, North-Holland, 1976.

(3) Geyer, *Abelard's Logica 'Ingredientibus'* Munster, 1919.

(4) Dal Pra, *Pietro Abelardo: Scritti di Logica*, Firenze, La Nuova Italia, 1969, p XXVII: 'fin dal primo periodo del suo insegnamento' [from the first period of his teaching].

9. ———. 1999. "Signification, Superfluity, and Indeterminacy in Abelard and other Medievals." In *Signs and Signification. Vol. I*, edited by Gill, Harjeet Singh and Manetti, Giovanni, 69–83. New Delhi: Bahri Publications.

   "1.1. For Boethius and the medievals, signification is primarily linked with *definition* and *understanding* (intellectus). Abelard maintains these links as also does Aquinas, for example.

   1.2. *Definition* canonically so-called is of nominal terms and is effectuated by means of genus, species, and differentia, at least where substance-names are concerned. Paronyms, or denominative names, involve incompletenesses which both Anselm of Canterbury and Abelard characterise most competently according to frameworks other than the strictly canonical. Non-canonical characterisations in general were said to be *descriptions*. The process of definition *stricto sensu* would accordingly comprise or entail sentences such as '*Man* is a species', '*Animal* is a genus', and so on. It was in his commentary on Aristotle's *Categoriae* that Boethius noted how such sentences embodied the threat of fallacious arguments such as the following: 'Man is a species; but Socrates is a man; therefore Socrates is a species'. One solution, he suggested, would be to reconstrue the 'species' of 'Man is a species' as one of the *names of names* (*nominum nomina*), the named name being in his case 'man'. Thus the middle teen of the inference becomes ambiguous, and the illation fails. At the same time, we witness the foundation of the description 'nominalism' upon this intra-linguistic analysis of propositions such as the one now in question, which superficially concern the 'universal' *man*, and so forth. (Ockham and Hobbes are two thinkers often characterised as nominalists, and who quite consciously and overtly preserve this *nominum nomina* terminology, in the same sort of context).

   1.3. But although definition in the strict medieval sense thus appears to be of isolated terms, taken out of context, in practice contextual presuppositions did intervene, and this in various ways. It became common to work on the *significatio* of whole propositions, thus directing attention to the sense or

significatio of the whole within which the defined terms were embedded. The propositions, in their turn, were taken to occur within at least three generally specifiable non-exclusive anticipated contexts, namely either that of the theoretical (or 'quidditative'), wherein definitional propositions are basic, or within that of the syllogistic (largely, the four canonical A, E, I, and O forms) or within that of *usus loquendi*, the context of usage, whence the classical grammarians took their starting point, and which was recognised by medieval investigators of *significatio* as an area distinguishable (because of its contingent irregularities) from that of special technical usages. This latter distinction is already highly marked in the work of St. Anselm (1033 - 1109). These possible varieties of presupposed context will be taken account of in my own remarks, and attention called to them when the occasion arises." pp. 69-70 (notes omitted).

10. Iwakuma, Yukio. 1992. "*Vocales*, or Early Nominalists." *Traditio* no. 47:37–111.

    "In Section I of the present essay I present evidence that in the early twelfth-century nominalists were called *vocales*, a name that only later was replaced by *nominales*. In Section 2 I argue that 'vocalism' arose about 1080, one generation of scholars before Roscelin. Since Garlandus' vocalistic *Dialectica* could be thought to provide evidence of an even earlier origin of the theory, Section 3 will deal with the date of this work, which has wrongly been assigned to the mid-eleventh century or earlier. Sections 4-6 will present a number of unpublished texts by vocalist authors, and the Appendix will supply editions of vocalist texts commenting on or otherwise discussing Porphyry's *Isagoge*." (p. 37(

    Appendix (pp. 65-133): Edition of Vocalist texts commenting or discussing Porphyry's *Isagoge*: I. (Petri Abaelardi (?) *Positio Vocum Sententia* (pp. 66-73); II. Roscelini Compendiensis (?) *Disputata Porphyrii* pp. 74-102); III.1 *Excerpta Pommersfeldensia I* pp. 103-107; III.2 *Excerpta Pommersfeldensia II* pp. 108-110; III.3 *Excerpta Pommersfeldensia III* pp. 110-111.

11. ———. 1992. "Twelfth-Century Nominales. The Posthumous School of Peter Abelard." *Vivarium* no. 30:97–109.

    "Otto [of Freising] says that Abelard held the 'sententia vocum seu nominum' in natural philosophy and introduced it into theology, and Walter Map says that he was 'princeps' among the Nominales. We know that Abelard was a charismatic and popular teacher, and we have no evidence at all of his followers (who must have been many) being called by any other name. We must conclude, then, that either he did not found a distinctive school or that the Nominales are that school. On the other hand I know of no text which both identifies itself as from the Nominales and calls Abelard 'our master' and no text which attributes views identified in the text as Abelard' s to the Nominales. The identification of the Nominales as Abelard's followers would, then, have to rest squarely on finding them characterized by distinctive theses which we have independent reasons to think of as in some way peculiar to Abelard.(9)" (p. 82)

    (9) The need to find *distinctive* theses and not merely theses which Abelard and the Nominales both held is emphasized in Courtenay [1992a.

    References

    Courtenay, W.J., 1992a, ' Nominales ' and Rules of Inference , in: theorie = *Argumentationstheorie. Scholastische Forschungen zu den logischen und semantischen Regeln korrekten Folgens* (Eighth European Symposium for Medieval Logic and Semantics, Freiburg i.B., May 24-27, 1988), ed. K. Jacobi, Leiden: Brill 1993.

12. ———. 1995. "Nominalia." *Didascalia* no. 1:47–88.

    "I have elsewhere asserted that the logic of twelfth century *nominales* is characterized by nine theses not shared by other rival schools, and their origins can be found in the teachings of Peter Abelard.[1] The aim of this paper is to show evidence for my assertion. For each thesis peculiar to the nominales I shall show (1) evidence to prove that it was in fact held by nominales, (2) its Abelardian origin, and (3) what the rival schools asserted

on the issue concerned against the nominalists' theory. I shall also attach as Appendix an edition of three nominalist texts which all contain discussions relevant to the universal problems."

[1] Iwakuma Y., "Twelfth-Century Nominales: The Posthumous School of Peter Abelard", *Vivarium* XXX (1992), pp. 97-109, at p. 104.

13. ———. 2004. "Are Argumentations Propositions?" In *Medieval Theories on Assertive and Non-Assertive Language*, edited by Maierù, Alfonso and Valente, Luisa, 81–110. Firenze: Olschki.

14. ———. 2004. "Influence." In *The Cambridge Companion to Abelard*, edited by Brower, Jeffrey E. and Guilfoy, Kevin, 305–340. Cambridge: Cambridge University Press.

    "In this chapter, I attempt to provide some indication of Abelard's overall historical influence. I shall focus, however, on the influence he had on his contemporaries, taking up three areas of twelfth century logic to which contributed – areas that we would nowadays think of falling within the domain of metaphysics, philosophy of language, and logic, respectively – and then examining his contemporaries' reactions to them. Along the way, however, I will also have something to say about the school of the Nominales and some of their distinctive theories." (p. 305)

15. ———. 2009. "*Vocales* Revisited." In *The Word in Medieval Logic, Theology and Psychology: Acts of the XIIIth International Colloquium of the Société Internationale pour l'Étude de la Philosophie Médiévale, Kyoto, 27 September - 1 October 2005*, edited by Shimizu, Tetsuro and Burnett, Charles, 81–172. Turnhout: Brepols.

    "The aim of this study is to show the struggles between the master [William of Champeaux] and his student [Peter Abelard] concerning Aristotle's *Categories* before their conflict over universals. The young Abelard first brought into Paris a new wave of logic, which I shall call "proto-vocalism", to challenge William to examine it seriously. William tried to harmonize the new logic with his basically Boethian logic.

Abelard pitted himself against William, sharpening his “proto-vocalism”; but the struggles with his master finally transformed Abelard into an original logician, into becoming a “vocalist”, so to speak.

I shall divide this study into three parts. In Part I, I shall discuss some preliminary issues—my general answer to John Marenbon’s comments to my loose understanding of “vocalism”—and introduce two texts so far little known, which I focus on in this essay. In Part II, I shall show William’s attempts to harmonize the new logic, which Abelard had brought into Paris, with his basically Boethian logic. In Part III, I shall discuss an issue in which the struggles between the master and the student came to its culmination, which resulted in the renewal of Abelard’s logic." (pp. 81-82)

References

J. Marenbon, “Life, Milieu, and Intellectual Contexts”, in *The Cambridge Companion to Abelard*, ed. J.E. Browerr and K. Guilfoy, Cambridge 2004, 13-44. The term ‘vocalism’ was first introduced into scholarly discussion in Y. Iwakuma, “Vocales, or Early Nominalists”, *Traditio* 47 (1992), 37-111.

16. ———. 2011. "Alberic of Paris on Mont Ste Geneviève against Peter Abelard." In *Logic and Language in the Middle Ages: A Volume in Honour of Sten Ebbesen*, edited by Fink, Jakob Leth, Hansen, Heine and Mora-Márquez, Ana María 27–47. Leiden: Brill.

"Sten Ebbesen and I have composed a list of sources which refer to the logico-theological schools of the twelfth century.(1) As a supplement to it, I have composed another list, this time covering references by name to masters in logical texts written ca. 1130–1200. In the present paper, I shall give some introductory remarks on this second list, which mainly concern the controversies between Alberic of Paris and Peter Abelard on Mont Ste Geneviève." (p. 27)

(...)

"Conclusion and Further Perspectives

I have so far discussed, in a preparatory way, major disputed issues between Abelard and Alberic, mainly from sources by the Albricani. Some opinions ascribed to Abelard are actually found in his writings, some are not. There are many other texts in my list not touched upon in the present paper. More detailed study of the list should shed new light on Abelard's teachings on Mont Ste Geneviève in his last years—a period from which we have none of his own writings.

But I have yet another purpose in composing this new list. Our texts are always full of anonymous references to other philosophers' theories, such as *quidam dicunt,* etc. My list, together with the list in 'Logico-theological Schools', makes it easier for us to identify those *quidam*, and perhaps also the provenance of anonymous texts, along the lines of what I have just shown above: B13 (not in the list of sources) is a work of an Albricanus, B14 of a Meludinensis, and B15 (not in the list of sources) of a Porretanus.

Such future studies would provide a better understanding of twelfth-century logic." (p. 43)

(1) Y. Iwakuma and S. Ebbesen, 'Logico-theological schools from the second half of the 12th century: A list of sources', *Vivarium* 30 (1992), 173–210.

17. Iwakuma, Yukio, and Ebbesen, Sten. 1992. "Logico-Theological Schools from the Second-Half of the 12th Century: A List of Sources." *Vivarium* no. 30:173–210.

"Several logico-theological schools are known to have been active in the second half of the 12th century. This is an exhaustive collection of the sources we know in which any of those schools are referred to by name. We have only omitted the Helistae , who appear solely in Glossa Promisimus (see texts in Hunt 1940/43, pp. 52-54). For the two early 12th-century schools known, *Waldicelli/Waldilli* and *vocales*, see sources in De Rijk 1966, p. 4 and Iwakuma 1992b, § 1, respectively. Our collection does not include passages in which the adjective for a school-name is attached to the name of the school-founder (e.g. Parvipontanus attached to Adam." (p. 173)

References

De Rijk, L.M., 1966, Some New Evidence on Twelfth-Century Logic. Alberic and the School of Mont Ste Geneviève (Montani), in: *Vivarium*, 4, 1-57

Hunt, R.W., 1941-43, *Studies on Priscian in the Eleventh and Twelfth Centuries , I: Petrus Helias and His Predecessors*, in: MARS, 1, 194-231; repr. in his *The History of Grammar in the Middle Ages. Collected Papers* (Amsterdam Studies in the History of Linguistic Science, ser. III, vol. 5), ed. G.L. Bursill-Hall. Amsterdam, 1980, 1-38.

Iwakuma, Y. [1992b], 'Vocales', or early nominalists, in: *Traditio*, forthcoming [1992]

18. Jacobi, Klaus. 1983. "Abelard and Frege: the Semantics of Words and Propositions." In *Atti del convegno internazionale di storia della logica*, edited by Abrusci, Michele, Casari, Ettore and Mugnai, Massimo, 81–96. Bologna: CLUEB.

"Frege was not familiar with Abelard or any of the other scholastics. There is no historical connection between the two philosophers, be it direct or indirect. When I speak on Abelard and Frege here, the theme is selected with different intentions from those for a paper on say Freqe and Leibniz. I intend to conduct a comparison in systematic perspective. This comparison cannot be based on the demonstration of an influence of Abelard on Frege undiscovered until now or upon some agreeing or dissenting reference to Abelard in Freqe's works. Thus I would like to provide you with a brief explanation of what motivated me to the comparison.

First, I wish to make clear that in selecting this theme I do not intend to open a debate on progress or regression in philosophy or the field of logic. I am not going to have the two philosophers compete with each other. I am not going to measure the one against the other. Thus no attempt will be made here to demonstrate that Abelard "anticipated" later insights of Frege or that Frege "rediscovered" earlier insights which Abelard had reached." (pp. 81-82)

19. ———. 1985. "Peter Abelard's Investigations into the Meaning and Functions of the Speech Sign *Est*." In *The Logic of Being*, edited by Knuuttila , Simo and Hintikka, Jaakko, 1–15. Dordrecht: Reidel.

    "Although Peter Abelard was the most distinguished teacher of logic of his time, a logic understood to be the science of argumentative discourse, he was not destined to found a new philosophical tradition. The historical situation offers at Least a partial explanation -- the pace of philosophical and theological research was so brisk in the twelfth century that many of the established schools enjoyed life spans of at most two or three generations of teachers. The restlessness of the times is embodied to a special degree in Abelard.(1) His writings include commentaries, in many cases several to a work, on the logical works of Aristotle and Porphyry then available, handed down in the form of Boethius' translations, and on Boethius' own logical works. Abelard has to take a number of positions into consideration here: several commentaries on Aristotle by ancient scholars, by Boethius, and by Abelard's own predecessors and teachers, and furthermore the grammatical theories of Priscian and those deriving from Abelard's contemporaries. He discovers with distinctive acumen that the tradition he is examining is disunited and full of tensions on basic questions. It is in the analysis and discussion of these tensions that he finds the field of his own philosophical research. He expects to reach solutions by intensifying the controversies, not by seeking harmony. Thus he traces argument and counter-argument in great thoroughness of detail and from a dizzying succession of points of view, abandoning theses and offering countertheses. What his students could learn from him was not so much a particular theory as his method of formulating and discussing problems.

    The situation is much the same for us. If we turn to Abelard in our inquiry into the logic and semantics of the speech sign 'est', we must discover anew the questions which concerned him. In the first Part of this Paper, I will sketch some of the discussions conducted by Abelard in order to make clear in what contexts he found himself confronting questions on the variations of

meaning, function, or use of the expression 'est'. In the second part, I will group various theses which Abelard deals with appropriately. It is my intention to plot out the full range of the theories discussed and to mark points of conflict. In the third and final part, I will make some cautious comments on the deeper current of unity to be observed in Abelard's reflections, a current perhaps more easily discernible to the modern eye then it was to Abelard himself." (pp. 145-146)

(1) Cf. Jolivet (1969), Chapter IV; de Rijk (1980). Also compare Häring (1975), who explains the meager transmission of Abelard's works as at least partially attributable to Abelard's style of thinking and writing. His philosophical "works" were not written as books intended to be recopied and handed down but as records of his own thinking to be used in teaching. A thesis which he adheres to with conviction at one point in his writings may reappear later or even in a reworking of the first source as being subject lo doubt or in need of revision.

20. ———. 2004. "Philosophy of Language." In *The Cambridge Companion to Abelard*, edited by Brower, Jeffrey E. and Guilfoy, Kevin, 126–157. Cambridge: Cambridge University Press.

"My discussion in what follows is divided into two main parts. In the first part (§ i), I provide some general orientation to those texts and issues that are most important for understanding Abelard’s views

in philosophy of language. As we shall see, these particular texts and issues lead Abelard to place questions of semantics at the very center of his logical studies.(8) In this respect Abelard’s approach to

logic differs from that of contemporary logicians, for whom questions of possible semantic interpretations are typically secondary to the syntactic construction of a calculus. In the second, and longer part of the chapter (§§ ii–v), I turn to those aspects of Abelard’s philosophy of language that constitute his most enduring legacy, namely, his views about the semantics of terms and propositions. In the course of examining these views, we shall see that Abelard’s distinctive approach in logic is

determined in large part by “metaphysical issues such as the status of universals as well as psychological topics such as the role of images in thought.”(9)" (p, 128)

(8) Cf. de Rijk 1981b, 19: “Whoever . . . speaks of semantics cannot ignore the questions of ontology and metaphysics.” Tweedale 1998, 8: “The objective grounds for logical relationships lie in what these xpressions signify.”

(9) Tweedale 1998, 8.

References

de Rijk, L. M. 1981b. Die Wirkung der neuplatonischen Semantik auf das mittelalterliche Denken über das Sein. In *Sprache und Erkenntnis im Mittelalter*, ed. W. Klunxen, 19–35. Berlin: W. de Gruyter.

Tweedale, M. M. 1998. Abelard, Peter (1079–1142). In *Routledge Encyclopedia of Philosophy,* ed. E. Craig, 196–226. London and New York: Routledge.

21. Jacobi, Klaus, Strub, Christian, and King, Peter. 1996. "From *intellectus verus/falsus* to the *dictum propositionis*: The semantics of Peter Abelard and his circle." *Vivarium* no. 34:15–40.

"In his Commentary on Aristotle's "Peri hermeneias, " (1) Abelard distinguishes the form of an expression(2) {*oratio*) from what it says, that is, its content. The content of an expression is its understanding {*intellectus*). This distinction is surely the most well-known and central idea in Abelard's commentary. It provides him with the opportunity to distinguish statements {*enuntiationes*) from other kinds of expressions without implying a difference in their content, since the ability of a statement to signify something true or false {*verum vel falsum*) cannot be found in its content. More precisely, Abelard distinguishes statements both from complete expressions *(orationes perfectae*) that are not statements but rather questions, requests, commands, etc. and from incomplete expressions, that is, mere word strings {*orationes imperfectae*), such as *homo albus*. These kinds of expressions,

according to Abelard, do not differ in the understanding they present but in the way they present it."

(1) The text of Abelard's *Commentary on Aristotle's " Perì hermeneias "* was published from the Milan manuscript in Geyer [1927]. Minio-Paluello [1958] 125-8 published some additions and corrections to Geyer's edition based on the Berlin manuscript. We are preparing a new and complete edition of the full text for the *Corpus chrislianorum* series, to appear shortly; we give references to the page and line number of Geyer [1927], but we supply our own version of Abelard's text, which differs in some cases from Geyer.(...)

(2) We use "expression" to pick out strings of more than one word which are in grammatical agreement. A single word is not an *oratio* but a *dictio* - in our terminology, not an expression but merely a word.

(3) That a statement is an expression signifying something true or false is implied by Aristotle, who said that "not every expression is a statement, but only those in which there is truth or falsity" (*Peri hermeneias* 1 7a2-3), and stated explicidy in Boethius, *De topicis diffrrentii*s 1174B (*oratio significare verum falsumve*). See also 375.29-32.

References

Geyer [1927] Abelard, *Logica "ingredientibus" III (Glosses on the "De interpretatione")*, edited by Bernhard Geyer, Münster.

Minio-Paluello, L. [1958], *Abaelardiana inedita,* Roma.

22. Jussila, Paivi H. 1995. *Peter Abelard on Imagery: Theory and practice, with special reference to his Hymns*. Helsinki: Suomalainen Tiedeakatemia.

23. Kahn, Charles H. 1972. "On the Terminology for *Copula* and *Existence*." In *Islamic Philosophy and the Classical Tradition. Essays Presented by his Friends and Pupils to Richard Walzer on His Seventieth Birthday*, edited by Stern, S.M., Hourani, Albert and Brown, Vivian, 141–158. London: Bruno Cassirer.

Reprinted in C. H. Kahn, *Essays on Being*, New York: Oxford University Press, 2009, pp. 41-61.

"I am concerned here not with the pairing of the terms *copula* and *existentia* in the eighteenth or nineteenth century but with their separate history in the earlier period. Both Latin terms are fixed in their standard uses in medieval philosophy. The term *copula* occurs in Abelard and almost every later writer on logic. The technical sense of *existentia* (specifying the use of *esse* which contrasts with *essentia*, together with a connotation of actuality as opposed to potency) is perhaps not clearly attested before the *esse existentiae* of Duns Scotus. In both cases there are obvious roots for the medieval usage in classical Greek philosophy.

Yet in both cases the connection between the ancient and medieval terminology is more problematic than one might suppose." (p 42 of the reprint)

"Prantl tells us that Abelard is the first extant Latin author to use *copula* as a technical term for est in the categorical proposition *homo est mortalis*.(3) The Kneales give this as the usual view, but suggest that the term may have appeared in earlier medieval discussions of the role of *est* in such propositions.(4) I do not venture any guesses about the terminology of unrecorded or unpublished discussions but, as we shall see, Abelard's early usage of the word suggests that copula was not yet a fixed term. If that is so, Abelard must be personally responsible for the classical terminology. It is clear that (as Prantl noted) the noun does not occur in the corresponding sense either in Boethius, who is Abelard's chief authority, or in the latter's translation of Aristotle. Boethius does use the verb *copulare* and its abstract noun *copulatio* to describe the function of est, following Aristotle's use of the terms and It is easy enough to see how Abelard's use of the term *copula* develops in a natural way out of Boethius' language. But the impression remains that both the term *copula* and, in part, the theory it is designed to convey are Abelard's own." (pp. 42-43)

(3) C. Prantl, *Geschichte der Logik im Abendlande*, 2nd edn. (Graz: Druck, 1885, repr. 1955), ii. 197 with n. 370. Prantl cites from the *Dialectica* (p. 161 in the edition of De Rijk, 1956). He

did not know Abelard's earlier work on logic, the so-called *Logica 'Ingredientibus'* (quoted below as 'LI'), first published by Geyer in 1919–27, where the term copula appears in the relevant sense in at least two passages. See below.

(4) W. Kneale and M. Kneale *The Development of Logic* (Oxford: Clarendon, 1962), 208.

24. Kaldramova, Elitza. 2019. "Peter Abelard's Conceptualism and Its Influence." *Archive for Medieval Philosophy and Culture* no. 25:71–81.

    Abstract: "The problem of the universals is associated with the universals' existence and reasons for classifying objects as one species or genus. It inquires what notions and their features are. The problem's importance is related to the detailed study of dialectics and the notion. The latter is the link between sensible objects and the mind and is essential for building sentences and propositions. Abelard's conceptualism is moderate position considering universals as notions and focusing on the linguistic and logical aspects of the problem. The ontological aspect is not excluded which is evident due to the notion of status. The influence of Abelard's conceptualism in modern times is associated with the theory of direct reference for nouns, the account of formal validity and the theory of propositional content. Common features between Abelard's conceptualism and Rand's objectivism are also discussed such as the abstraction, the important role of reason, the individual and the subjective element."

25. King, Peter. 1982. *Peter Abailard and the Problem of Universals in the Twelfth Century*, Princeton University.

    Available at ProQuest Dissertation Express. Order number: 8220415.

26. ———. 2004. "Metaphysics." In *The Cambridge Companion to Abelard*, edited by Brower, Jeffrey E. and Guilfoy, Kevin, 65–125. Cambridge: Cambridge University Press.

    "Abelard's philosophy is the first example in the Western tradition of the cast of mind that is now called *nominalism*. Although his view that universals are mere words (*nomina*) is

typically thought to justify the label, Abelard's nominalism - or better, his *irrealism* - is in fact the hallmark of his metaphysics. He is an irrealist not only about universals, but also about propositions, events, times other than the present, natural kinds, relations, wholes, absolute space, hylomorphic composites, and the like. Instead, Abelard holds that the concrete individual, in all its richness and variety, is more than enough to populate the world."

(...)

"I'll begin with Abelard's antirealism about universals (§ i), since it is the key to his irrealism. It provides the foundation for his conviction that only individuals exist, a thesis that calls for further analysis of the nature of individuals (§ ii). Most individuals are a kind of integral whole, namely, a hylomorphic compound of form and matter, belonging to natural kinds. Abelard clarifies how the elements of such complex individuals are related to one another with his theory of identity (§ iii), and he develops a theory of how individuals interact to make up the world, using far less by way of ontological resources than other philosophers (§ iv). The result is a subtle and sophisticated irrealist metaphysics, one of the most interesting and original in the history of philosophy." (pp. 65-66, a note omitted)

27. ———. 2007. "Abelard on Mental Language." *American Catholic Philosophical Quarterly* no. 81:169–187.

Abstract: "I argue that Abelard was the author of the first theory of mental language in the Middle Ages, devising a "language of thought" to provide the semantics for ordinary languages, based on the idea that thoughts have linguistic character. I examine Abelard's semantic framework with special attention to his principle of compositionality (the meaning of a whole is a function of the meanings of the parts); the results are then applied to Abelard's distinction between complete and incomplete expressions, as well as the distinction between sentences and the statements which the sentences are used to make. Abelard's theory of mental language is shown to be subtle and sophisticated, the forerunner of the great theories of the fourteenth century."

28. ———. 2007. "Abelard's Answers to Porphyry." *Documenti e Studi sulla Tradizione Filosofica Medievale* no. 18:249–270.

    "Abelard inherited a tradition that began philosophical investigation with the initial questions of Porphyry's *Isagoge*, a tradition putting metaphysics, and in particular the problem of universals, at the centre of philosophy. In Abelard's version of Boethius's Latin translation, Porphyry's questions are as follows: (1)

    [Latin text omiited]

    As regards genera and species, for the present I shall refuse to say whether they subsist or are postulated in understandings that are alone and bare and pure; or whether, if they subsist, they are corporeal or

    incorporeal; and whether they are separated from sensibles or are postulated in sensibles and things going along with them." (p. 249)

    "The focus here is on what Abelard understands to be involved in Porphyry's questions and what they entail, not on the details of his critique of realist theories of universals, or even the details of his own positive account of universal words; these aren't needed to understand Abelard's claims about Porphyry. Section 1 focuses on Abelard's claim that Porphyry's questions do not have a special status. Section 2 considers Abelard's twofold way of construing of Porphyry's final phrase "and things going along with them." Section 3 takes up Abelard's strategy for dealing with the traditional reading of Porphyry's questions. Section 4 describes Abelard's many answers to Porphyry. I conclude by reflecting on whether Abelard's strategy is successful." (p. 250)

    (1) Porphyry, *isag*. 1.9–13 (...)

29. ———. 2023. "Abelard on Existential Inference." In *Metaphysics Through Semantics: The Philosophical Recovery of the Medieval Mind. Essays in Honor of Gyula Klima*, edited by Hochschild, Joshua P., Nevitt, Turner C., Adam Wood,

Adam and Borbély, Gábor, 21–38. Cham (Switzerland): Springer.

"On closer inspection it turns out that Abelard's views surrounding existential import are complex. For while Abelard does talk about empty terms, and about subalternation and quantification and related matters, his discussion addresses many subtle nuances of the "problem" of existential import—or, as I shall call it to highlight its perhaps unproblematic nature and Abelard's more general interest in it, *existential inference*.

The best way to begin, I think, is to take a step back from the texts and the contemporary discussion to see what is involved in existential inference of the sort at issue (§1), and then to see what Abelard has to say about it from the ground up: the distinction of the logical and grammatical parts of the simple categorical sentence (§2), his views about the nature of existential commitment (§3), and the role of quantifiers (§4). In the end, things are rather messy, and a good deal the more interesting for it." (pp. 22-23)

30. Knuuttila, Simo. 1993. *Modalities in Medieval Philosophy*. New York: Routledge.

See Chapter 2: *Philosophical and Theological Modalities in Early Medieval Thought*: Boethius' Modal Conceptions 45, New Theological Modalities: from Augustine to Anselm of Canterbury 62; Gilbert of Poitiers, Peter Abelard and Thierry of Chartres 75-98.

"The basic conceptions of Abelard's modal theory are to be found in a survey serving as an introduction to Chapters XII-XIII of his long commentary on *De interpretatione* (*Super Periermenias*, edited by L. Minio-Paluello, 3-47). A rather different and possibly earlier account occurs in the section on modality in the *Dialectica* (191.1-210.19).

According to Abelard, modal terms in the most proper sense of the word are adverbs expressing the way in which the determinant predicated of a subject inheres in it. Terms like 'necessarily', 'well' or 'rapidly' are used in this manner; some other adverbs like 'possibly' and 'falsely' are also called modals,

but this is due to their position in sentences rather than to their meaning; their task does not consist in modifying actual inherences. When nominal modes (*casuales*), for example, 'it is necessary that' or 'it is possible that', are understood in an adverbial manner, they are in the same way divided into proper and improper modes. Abelard thinks that the reason why Aristotle treated mainly nominal modes in *De interpretatione* 12-13 was that they involve more problems than simple adverbial modes." (p. 83)

31. ———. 2008. "Medieval Modal Theories and Modal Logic." In *Handbook of the History of Logic, Vol. 2: Mediaeval and Renaissance Logic*, edited by Gabbay, Dov and Woods, John, 505–578. Amsterdam: Elsevier.

    "According to Abelard, the possibilities and necessities belonging to the individuals of a species are determined by their shared nature. What nature demands or allows and what is repugnant to it is the same for all members of a species, and what is possible is seen in what has taken place in the representatives of the species.(47) One could regard these essentialist possibilities as abstract Philonian possibilities, many of which never become or even can become actual in an individual.(48) This is one aspect of Abelard's modal views, but there are others. He assumes that what is actual is temporally necessary at a certain point of time as no longer avoidable, but he also argues that unrealized alternatives are possible at the same time in the sense that they could have happened at that time. Some of the alternatives of a singular being are real counterfactual alternatives. These are unrealizable because of some previous changes in the conditions of the subject.

    There are also merely imaginable alternatives, such as Socrates' being a bishop, which never had a real basis in things.(49)" (p. 521)

    (47) *Dialectica* 193.36-194.3; 385.1-8.

    (48) Philo's definitions of modal concepts are described in Boethius's commentary on *De interpretatione* (II, 234.10-21). One of his examples was that it is possible for a piece of wood at the bottom of the sea to be burnt, in virtue of the fitness of the

subject. See also Alexander of Aphrodisias, *In Aristotelis Analyticorum priorum librum I commentarium*, ed. M. Wallies, *Commentaria in Aristotelem Graeca* 2.1 (Berlin: Reimer, 1883), 184.6-12; John Philoponus, *In Aristotelis Analytica Priora commentaria*, ed. M. Wallies, *Commentaria in Aristotelem Graeca* 13.2 (Berlin: Reimer, 1905), 169.19-20.

(49) See the discussion of Logica 'Ingredientibus', 272.39-273.19, and some other texts in C.J. Martin, 'An Amputee is Biped. The Role of the Categories in the Development of Abelard's

Theory of Possibility' in J. Biard and I. Catach-Rosier (eds.), *La Tradition médiévale des Categories (XIIe-XIVe siècles),* Philosophes médiévaux 45 (Louvain-la-Neuve: ´Editions de l'Institut Supérieur de Philosophie, Louvain and Paris: Peeters, 2003), 225-42.

32. ———. 2010. "Medieval Commentators on Future Contingents in *De Interpretatione* 9." *Vivarium* no. 48:79–95.

Abstract: "This article considers three medieval approaches to the problem of future contingent propositions in chapter 9 of Aristotle's *De Interpretatione*. While Boethius assumed that God's atemporal knowledge infallibly pertains to historical events, he was inclined to believe that Aristotle correctly taught that future contingent propositions are not antecedently true or false, even though they may be characterized as true-or-false. Aquinas also tried to combine the allegedly Aristotelian view of the disjunctive truth-value of future contingent propositions with the conception of all things being timelessly present to God's knowledge. The second approach was formulated by Peter Abelard who argued that in Aristotle's view future contingent propositions are true or false, not merely true-or-false, and that the antecedent truth of future propositions does not necessitate things in the world. After Duns Scotus, many late medieval thinkers thought like Abelard, particularly because of their new interpretation of contingency, but they did not believe, with the exception of John Buridan, that this was an Aristotelian view."

33. ———. 2012. "A history of modal traditions." In *Handbook of the History of Logic, Vol. 11: Logic: A History of His Central Concepts*, edited by Gabbay, Dov, Pelletier, Francis Jeffry and Woods, John, 309–339. Amsterdam: Elsevier.

    "My aim is to shed light on long-lived assumptions in Western modal conceptions as well as some clashes between them. In the first section, I shall deal with those trends in ancient and medieval modal thought which were inclined to codify the meaning of modal notions in frequency terms. The second section concentrates on the emergence of a different paradigm in which the analysis of necessity and possibility is separated from a one world model, and which considerably modified late medieval modal logic. The third section is about the interplay of these traditions in the early modern period and their influence up to the nineteenth century." (p. 309)

    "Abelard thought that what was actual was temporally necessary as being no longer avoidable, but he argued that mutually exclusive alternatives are possible at the same time in the sense that one or another of them could have happened at that time.(25) As distinct from Boethius's diachronic modalities, Abelard also operates with simultaneous alternatives of the present."

    (...)

    "Abelard argued that future contingent statements are either true or false although they are not determinately true or determinately false, by which he means that their truth or falsity does not imply that the things which make them true or false are determinate.(28)" (p. 318)

    (25) Logica 'Ingredientibus', 273.39–274.19; see [Martin, 2003, pp. 238–9].

    (28) See [Lewis, 1987]. Later medieval authors usually regarded future contingent statements as either true or false. While Abelard ascribed this view to Aristotle as well, the majority of later writers believed that Aristotle gave up bivalence with respect to these statements; see [Knuuttila, 2010a].

References

[Knuuttila, 2010a] S. Knuuttila. Medieval commentators on future contingents in *de interpretatione* 9. *Vivarium*, 48:75–95, 2010.

[Lewis, 1987] N. Lewis. Determinate truth in Abelard. *Vivarium*, 25:81–109, 1987.

[Martin, 2003] C. Martin. An amputee is bipedal: The role of the categories in the development of Abelard's theory of possibility. In J. Biard and I. Rosier-Catach, editors, *La Tradition médiévale des Catégories (XIIe-XIVe siècles)*, pages 225–242. Peeters, Louvain and Paris, 2003.

34. ———. 2012. "Modality." In *The Oxford Handbook of Medieval Philosophy*, edited by Marenbon, John, 312–341. New York Oxford University Press.

"Before the intensional modal semantics of John Duns Scotus, various new modal ideas were developed in the twelfth century. According to Abelard, what nature demands or allows and what is repugnant to it is the same for all members of a species, and what is possible in this sense for one member of a species can be derived from what is actualised in other members of the same species (Abelard 1956, *Dialectica* , 193:36–194:3; 385:1–8). Th is is in agreement with the traditional ideaof partial potencies, but Abelard also developed some aspects of the model of simultaneous alternatives." (p. 322)

35. Kretzmann, Norman. 1982. "The Culmination of the Old Logic in Peter Abelard." In *Renaissance and Renewal in the Twelfth Century*, edited by Benson, Robert L. and Constable, Giles, 488–511. Oxford: Clarendon Press.

"Concentrating on Abelard, whom Haskins rightly calls "one of the first philosophical minds of the whole Middle Ages" (351), needs no justification; if Anselm is assigned to the eleventh century, Abelard is the philosopher of the twelfth century. But why focus on the Old Logic, which had been the main secular source of intellectual sustenance since the earliest Middle Ages and which therefore scarcely qualifies as the stuff of a renaissance? Because the Old Logic is all that Abelard had,(10)

and because in many respects Abelard's philosophical accomplishments are a worthy culmination of the half-millennium of the Old Logic. Abelard's contribution to the twelfth-century renaissance, the single most important philosophical contribution, is not that of a sower nor that of a reviver, but the contribution of a harvester. Some of the glory of the twelfth century is not vernal but autumnal." (pp. 490-491)

(10) Abelard was evidently at least acquainted with some treatises of the New Logic (de Rijk ed., *Dialectica*, Introduction, xvi- xviii), but his surviving work is in no important way influenced by the recovery of Aristotle, still far from complete when Abelard died in 1142.

36. Kunitz-Dick, Alisa. 2014. "Peter Abelard's Various Conceptions of Place (*locus*): from Attributes of Substances to Collections." *Medioevo. Rivista di Storia della Filosofia Medievale* no. 39:31–36.

    Abstract: "This article traces the development of Peter Abelard's innovative conceptions of place, from the *Dialectica* to his theological writings. It proposes that there were a number of shifts in his models, the most important of which was the reduction of place, both substantial and quantitative, which had been classified as accidental or semi-accidental, to his ultimate view in which place is a collection of things which are contained in some way. Other variations, such as the relationships between God and place or incorporeals and place, differed less regularly between his works, and there are even occasional internal discrepancies within them. In the conclusion, I summarise this article's findings and discuss possible reasons for Abelard's shifting models."

37. Lenz, Martin. 2005. "Peculiar Perfection: Peter Abelard on Propositional Attitudes." *Journal of the History of Philosophy* no. 43:377–386.

    "Peter Abelard is one of the first and few authors in the tradition of mediaeval logic who drew a distinction not only between propositional content and assertive force but also between propositional content and propositional attitude. The latter kind of distinction does not only involve the

consideration of statements but of sentences in general, including expressions of wishes, orders, questions and such like. He thereby departs from the Aristotelian way of analysing sentences in terms of predication, and propounds a structural model that allows for a more coherent account both of the units of language and of how they relate to the mind.

(...)

So the modest aim of my paper is to raise the question whether this distinction might have been underestimated in the history of the mediaeval philosophy of language. A thorough study of this distinction might eventually provide an answer to the more general question of how we came to think of the sentence as a complete or peculiarly perfect unit of language."

38. ———. 2007. "Are Thoughts and Sentences Compositional? A Controversy between Abelard and a Pupil of Alberic on the Reconciliation of Ancient Theses on Mind and Language." *Vivarium* no. 45:169–188.

    Abstract: "This paper reconstructs a controversy between a pupil of Alberic of Paris and Peter Abelard which illustrates two competing ways of reconciling different ancient traditions. I shall argue that their accounts of the relation between sentences and thoughts are incompatible with one another, although they rely on the same set of sources. The key to understanding their different views on assertive and non-assertive sentences lies in their disparate views about the structure of thoughts: whereas Abelard takes thoughts to be compositional, the opponent's arguments seem to rely on the premise that the mental states which correspond to sentences cannot be compositional in the way that Abelard suggested. Although, at a first glance, Abelard's position appears to be more coherent, it turns out that his opponent convincingly argues against weaknesses in Abelard's semantic theory by proposing a pragmatic approach."

39. Lenzen, Wolfgang. 2022. "Rewriting the History of Connexive Logic." *Journal of Philosophical Logic* no. 51:525–553.

Abstract: "The “official” history of connexive logic was written in 2012 by Storrs McCall who argued that connexive logic was founded by ancient logicians like Aristotle, Chrysippus, and Boethius; that it was further developed by medieval logicians like Abelard, Kilwardby, and Paul of Venice; and that it was rediscovered in the 19th and twentieth century by Lewis Carroll, Hugh MacColl, Frank P. Ramsey, and Everett J. Nelson. From 1960 onwards, connexive logic was finally transformed into nonclassical calculi which partly concur with systems of relevance logic and paraconsistent logic. In this paper it will be argued that McCall’s historical analysis is fundamentally mistaken since it doesn’t take into account two versions of connexivism. While “humble” connexivism maintains that connexive properties (like the condition that no proposition implies its own negation) only apply to “normal” (e.g., self-consistent) antecedents, “hardcore” connexivism insists that they also hold for “abnormal” propositions.

It is shown that the overwhelming majority of the forerunners of connexive logic were only “humble” connexivists. Their ideas concerning (“humbly”) connexive implication don’t give rise, however, to anything like a non-classical logic."

References

McCall, S. (2012). *A history of Connexivity*. In D. M. Gabbay, F. J. Pelletier, & J. Woods (Eds.), *Handbook of the history of logic,* Vol. 11, *Logic: A history of its central concepts* (pp. 415–449). Elsevier

40. ———. 2023. "Abelard and the Development of Connexive Logic." In *The Logica Yearbook 2022*, edited by Sedlár, Igor, 55–78. London: College Publications.

41. Lewis, Neil T. 1987. "Determinate Truth in Abelard." *Vivarium* no. 25:81–109.

"I wish to show in this paper that when read in this broader context we can see (i) that Abelard does not adopt different views in LI [*Logca Ingredientibus*] [*] and D [*Dialectica*] , in that the same solution is offered in each to this line of

argument; (ii) that Abelard in these passages does not rely on the claim that valid inference preserves determinancy.

(...)

"Before we consider these issues in detail it will prove useful to set out some more general points pertaining to the concept of deter- minancy, an important but little studied notion in Abelard. I shall not try here to iron out all of the considerable difficulties Abelard's texts pose, but rather I shall outline some general themes useful for the more detailed discussion in section III on." (pp. 81-82)

[*] LI, p. 424.36-40. The longer discussion of concern to us occupies pp. 421.16- 422.40. The text of this passage in Geyer's edition contains a number of incorrect readings and the apparatus contains some errors and omissions. The reedited text may be found in the appendix to this paper (pp. 106-108).

42. MacFarlane, John. 2016. "Abelard's Argument for Formality." In *Formal Approaches and Natural Language in Medieval Logic: Proceedings of the Xixth European Symposium of Medieval Logic and Semantics, Geneva, 12-16 June 2012*, edited by Cesalli, Laurent, Goubier, Frédéric and Libera, Alain de, 41–57. Turnhout: Brepols.

"Generalizing, we might say that formally valid inferences are inferences whose validity is not grounded in any fact about the world. Of course, the claim that there *are* such inferences is a substantive one. Let us call it the Formality Thesis:

There are inferences whose validity is entirely grounded in their forms, and does not depend on any fact about the world(5)" (p 42)

"Abelard interests me because, unlike later medieval logicians, he offers an argument for the Formality Thesis –a thesis his predecessors seem to have rejected. This argument motivates his distinction between formal and material consequence –or, in his terminology, perfect and imperfect entailment (inferentia(6). He does not slide from «good in all matter» to «good in virtue of form»; indeed, he recognizes inferences that are good in all matter but depend for their validity on facts

about the world. He gives a much subtler argument –and it is a good argument, in its philosophical context. But it is not an argument that can give us a good reason to accept the Formality Thesis."(pp. 43-44)

(5) As stated, the Formality Thesis is ambiguous between a metaphysical thesis (there are inferences that are valid solely in virtue of their forms, and not at all in virtue of any facts about the world) and an epistemological thesis (there are inferences that we can know to be valid solely on the basis of knowledge of their forms, and independently of any knowledge of facts about the world).

(6) translating inferentia as «entailment», I follow C. Martin «Logic», in J. E. Brower, K. Guilfoy (eds.), *The Cambridge Companion to Abelard*, Cambridge University Press, Cambridge 2004, pp. 158-199.

43. Malcolm, John. 1979. "A Reconsideration of the Identity and Inherence Theories of the Copula." *Journal of the History of Philosophy* no. 17:383–400.

"Scholars concerned with medieval logic have recently made much of a distinction between two alleged theories as to the logical function of the copula: the identity theory and the inherence theory."

(...)

"My thesis will be that the identity-inherence dichotomy has been applied much too broadly and uncritically, for it does not hold for cases of accidental predication. I shall first try to get an adequate formulation of the two theories and shall then contrast them with what I shall call the normal theory of accidental predication. I then turn to Abelard and maintain that he does not go from an inherence theory in the L*ogica lngredientibus* (5) to an identity theory in the *Dialectica* but, rather, holds to the normal theory in both works. After this I shall examine Ockham and his followers and shall conclude that they are not, as is usually supposed, identity theorists.

The question remains whether there are any *bona fide* inherence theorists. I shall suggest that the attempts to

consider Aquinas and Ferrer to be such are inconclusive, but I shall not, in contrast with the alleged identity theorists, give a conclusive rebuttal of this possibility. Finally, I shall indicate that the true scope of the controversy between identity and inherence should be limited to essential predication." (pp. 383-384 a note omitted)

44. Maloney, Christopher J. 1982. "Abailard's Theory of Universals." *Notre Dame Journal of Formal Logic* no. 23:27–38.

    "Abailard like Porphyry asks, but unlike Porphyry answers, three questions of the semantics and ontology of universals:

    (1) What is the common cause by which the universal word, a predicate, is correctly imposed or predicated?

    (2) What kind of concept of commonality is understood in an intelligent act of predication?

    (3) Is a predicate called common because of the common cause of imposition, the concept understood in predication or both?

    Abailard's responses to these questions are notorious and raise as many issues as they resolve. It is my primary purpose to reconstruct Abailard's answers in such a way that his nominalism and conceptualism are intelligible.

    This requires an analysis of what he calls the common cause of the imposition of a predicate as well as his view of abstract concepts. To assess his theory, it is first necessary to survey briefly his objections to William and Joscelin. We shall find that Abailard's own theory is subject to much the same criticism he levies against his rivals. Indeed, far from the nominalism he hopes to defend, Abailard's theory runs off toward Platonic realism." (pp. 27.28, a note omitted)

45. Marenbon, John. 1991. "Abelard's Concept of Possibility." In *Historia Philosophiae Medii Aevi. Studien zur Geschichte der Philosophie des Mittelalters. Festschrift für Kurt Flasch zu seinem 60. Geburtstag. (vol. II)*, edited by Mojsisch, Burkhard and Pluta, Olaf, 595–609. Amsterdam: B. R. Grüner.

Reprinted as Essay X in: John Marenbon, *Aristotelian Logic, Platonism, and the Context of Early Medieval Philosophy in the West*.

"In the following pages, I will argue that Abelard's view of possibility is more unusual and more complex than these scholars [*] have allowed. Strange though it may seem, Abelard accepted the notion of genuine

counterfactuality and set out to analyze it, and yet he rejected the idea of alternative possible worlds on which modern logicians found their analysis of counterfactuality. The reasons why he did so go to the very heart of his philosophy and theology.

The main works of Abelard's which will be used in this discussion are his *Dialectica* — a textbook of logic; the glosses to Aristotle's *Categories* and *De interpretatione* from his *Logica ingredientibus;* his *Theologia christiana* and his *Theologia scholarium*. Both the *Dialectica* and the glosses probably date from between 1117 and 1121: neither work as a whole seems to be earlier than the other, although in individual sections one or the other appears to be more developed.(7) Both of the theological works, however, are later: the *Theologia christiana*, in its various recensions, dates from c. 1121-6, and the *Theologia scholarium* from 1133-40.(8)" (p. 596, a note omitted)

[*] Simo Knuutila and Hermann WEideman.

(7) 7 See C. Mews, «On dating the works of Peter Abelard», *Archives d'histoire doctrinale et littéraire du moyen âge* 52 (1985), pp. 73-134, esp. p. 88, as corrected by L.M. De Rijk, «Peter Abelard's semantics and his doctrine of being», *Vivarium* 24 (1986), pp. 85-127, at pp. 103-8.

(8) Cf. Mews, *op. cit.*, pp. 131-2.

46. ———. 1992. "Vocalism, Nominalism and the Commentaries on the *Categories* from the Earlier Twelfth Century." *Vivarium* no. 30:51–61.

Reprinted as Essay XIII in: John Marenbon, *Aristotelian Logic, Platonism, and the Context of Early Medieval Philosophy in the West*.

"Commentaries on Aristotle's *Categories* are a rich, and hardly explored, source of information about twelfth-century logic.(1) The evidence they offer about nominalism supports the traditional view of its origins against those historians who have argued that the *nominales* were so called, not because they were said to describe genera and *species* as nomina, but because they adhered to a theory of the 'unity of the noun.'This paper will explore three main aspects of this evidence: the use of the word *nomen* in logic; the controversy between Abelard and Alberic over universals; and the origins of the thesis *quod semel est uerum, semper est uerum*." (p. 51, a note omitted)

(1) See Marenbon, *Medieval latin commentaries* for a catalogue and general discussion of the material. References to this catalogue are made in brackets in bold print - eg. (**C** 8).

References

Marenbon, J., Medieval latin commentaries and glosses on aristotelian logical texts before ca. 1150 A.D., in: *Glosses and Commentaries on Aristotelian Logical Texts: The Syriac, Arabic and Medieval Latin Traditions;* , ed. C. Burnett. London, 1993.

47. ———. 1992. "Abelard, *Ens* and Unity." *Topoi* no. 11:149–158.

Abstract: "Although Abelard arrived at a view of "ens" nearer to Aristotle's than his sources would suggest, unlike Thirteenth-century thinkers he did not work out a view of transcendentals in terms of "ens", its attributes and their convertibility. He did, however, regard unity (though not goodness or truth) as an attribute of everything. At first, Abelard suggested that unity, being inseparable, could not be an accident according to Porphyry's definition (' that which can come and leave a subject without the subject being corrupted') either it is some type of form not classified by Porphyry, or not a form at all. In his later logical work, Abelard argued differently. Unity, he said, is an accidental form, but Porphyry's definition of an accident must

be understood negatively, not as asserting something about what could happen in reality (since the form of unity could never leave its subject) but rather something about an absence of connection: were it, per impossible, to occur, the loss by a subject of its form of unity would not lead to the loss of its specific or generic status."

48. ———. 1997. "The Platonisms of Peter Abelard." In *Néoplatonisme et philosophie médiévale*, edited by Benakis, Linos G., 109–129. Turnhout: Brepols.

    Reprinted as Essay XII in: John Marenbon, *Aristotelian Logic, Platonism, and the Context of Early Medieval Philosophy in the West*.

    "When, in 1966, Father Chenu published *Les platonismes au XII siècle,* twelfth-century Platonism had already been a topic of scholarly interest for nearly a century. (1) Chenu's novelty lay in his plural: not «Platonism» but «Platonisms». He distinguished a strand going back to Augustine, another deriving from the *Timaeus* and Boethius, one linked to pseudo-Dionysius and another to Arab writers. Chenu's is a useful analytical method which allows the scholar to avoid broad, oversimplifying labels whilst continuing to see the history of medieval philosophy in the neat terms of interrelated and interacting traditions. No doubt it could be fruitfully applied to Abelard -- but that is not my intention here. The Platonisms I shall be discussing are not those of the historian, but Abelard' s own: some of the diverse ways in which he used a notion of Plato and Platonic teaching to formulate, structure and convey his own thought (2). At the end of this paper, I shall return to the question of method, and ask what my procedure has to offer by contrast with other ways of discussing Platon- or any other -ism."

    (1) In M.-D. Chenu, *La théologie au douzième siècle* (Études de philosophie médiévale, 45). Paris, 1966, pp. 108-141. For a sketch of the historiography of twelfth-century Platonism, see J. Marenbon, "Platonismus im zwólften Jahrhundert: alte und neue Zugangsweisen" (translation by A. Snell & O. Summerell), in T. Kobusch and B. Moisisch (eds.), *Platon in der*

abendländischen Geistesgeschichte, neue Forschungen zum Plaumismus, Darmstadt, forthcoming. [Darmstadt, Wissenschaftliche Buchgesellschaft, 1997 pp. 101-119]

(2) In my general presentation of Abelard's use of Plato and attitude to him, I summarize arguments put forward in various places and different contexts in my *The Philosophy of Peter Abelard*. Cambridge, 1997. But in my longer and more detailed discussions here -- of Plato universals, the *Timaeus* and optimism, and «the Platonism of the *Republic*» -- I develop and extend what I have written in the book.

49. ———. 1997. *The Philosophy of Peter Abelard*. Cambridge: Cambridge University Press.

Paperback edition, with corrections and bibliographical note, 1999.

"Outside quite technical matters of logic, it is implied, Abelard must be seen as important only in matters of detail and method - an attitude strengthened by an idea which has been taken up by more recent historians but goes back at least to the fifteenth-century historian Trithemius: that Abelard's theology is characterized by its application of the methods of logic to discussing Christian doctrine.(3)

The aim of this book is to show that this view of Abelard as a mainly critical thinker is inaccurate and unjust. His was more than a fleeting, superficial brilliance. He was a constructive and, at times, systematic philosopher; and, although it is certainly true that he (like many of his contemporaries) used the methods of logic in treating Christian doctrine, his theology is remarkable for much more than its method. Abelard's writings do not, however, form a single, coherent system. Abelard's interests and achievements fall into two roughly chronological phases. As a logician, he worked within the structure provided by the ancient texts which made up the logical curriculum. He provided cogent and often original answer to the philosophical questions which this study raised, but he did not pursue them systematically. He developed a sophisticated account of the semantics of universal words, but he did not resolve an underlying tension which runs through

his ontology. As a writer on Christian doctrine, by contrast, Abelard strove to create his own theological system. Although he used methods and concepts he had developed within his logic, they were incidental to his main suppositions and aims. The bearing of Abelard's theological system was predominantly ethical: in the course of developing it, he elaborated a coherent, systematic and wide-ranging moral theory.

(...)

"The plan is simple. Part I gives a general account of Abelard as a whole: his life, his writings and teaching and the overall shape and growth of his thought. Part II looks at the mainly coherent, but unsystematic philosophy which he developed in close connection with his study of logic. Part III examines the ethical system which binds together his theology. (pp. 2-3)

(3) See appendix (below, pp. 344-5).

50. ———. 1998. "The Twelfth Century." In *Routledge History of Philosophy. Volume III: Medieval Philosophy*, edited by Marenbon, John, 150–187. New York: Routledge.

On Abelard see pp. 155-166.

"The following pages can give only an impression of some of the most philosophically interesting aspects of a thinker whose originality and breadth of vision would entitle him to much more space in a History of Philosophy had it not been his misfortune to live in the Middle Ages. First, his ideas on two areas connected with the more formal side of logic will be sketched: his treatment of conditionals, and his analysis of modal statements. (Many other of his more formal developments are also of great interest: for instance, his treatment of 'impersonal statements', such as 'It is good that you are here', and his discussion of the copula.(9) Second, after a glance at his basic metaphysics, Abelard's approach to the problem of universals will be examined. Third, his account of a central area in ethics, the ethical act, will be discussed and set in context." (pp. 156-157)

(9) On impersonal statements, see Jacobi [7.53]; on the copula, see de Rijk [7.76] (acute discussion and full bibliography on the

question).

References

7.53 = Jacobi, K. ‘Diskussionen über unpersönlichen Aussagen in Peter Abaelards Kommentar zu *Peri Hermeneias*’, in E.P.Bos (ed.) *Mediaeval Semantics and Metaphysics* (Artistarium supplements 2), Nijmegen, 1985, pp. 1–63.

7.76 = Rijk, L.M. de, 'Peter Abelard’s semantics and his doctrine of being’, *Vivarium* 24 (1986): 85–128.

51. ———. 2004. ""Dicta", Assertion and Speech Acts: Abelard and Some Modern Interpreters." In *Medieval Theories on Assertive and Non-Assertive Language*, edited by Maierù, Alfonso and Valente, Luisa, 59–80. Firenze: Olschki.

"The *dictum* is one of Abelard's most striking philosophical inventions, and one of the most controversial for his modern interpreters.(1) A *dictum* - as the Latin word indicates - is what is said by a *propositio* {a propositional sentence (2)." (p. 59)

(...)

"Too much remains hypothetical to speak of conclusions_ in the proper sense but this train of argument, stimulated by the speculations of Jacobi, Strub and King has led me to assert what twelfth-century logicians might have called a series of *positiones* (perhaps, the critic might say, no less paradoxical than some of theirs!). First, although Abelard is absolutely clear in seeing propositional sentences as assertive language, he does *not* use his concept of *dicta* to elaborate a theory of speech acts, which would distinguish between utterances with same content but different sorts of force - assertive, interrogative, exhortatory, desiderative. Second, there is no reason to suppose that Abelard introduced his theory of *dicta* in the first place so as to clarify the distinction between assertive and non-assertive language.

Rather Abelard needed the notion of *dicta* as an integral part of the metaphysics which he worked out in the course of his logical teaching. Third, it is extremely improbable that Abelard added the excursuses discussing *dicta* to his *Logica*

commentary on *De interpretatione* only after he had written the literal commentary and some of the other excursuses. Indeed, i! is altogether unlikely that Abelard added excursuses at a later stage to literal commentaries he had already written. Fourth Abelard may well have given up his theory of dicta in his last years of teaching, unable perhaps to resolve the problems It posed and wanting to concentrate on his ethical and theological project.

It is !he last, and most tentative, of these conclusions which is the most far-reachmg, and not Just for how it bears out a view of Abelard's career I have urged elsewhere, in which he moves away from elaborating a metaphysical theory that ultimately failed to cohere to concentrating on providing a rational account of Christian belief, organized around ethical doctrine. (35) It also contains the implication that Abelard himself found his views about *dicta* unsatisfactory, and, although, such an argument from silence can never be conclusive, his and his followers' failure to use the notion of *dicta* to discuss the object of faith is remarkable.

(1) Irene Rosier-Catach gives an up-to-date list of the main modern discussions in n. 1 of *Les discussions sur le signifié des propositions chez Abelard et ses contemporains* in this volume. I am very grateful to her for allowing me to use the text of her article and for discussing my views with me, and to her and Martin Lenz for reading through and commenting on this paper.

(2) The usual translation of *propositio* by 'proposition' is particularly confusing in this context.

By a *propositio*, Abelard means a token affirming or denying sentence: I shall therefore use the rather clumsy 'propositional sentence' as an English equivalent of the Latin *propositio*.

(35) See Marenbon, *The Philosophy of Peter Abelard,* esp. p. 208-215.

References

Klaus Jacobi, Christian Strub and Peter King. *From* intellectus verus/falsus *to the* dictum propositionis: *the Semantics of Peter Abelard and his Circle*, « Vivarium», 34, 1996, p, 15-40.

52. ———. 2006. "The Rediscovery of Peter Abelard's Philosophy." *Journal of the History of Philosophy* no. 44:331–351.

    Abstract: "My article surveys philosophical discussions of Abelard over the last twenty years. Although Abelard has been a well-known figure for centuries, his most important logical works were published only in the twentieth century and, so I argue, the rediscovery of him as an important philosopher is recent and continuing. I concentrate especially on work that shows Abelard as the re-discoverer of propositional logic (Chris Martin); as a subtle explorer of problems about modality (Simo Knuuttila, Herbert Weidemann) and semantics (Klaus Jacobi); as a metaphysician before the reception of Aristotle's Metaphysics (Peter King); and as an ethical thinker who echoes the Stoics (Calvin Normore) and anticipates Kant (Peter King)."

53. ———. 2007. "Abelard's Changing Thoughts on Sameness and Difference in Logic and Theology." *American Catholic Philosophical Quarterly* no. 81:229–250.

    Abstract: "The discussion of sameness and difference in the three versions of the Theologia has been analyzed by a number of recent writers (for example, Ian Wilks, Jeff Brower, and Peter King). Despite some disagreements, they concur that Abelard's views are best expressed in the *Theologia christiana* and that he is putting forward a theory that-perhaps adapted-can help philosophers now in considering the material constitution of objects. By contrast, I argue that his views, which should be seen as developing and reaching their final form in the *Theologia "scholarium,"* are much more closely linked than these scholars have thought to the particular theological problems involved in discussing the Trinity."

54. ———. 2007. "Peter Abelard and Peter the Lombard." In *Pietro Lombardo. Atti del XLIII Convegno Storico Internazionale*, 225–239. Spoleto: Fondazione Centro italiano di studi sull'alto Medioevo.

55. ———. 2007. *Medieval Philosophy: An historical and philosophical introduction*. New York: Routledge.

Peter Abelard, pp. 135-148.

"The system of logic Abelard devised was – so it has recently been shown (Martin, 1987, 1991, 2004) – a propositional logic. As logicians since Alcuin had done, he accepted Aristotelian syllogistic, though he saw the problems in, and adjusted, the modal syllogistic. As well as Aristotelian predicate logic,there had been in the ancient world a propositional logic – that of the Stoics.

But by late antiquity it was no longer understood, and so Boethius's usefulness as an intermediary was limited (Chapter 3, section 1). None the less, Abelard seems, partly through a perspicacious reading through Boethius's work on hypothetical syllogisms, partly through his own imagination, to have reinvented a fully propositional system. A precondition for this discovery, to which his tendency to analyse and disambiguate sentences may have disposed him, was his grasp of propositionality. Abelard, by striking contrast with Boethius, understood the idea of propositional content and propositional operations (such as negation and consequence) on it; so, for example, he was fully aware of how negating 'If p, then q' is not a matter of negating the antecedent or the consequent (let alone any of the terms which constitute them), but of denying that q is entailed by p." (p. 137)

References

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Jolivet, J. and De Libera, A. (1987) Gilbert de Poitiers et ses contemporains, Naples: Bibliopolis (History of Knowledge).

Martin, C.J. (1987) 'Embarrassing arguments and surprising conclusions in the Development of theories of the conditional in the twelfth century' in Jolivet and De Libera (1987), 377–400.

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History of Logic

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Selected Bibliography on Abelard's Logic and Ontology. Third Part Mar - Pot

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   "It was Christopher Martin who, in 1992, first made the link between Abelard's views on accidents and *differentiae* and what are usually called, in contemporary analytical ontology, `tropes'. Myself apart, Alain de Libera is the only writer I know who has taken serious notice of this idea, discussing it both on its own, and in the wider context of truth-makers and empty reference.(1) De Libera does not think that Abelard can illuminatingly be described as a trope-theorist. I still disagree, and although our disagreement is based on matters of detail, it may illustrate, as I suggest in the conclusion, a wider difference in approach." (p. 85)

   (1) I. C. Martin, 'The Logic of the *Nominales,* or, The Rise and Fall of Impossible *Positio', Vivarium* 30 (1992), 110-26; J. Marenbon, *The Philosophy of Peter Abelard,* Cambridge; CUP, 1997, 119-30; A. de Libera, 'Des accidents aux tropes. Pierre Abélard', *Revue de métaphysique et de morale* 4 (2002) 509-30; *La Référence vide. Théories de la proposition,* Paris; PUF, 2002, 122-6, 269-97.

2. ———. 2008. "Abelard on «Differentiae»: How Consistent is His Nominalism?" *Documenti e Studi sulla Tradizione Filosofica Medievale* no. 19:179–190.

   "Abelard develops this nominalist theory in his discussions of Porphyry’s Questions in the *Logica Ingredientibus (LI)* commentary on the *Isagoge* (c.1119) and in his later *Logica Nostrorum Petitioni Sociorum* or *Glossulae (LNPS)* to the

Isagoge (c. 1125-6)(1). In both places he establishes his theory elaborately, both by reducing to absurdity the various versions of the realist position, and by explaining how the semantics of universal terms can be very satisfactorily explained without positing the existence of any universal things. But does he stick to it? There is a passage a little later on in the *LNPS* in the section on *differentiae*, an excursus at the end of the section, which has been interpreted — by myself(2) — to show that he did not. I argue that at least on one, plausible reading of the passage, Abelard will « have abandoned the

nominalist position he always explicitly holds on universals » and substituted for it a sophisticated realism, reminiscent of Duns Scotus.

Both the Excursus itself, and my interpretation of it, have been generally ignored(3) . This is a pity, for two reasons. First, the Excursus, though horribly obscure in some places, is a fascinating example of Abelard's thinking and, especially, of the analytical tools he had developed by the mid-1120s. Second, my interpretation is wrong and needs to be corrected — and putting it right offers a quite important general lesson about interpreting Abelard." (pp. 179-180)

(1) References are to the pages and lines of *Peter Abaelards philosophische Schriften*, ed. B. GEYER, Aschendorff, Münster 1919-33 (Beiträge zur Geschichte der Philosophie des Mittelalter 21) for *LI, LNPS* and the *Glossae secundum uocales,* and PETRI ABAELARDI *Opera Theologica* II, ed. E. BUYTAERT, Brepols, Turnhout 1969 (*Corpus Christianorum continuatio mediaeualis*, 12) for *Theologia Christiana* and to PETRI ABAELARDI *Opera Theologica III*, edd. E. BUYTAERT and C. J. MEWS, Breplos, Turnhout 1987 for *Theologia Summi Boni* and *Theologia Scholarium*.

(2) Cf. J. MARENBON, *The Philosophy of Peter Abelard*, Cambridge University Press, Cambridge 1997, pp. 195-201.

(3) To my knowledge, apart from the criticism of it by de Rijk (see below) this bit of my book has neither been discussed, nor followed, although my point is noted in A. ARLIG, *A Study in*

Early Medieval Mereology : Boethius, Abelard and Pseudo-Joscelin, Ohio State University PhD, p.142, n. 117.

References

L. M. DE RIJK, Abelard: een wijsgerige interpretatie en methodologische stellingname, « Tijdschrift voor Filosofie », 60, 1998, pp. 348-355.

3. ———. 2008. "Logic at the Turn of the Twelfth Century " In *Handbook of the History of Logic. Vol. 2. Mediaeval and Renaissance Logic*, edited by Gabbay, Dov M. and Woods, John, 65–81. Amsterdam: Elsevier.

   "This chapter is not, like the others in the book, a survey of the logical doctrines of a period, because I at least (and perhaps other scholars too) am not yet in a position to write such a survey. It is simply a guide to the material, to the technical problems it presents and some of the theories historians have elaborated about it, along with an indication of a few of the philosophical themes which are waiting to be explored. 'The turn of the twelfth century' is a deliberately vague title, designed to indicate the hole between where the previous chapter finished and Abelard's work, the subject of the following chapter. But plugging this gap—even as here, with a sponge and a nailbrush — is not a straightforwardly chronological matter. Abelard's *Dialectica*, the main subject of the next chapter, may have been being written as early as 1110: a good deal of what is discussed here was probably written no earlier, and some of the texts may in fact date from the 1120s or 1130s.

   But the writings and writers discussed here have at least traditionally been seen as providing the prelude to Abelard's work. They form a separate group in their methods and concerns from the writings of Abelard's contemporaries and the later twelfth-century schools considered in the final section of the next chapter." (p. 65, a note omitted)

4. ———. 2011. "Logic at the Turn of the Twelfth Century: a synthesis(1)." In *Arts du langage et théologie aux confins des*

XIe et XIIe siècles: textes, maîtres, débats, edited by Rosier-Catach, Irène, 181–218. Turnhout: Brepols.

"«Progress report» might be a more appropriate title. Despite the magnificent work of, in particular, one scholar, Yukio Iwakuma, who ha devoted a still continuing career to discovering, transcribing and editing twelfth-century logical texts, the material is still too sparsely published, too little read, too poorly understood for any proper synthesis to be possible. Yet the whiggish overtones of «progress report» may also deceive. There *has* been progress in the field: new material has been found and errors have been put right. But it has altogether been progress of a meandering sort; what with great learning one study constructs, the next as eruditely dismantles.

Moreover there is as I shall suggest, a danger of remaining trapped in an old historiographical framework and so moving in circles within a narrow compass, rather than reaching a broader and more exact understanding of logic in this period. That will be at the very end of the following pages (VI). Before then, I shall begin with what is uncontroversial: the settings in which logic was studied, the logical curriculum of the time, and the forms of writing on logic (I). Then I shall set ot the views about the development of logic c. 1100 as they have beeb developed over the last decades (II), and the important recent critiques of the them (some in this very volume) (III). In the following sections I re-examine the evidence and the critical arguments, and I attempt to state what we can believe with reasonable certainty (IV-V)." (p. 181)

(1) This chapter bears only a slight resemblance to the « Synthesis » which I wrote for the conference website. Catach very kindly allowed me to use material from that for a chapter I was rerqured Io submit al the last moment to the *Handbook of the History of Logic* (Marenbon 2008b), That chapter now complements this one.

References

Marenbon 2008b. *Logic at the Turn of the Twelfth Century*

5. ———. 2013. *Abelard in Four Dimensions: A Twelfth-Century Philosopher in His Context and Ours*. Notre Dame: University of Notre Dame Press.

   "*Abelard in Four Dimension*s can be read from various different perspectives and addresses itself to at least three different sorts of readers.

   Although it is not a general book on Abelard and his thought (I have written one already), it is written so as to be comprehensible to readers who are approaching him for the first time. Chapter 1 begins with a brief account of his life and writings which, along with the detailed list of editions of Abelard's works in the bibliography, provides an introductory framework. The body of the book discusses some of Abelard's most striking and characteristic ideas, through a wide range of his thought: his sophisticated semantics (chapter 5), his theories about the metaphysical structure of concrete things and about identity and difference (chapter 6), the place of intention in his moral psychology (chapter 3) and his conception of God and divine omnipotence (chapters 2 and 4)." (pp. 3-4)

6. ———. 2015. "Abelard's Theory of Universals." In *Nominalism about Properties: New Essays*, edited by Guigon, Ghislain and Rodriguez-Pereyra, Gonzalo, 39–62. New York: Routledge.

   "These pages began as an attempt to look at Abelard's theory of universals in connection with contemporary discussions. But it soon became apparent that there is little consensus about what this theory is and, despite the extensive literature on the subject, no place where readers, including those without any prior knowledge of the medieval background, can find a straightforward account of what Abelard said, what are the main questions of interpretation and how, or whether, they can be answered. (1) This chapter is intended to fill that gap. The first section presents the main lines of Abelard's theory, and the second looks in more detail at some of its problematic areas." (p. 38)

(1) The most important extended, general recent discussions of Abelard's own theory of universals are: Jolivet (1975); Tweedale (1976); de Rijk (1980); King (1982); Jolivet (1992, 128–41); Shimizu (1995); de Libera (1999, 281–498).

I discuss the topic in Marenbon (1997a, 174–201), but I have approached thesubject afresh here; I note where I reject my earlier interpretations.

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Marenbon, J. 1997a. *The Philosophy of Peter Abelard*. Cambridge: Cambridge University Press.

Rijk, L. M. de. 1980. "The Semantical Impact of Abailard's Solution of the Problem of Universals", in *Petrus Abaelardus (1079–1142): Person, Werk und Wirkung*, Rudolf Thomas (ed.) (Trier theologische Studien 38), 173–214. Trier: Paulinus.

Shimizu, T. 1995. "From Vocalism to Nominalism. Progression in Abaelard's Theory of Signification", *Didascalia* 1: 15–46.

Tweedale, M. M. 1976. *Abailard on Universals*. Amsterdam, New York and Oxford: North Holland.

7. ———. 2018. "Relations in Earlier Medieval Latin Philosophy: Against the Standard Account." *Enrahonar. An International*

Journal of Theoretical and Practical Reason no. 61:41–58.

Abstract: "Medieval philosophers before Ockham are usually said to have treated relations as real, monadic accidents. This “Standard Account” does not, however, fit in with most discussions of relations in the Latin tradition from Augustine to the end of the 12th century.

Early medieval thinkers minimized or denied the ontological standing of relations, and some, such as John Scottus Eriugena, recognized them as polyadic. They were especially influenced by Boethius’s discussion in his *De trinitate*, where relations are treated as prime examples of accidents that do not affect their substances. This paper examines non-standard accounts in the period up to c. 1100."

"There is a Standard Account of relations in medieval philosophy, which is the basis for most work on the area in the Anglophone tradition. It is presented in its clearest form in Jeffrey Brower’s article on the topic in the authoritative Stanford Encyclopedia of Philosophy (Brower, 2015). Its main features are, however, already found in the earliest survey of the field by a historian of philosophy with analytic training, Julius Weinberg’s 1965 essay on the history of relation (Weinberg, 1965). It informs Henninger’s important monograph on *Relations. Medieval Theories 1250-1325* (Henninger, 1989), and it shapes even the writing of the occasional historians who search for exceptions (for example, Ebbesen, 1995; Hansen, 2013)."

References

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Ebbesen, Sten (1995). “Tantum Unum Est. 13th-century sophismatic discussions around the Parmenidean thesis”. *The Modern Schoolman*, 72, 175-199.

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Weinberg, Julius (1965). *Abstraction, Relation, and Induction. Three essays in the history of thought*. Madison and Milwaukee: University of Wisconsin Press.

8. ———. 2021. "«Nec res ita sicut vocabula diversas esse contingit». Abelard on Real Relations – and Real Universals." In *Ad placitum. Pour Irène Rosier-Catach*, edited by Cesalli, Laurent, Grondeux, Anne, Robert, Aurélien and Valente, Luisa, 465–470. Roma: Aracne editrice.

9. Marenbon, John, and Tarlazzi, Caterina. 2018. "Logic." In *The European Book in the Twelfth Century*, edited by Kwakkel, Erik and Thomson, Rodney, 215–239. Cambridge: Cambridge University Press.

   "Among twelfth-century books, logical manuscripts constitute a coherent field of investigation.(1), (2) Logic was studied in the schools attached to cathedrals and, especially, in the many schools that grew up in Paris after about 1120.(3) The course in logic was fairly narrowly set, based on a small number of logical texts and commentaries from the ancient world.

   Twelfth-century authors wrote their own commentaries on these texts and independent logical works; in both will be found some of the most important philosophical thinking of the century.

   The first section of this chapter sets out the ancient and late antique texts used by logicians. There follow studies of the twelfth-century manuscripts containing this material (Section 2), of commentaries by twelfth-century logicians (Section 3), and of independent logical treatises from the period (Section 4)." (p. 115)

(1) John Marenbon is the author of Sections 1, 2, 4, and the Appendix, Caterina Tarlazzi of Section 3.

(2) Often twelfth-century authors call the subject dialectica, but sometimes this word is used to refer specifically to topical inferences. For this reason, and because of the various contemporary connotations of ‘dialectic’, ‘logic’ is a better term to use.

(3) For a basic introduction with bibliography (to which should be added Rosier-Catach 2011), see Marenbon 2007, 131–66.

References

Marenbon, John 2007, *Medieval Philosophy: An Historical and Philosophical Introduction* (London and New York).

Rosier-Catach, I. (éd.), 2011, *Arts du langage et théologie aux confins des XIe–XIIe siècles: Textes, maîtres, débats* (Turnhout).

10. Martin, Christopher John. 1986. "William's Machine." *Journal of Philosophy* no. 83:564–572.

    William of Soissons and Abelard's theories of Entailment.

    "John of Salisbury's *Metalogicon* is well known as a source for the discussion of universals in the twelfth century, but has rarely been considered for what it can tell us about the developmrnt of theories of entailment. This is unfortunate because John has many interesting things to say." (pp. 564-565)

    (...)

    "According to William and Martha Kneale, it has been thought that William's invention was a physical device perhaps anticipating Stanley Jevon's logical machine.(2) Ther Kneales propose, however, that

    it was an argument to the effect that any impossibility may be derived from a single impossibility, but offer no suggestion as to what that argument might be. I will show here that most probably the machine was a version of what we know as C. I. Lewis's proof that anything follows from a contradiction."

(...)

"Such an argument has long been known from the fourteenth century, but its appearance in the twelfth has gone unnoticed. By show ing how the argument came about I want to reveal a turning point in the history of logic and lay to rest the claim that there is no history to the demand that relevance is required for entailment.(3) Many twelfth-century discussions are very sophisticated and, as accounts of argument and of the conditional in natural language, have much to offer to contemporary theorists. They have been neglected and mis understood by historians of philosophy.

With their recovery should come a better understanding of the treatment of philosophical and theological problems in the Middle Ages. I will concentrate on Abaelard's work, but what follows is only a very simplified account of a very complex theory.(4)" (p. 565)

(2) *The Development of Logie*, corrected edition, (New York: Oxford, 1984) p. 201

(4) • For more details and textual support for the clairns made here, see rny paper: "Ernbanassing Argurnents and Surprising Conclusions in the Developrnent of Theories of the Conditional," to appear in *The Proceedings of the Seventh European Symposium on Mediaeval Logic (*Paris: Vrin, 1986). I will here concentrate on the theory of the conditional developed in Treatise III of Abaelard's *Dialectica*. References are to Peter Abaelard: *Dialectica,* L. M. de Rijk, ed. (Assen: van Gorcum, 1956); *Super Topica Glossae* in M. Dal Pra, ed., *Pietro Abelardo, Scritti Filosofici* (Rome-Milan: Fratelli Bocca, 1954).

11. ———. 1987. "Something Amazing about the Peripatetic of Pallet: Abelard's Development of Boethius' Account of Conditional Propositions." *Argumentation* no. 1:419–436.

    Abstract: "Mediaeval logicians inherited from Boethius an account of conditional propositions and the syllogisms which may be constructed using them. In the following paper it is shown that there are considerable difficulties with Boethius' account which arise from his failure to understand the nature of

compound propositions and in particular to provide for their negation. Boethius suggests that there are two different conditions which may be imposed for the truth of a conditional proposition but he really gives no adequate account of how such propositions may be obtained. The true greatness of Peter Abaelard as a philosophical logician is revealed in what he is able to do with the material which he found in Boethius. It is shown that he developed a precise theory of conditionals giving an account of how true conditionals may be obtained and principles which may be used to reject others as false. Unlike Boethius Abaelard properly appreciates that conjunctions must be treated as logical units. Even he, however, falls victim to difficulties which arise when this connective is brought into contact with negation and the conditions which he lays down for the truth of a conditional."

12. ———. 1987. "Embarrassing Arguments and Surprising Conclusions in the Development of Theories of the Conditional in the Twelfth Century." In *Gilbert de Poitiers et ses contemporains: aux origines de la Logica Modernorum*, edited by Jolivet, Jean and Libera, Alain de, 377–400. Napoli: Bibliopolis.

13. ———. 1992. "The Logic of the "Nominales", or the Rise and Fall of Impossible Positio." *Vivarium* no. 30:110–126.

    "The twelfth century *Nominales* were without doubt the followers of Peter Abaelard and they were probably so called on account of their theory of universals." (p. 110)

    (...)

    "Just like today's anti-realists Abaelard derived conclusions about entailment and argument from ontology and philosophical semantics. Where today's anti-realists are intuitionists, however, Abaelard and the *Nominales* were connexivists. Connexive logic has as its leading idea that 'no proposition should imply or be implied by its own negation'. Since half of this principle is found in the *Prior Analytics* and is reported in de *Syllogismo Hypothetico*, it was bound to be acknowledged in some form by all dialecticians. Abaelard held that the most peculiarly proper principle of Nominalist logic

followed from the basic connexive principle. This is the claim that conditionals whose antecedent and consequent differ in quality are false. To understand the character of Nominalist logic it is thus necessary to understand the nature of Abaelard' s support for connexivism and in particular why he advocates this account of the conditional. Abaelard' s connexivism ultimately rests upon an ontology of individual forms and I so will begin with a very brief survey of this and its relationship to his theory of language. The main part of the paper explores Abaelard' s theory of logical relations and its application by the *Nominales*. In particular I propose that they were probably the inventors of *positio* and that they rediscovered the Liar. I conclude with a discussion of two paradoxical claims made by his followers but not by Abaelard and some suggestions about the later history of the logic of the *Nominales*." (p. 111)

14. ———. 1999. *Theories of Inference and Entailment in the Middle Ages (Boethius, Philoponus, Peter Abelard, John Duns Scotus, William of Ockham)*, Princeton University.

    Available at ProQuest Dissertation Express. Order number: 9948627.

    Abstract: "The origins of mediaeval theories of inference and entailment are shown first to lie in the work of Boethius and an account is proposed of the theory of the hypothetical syllogism that he offers in *de Hypotheticis Syllogismis*. Boethius is also shown to have provided some hints which led twelfth century philosophers to develop the theory of *positio impossibilis* for the construction of thought experiments with hypotheses acknowledged to be impossible. The ancient sources of Boethius's ideas on such hypotheses are investigated and in particular the use of them by Philoponus in arguing against Aristotle's rejection of the notion of space as three dimensional extension. Peter Abaelard is shown to be the crucial figure in the development of theories of the truth of the conditional and the validity of argument in the twelfth century and this aspect of his philosophy is explored in some detail.

    Abaelard's followers the *Nominales* were characterised especially by their acceptance of his connexive principles for

the logic of the conditional and by their application of them in developing a theory of impossible hypotheses. It is argued here the *Nominales*' commitment to Abaelardian logic helps to explain their advocacy of the striking thesis that nothing grows and perhaps also reveals them to be discoverers of the Liar paradox in the middle ages. Finally it is argued that the distinctions made by Abaelard between two kinds of conditional, and the different logical principles governing them, are employed at least up to the time of William of Ockham and especially in the work of John Duns Scotus. Ockham's theory of the conditional is shown to make a fundamental break with the hyperintensional logical theory employed by Scotus in arguing for the central importance of the formal distinction in metaphysics."

15. ———. 2001. "Abaelard on Modality: Some Possibilities and Some Puzzles." In *Potentialität und Possibilität. Modalaussagen in der Geschichte der Metaphysik*, edited by Buchheim, Thomas, Kneepkens, Corneille Henri and Lorenz, Kuno, 97–125. Stuttgart: Frommann-Holzboog.

    "In his monumental study of William of Sherwood's modal theory Klaus Jacobi (2) surveys the treatment of modality by philosophers in the preceding century and shows that their concern was for the most part to calculate the logical relations between the various forms of modal proposition which they recognised. Although theology demanded that they take an interest in the nature of divine power, without the *Physics* and *Metaphysics,* to prompt them, twelfth century philosophers generally had little to say on the relationship of modal propositions and their structures to the various sources of modal claims, to claims, for example, about the nature of potentiality, physical causation, or action.(3) Some progress was made, however, and in the present paper I will consider the contribution of Peter Abaelard to the development of theories of modality and the curious attitude of one of his followers to his work on modal logic.

    Although Abaelard had no access to the *Physics* or *Metaphysics* and precious little, if any, to the *Prior Analytics,*(4) he did find in the *Categories* and *De Interpretatione* texts which posed

interpretive problems whose solution demanded that he discuss the nature of possibility and necessity. What follows is for the most part an examination of certain points made by Abaelard in his discussion of these problems. It is divided into two parts.

In the first part of the paper I propose an account of Abaelard's theory of possibility and its application both to creatures and to God.(5) Abaelard's claims about divine power are rather well known and I mention them only very briefly at the end. His treatment of creaturely potentiality in commenting on various claims made by Aristotle in the *Categories* has, on the other hand, barely been noticed and my concern in the first part of the paper is to thus set them out in some detail.

The failure to take into account the full range of Abaelard's thinking about potentiality has led to some very misleading claims about his views on possibility. What my investigation shows is that Abaelard employs three different but related notions of potentiality. The first is the potentiality that an individual has for future action and it is constrained by its species nature, its particular constitution, and its present circumstances. The second and third are both introduced to explain how we may legitimately say, as authority requires, that an amputee is bipedal. They are different but both reduce all unqualified possibility to potentiality and all potentiality to compatibility with species nature. The unqualified possibilities open for an individual creature of a given natural kind are thus for anything which is not incompatible with its species nature.

In the second part of the paper I first examine the account of modal propositions that Abaelard insists upon in discussing chapter 12 of *De Interpretatione*. I show that this account of the semantics of such propositions is completely in agreement with his treatment of the source of modal properties in natures. In his treatment of modal propositions Abaelard famously distinguishes between two different interpretations of propositions such as *'S* is possibly *P'*. A personal, or '*de re'* reading, in which *S* is said to possess a power to be *P,* and an impersonal, or *'de sensu'* reading in which *'S's being P'* is claimed to be possible where the nominal phrase is held to refer

to a proposition, propositional content, or some other kind of entity. Abaelard argues that only the *de re* reading yields a modal claim and that nominal modes are to be resolved into the corresponding adverbial modes. The truth conditions of modal propositions are thus always, according to Abaelard, ultimately to be given in terms of what is compatible and what is not with the specific nature of the subject of the *de re* reading of them.

Information about the fate of Abaelard's theories and the views of his followers is unfortunately very limited and it is pleasant to be able to add here to our knowledge. The texts that we have on divine and creaturely power agree with Abaelard's teaching in reducing unqualified potentiality to compatibility with species nature. In the concluding part of my paper, however, I show that the author of the *Summa Dialectice Artis* attributed to William of Lucca, otherwise an extremely devoted follower of Abaelard in logic, explicitly rejects his master's *de re* account of modality in favour of the alternative *de sensu* reading which Abaelard had gone to great lengths to refute. The *Summa* thus leaves us with a considerable puzzle about the commitment of Abaelard's followers in logic to his theory of modality. As compensation for this, we will see that the *Summa* also provides us with a solution to a small puzzle raised by Jacobi and Knuuttila concerning Abaelard's views on the logical relations between quantified modal propositions." (pp. 97-99)

(2) Klaus Jacobi, *Die Modalbegriffe in den logischen Schriften des Wilhelm von Shyreswood,* Leiden 1980.

(3) The outstanding exception is St. Anselm's discussion of the logic of action sentences in the Lambeth Fragments printed in R. W. Southern and F. S. Schmitt, *Memorials of St. Anselm*, London 1969, 333-354.

(4) Cf. *Dialectica,* Introduction,XIII-XIX. The evidence that Abaelard had direct access to the *Prior Analytics is* extremely slight. The *Dialectica* contains what appear to be two quotations from the *Prior Analytics,* the definition of the syllogism from *An. Pr.* I 1, 24b 18-22 at *Dialectica,* 232.5-8 and the distinction between perfect and imperfect syllogisms from *An. Pr.* I 1, 24b 22-25 at *Dialectica,* 233.36-234.3. In the

discussion following the definition of the syllogism, however, Abaelard refers not to the definition which he apparently quotes from Aristotle but rather to the definition given by Boethius in *De Syllogismo Categorico* II (PL 64, 821A 7 - 822C 12).

(5) Hermann Weidemann, 'Zur Semantik der Modalbegriffe bei Peter Abaelard', in: *Medioevo* 7 (1981), 1-40, argues that Abaelard thinks of possibility in this way but he does so very much the hard way by attempting to show that Abaelard's remarks on temporally determined modal sentences commit him to it. Here I take the very much easier course of pointing out Abaelard's explicit statement of the theory of synchronous possibility in terms of alternative world histories.

16. ———. 2003. "An Amputee is Bipedal! The Categories and the Development of Abaelard's Theory of Possibility." In *La tradition médiévale des catégories, XIIe - XVe siècles: Actes de XIII Symposium européen de logique et de sémantique médiévales, Avignon, 6 - 10 juin 2000*, edited by Biard, Joël and Rosier-Catach, Irène, 225–242. Louvain: Peeters.

"The task of explicating scriptural authority required twelfth century philosophers to take an interest in the nature of divine power and the task of explicating the *De interpretatione* required them to discuss the the logic of modal claims. Without Aristotle to prompt them, however, these philosophers generally had little to say on the relationship of modal propositions and their structures to the various sources of modal claims, to claims, for example, about the nature of potentiality, physical causation, or action. Nevertheless, some progress was made and in the present paper I will consider the contribution of Peter Abaelard to the development of theories of possibility. Abaelard had no access to the *Physics* or *Metaphysics* and precious little, if any, to the *Prior Analytics*, but he did find in the *Categories* and Porphyry's *lsagoge* texts posing interpretative problems whose solution demanded that he discuss the nature of possibility and necessity.

Abaelard's claims about divine power are rather well known and I will mention them only very briefly at the end of my

paper. His treatment of creaturely potentiality in commenting on various claims made by Aristotle in the *Categories* has, on the other hand, barely been noticed and my task here will be to examine it in some detail.

The failure to take into account the full range of Abaelard's thinking about potentiality has led to some very misleading claims about his views on possibility. What my investigation shows is that Abaelard employs three different but related notions of potentiality. The first is the potentiality that an individual has for future action and it is constrained by its species nature, its particular constitution, and its present circumstances.

The second and third are both introduced to explain how we may legitimately say, as authority requires, that an amputee is bipedal.

They are different but both reduce all unqualified possibility to potentiality and all potentiality to compatibility with species nature. The unqualified possibilities open for an individual creature of a given natural kind are thus for anything which is not incompatible with its species nature." (pp. 225-226, notes omitted)

17. ———. 2004. "Logic." In *The Cambridge Companion to Abelard*, edited by Brower, Jeffrey E. and Guilfoy, Kevin, 158–199. Cambridge: Cambridge University Press.

"A great deal of Peter Abelard's writing is concerned with what he regarded as logic, but which we would now classify as ontology or philosophical semantics. Following Cicero and Boethius, Abelard holds that properly speaking the study of logic has to do with the discovery and evaluation of arguments (*LI Isag*. 3.10). A necessary preliminary for this is an examination of the issues dealt with by Porphyry in the *Isagoge* and by Aristotle in the *Categories*, and *De interpretatione* (*LI Cat*. 113.26-114.30). In the present chapter, however, I will ignore most of this material and concentrate on the central issue of logical theory both for Abelard and for us, that is, on the nature of the relation of consequence, or following. Even with this limitation there is a great deal of ground to cover.

Abelard sets out his theory of entailment and argument in two very extended and dense discussions both of which have suffered considerable textual corruption. The treatment of topics and hypothetical syllogisms in the *Dialectica*, is apparently the earlier. The other is the surviving fragment of Abelard's commentary on Boethius's *De topicis differentiis*, *Glossae super De topicis differentiis*, which seems to belong with his other commentaries on the works of the *logica vetus* published as the *Logica "ingredientibus."* The two expositions disagree on some crucial questions, but here I will restrict myself almost entirely to the discussion in the *Dialectica*.". (p. 158)

18. ———. 2007. "Denying Conditionals: Abaelard and the Failure of Boethius' Account of the Hypothetical Syllogism." In *The Many Roots of Medieval Logic: The Aristotelian and the Non-Aristotelian Traditions*, edited by Marenbon, John, 153–168. Leiden: Brill.

    Abstract: "Boethius' treatise *De Hypotheticis Syllogismis* provided twelfth-century philosophers with an introduction to the logic of conditional and disjunctive sentences but this work is the only part of the *logica vetus* which is no longer studied in the twelfth century. In this paper I investigate why interest in Boethius acount of hypothetical syllogisms fell off so quickly. I argue that Boethius' account of compound sentences is not an account of propositions and once a proper notion of propositionality is available the argument forms accepted by Boethius are seen to be incoherent. It was Peter Abaelard who first understood the nature of propositionality and propositional connectives and used this to criticise Boethius' claims in *De Hypothetics Syllogismis*. In place Boethius' confusion Abaelard offered a simple and correct account of the hypothetical syllogism."

19. ———. 2009. "Imposition and Essence: What's New in Abaelard' Theory of Meaning?" In *The Word in Medieval Logic, Theology and Psychology. Acts of the XIIIth International Colloquium of the Société Internationale pour l'Étude de la Philosophie Médiévale, Kyoto, 27 September - 1 October 2005*,

edited by Shimizu, Tetsuro and Burnett, Charles, 173–212. Turnhout: Brepols.

"The proponents of the “New” or “Causal” theory of reference, and most famously Kripke, Putnam, Donellan and Kaplan,(4) argue that the Description Theory of names is manifestly false. They insist in particular that the reference of a term is semantically entirely unrelated to the ideas which happen to be present in the minds of the speaker and listeners when it is uttered." (pp. 173-174)

(...)

"According to Putnam ancient and mediaeval philosophers thus maintained versions of the mistaken theory that the sense of a word is a mental description. Against this he famously remarked that “Cut the pie anyway you like, ‘meanings’ just ain’t in the head.”(10)

In the face of the enormous success of the New Theory, it is not surprising that contemporary students of mediaeval philosophy trained in the analytic tradition should have tried to show that Putnam is wrong by finding anticipations of it in their favourite authors and in particular in the work of Peter Abaelard.

In this essay I shall investigate this question further and show that it is certainly a mistake to characterise Abaelard as a twelfth-century Putnam, just as much a mistake as dismissing him as a twelfth-century description theorist. Abaelard’s views on meaning are implacably psychologistic. He is an “essentialist,” of course, and his essentialism explains the apparent anticipation of the New Theory. The order of explanation connecting metaphysics to semantics is, however, quite the opposite in Abaelard to that on which the New Theory relies. For Abaelard “essentialism” does not follow from rigidity but rather guarantees it." (pp. 175-176)

(4) See, e.g., K. Donnellan, “Reference and Definite Descriptions”, in *Philosophical Review* 75 (1966), 281-304; S. Kripke, “Naming and Necessity”, in *Semantics of Natural Language*, ed. D. Davidson and G. Harman, Dordrecht 1972, 253-355; D. Kaplan, “Demonstratives”, in *Themes from*

Kaplan, ed. J. Almog, J. Perry and H. Wettstein, Oxford 1989, 481-563; H. Putnam, “Meaning and Reference”, in *Journal of Philosophy* 70

(1973), 699-711, at 700.

(10 Putnam, “Meaning and Reference”, 704.

20. ———. 2009. "The Development of Abaelard’s Theory of Topical Inference." In *Les lieux de l'argumentation. Histoire du syllogisme topique d'Aristotle à Leibniz*, edited by Biard, Joël and Mariani Zini, Fosca, 249–270. Turnhout: Brepols.

"What I will try to do here is to locate the relevant differences between Abaelard’s two works on the topics and show how the theory of the maximal proposition which he presents in his *Glosses* marks a significant development in his thinking about logic in comparison with that which he proposes in the *Dialectica*.

There is no doubt at all that both of the works are by Abaelard and no doubt either that the Glosses on *De differentiis topicis* are later than the Treatise on Topics in the *Dialectica*. What I think there should be considerable doubt about is just how much later they are. Mew’s proposed dating ol Abaelard’s works has the *Dialectica*, *Glosses*, and indeed the great bulk ol Abaelard’s logical writings, all produced within the four or five year, immediately following his castration in about 1117 (1). This seems to me rather difficult to accept, not least because of the significant theoretical development that we find in these works. My own view is that the *Dialectica* could and probably does, date from the beginning of the second decade ol the eleventh century and might well contain the novelties which we are told Abaelard propounded on Mont-Ste-Genevieve around 1110, or perhaps even earlier, and which led to the confrontation with Goswin recorded in the life of the Saint (2). Such a dating would then allow ten years for Abaelard to develop the new theory of propositionality which seems to account for the major differences between the *Dialectica* and the *Glosses*." (pp. 249-250)

(...)

"Conclusion

In the *Glosses* Abaelard offers an account of topical inference which, it seems to me, marks a very considerable advance over that presented in the Dialectica. It is rather odd that he does not acknowledge that the theory he is rejecting is one which he himself once held since he is not in general shy of saying « meminimus ». What is clear, however, is that in Abaelard's work reflection on the nature of topical inference achieved a degree of sophistication which is not found at any other time in the history of the subject. We can only hope that it will not be another fifty years before this is fully recognised." (p. 270)

21. ———. 2010. "The Development of Logic in the Twelfth Century." In *The Cambridge History of Medieval Philosophy. Vol I*, edited by Pasnau, Robert and Dyke, Christina van, 129–145. Cambridge: Cambridge University Press.

"The twelfth century was one of the most important and exciting periods in the history of logic. At the start of the century, the production of elementary glosses on ancient texts gave way to a sophisticated commentary literature in which writers developed and debated their own theories concerning what we would now classify as ontology and philosophical logic. Most famous today are the disputes over the status of universals; the present chapter, however, focuses on the less well-known – but, I believe, more important – work done on theories of meaning, modality, and the relation of logical consequence. Many of the works that have survived from the twelfth century are anonymous, but fortunately at least some of those by Peter Abaelard do bear his name: in particular his survey of logic, the *Dialectica* (probably written around 1112) and a set of commentaries on the books of the *logica vetus* known as the Logica "Ingredientibus" (probably written between 1115 and 1120). Abaelard is the outstanding logician of this period and is, indeed, one of the greatest of all logicians.(1) His work in these areas fundamentally shaped later development in logic; what follows is essentially an account of his views and of the problems to which they gave rise." (p. 129)

(1) For a more extensive discussion of Abaelard's revolution in logic, see Christopher J. Martin, "Logic," in J. Brower and K. Guilfoy (eds.) T*he Cambridge Companion to Abelard* (Cambridge: Cambridge University Press, 2004) 158–99.

22. ———. 2011. ""What An Ugly Child": Abelard on Translation, Figurative Language, and Logic." *Vivarium* no. 49:26–49.

    Abstract: "An examination the development of Peter Abaelard's views on translation and figurative meaning. Mediaeval philosophers curiously do not connect the theory of translation implied by Aristotelian semantics with the multiplicity of tongues consequent upon the fall of Babel and do not seem to have much to offer to help in solving the problems of scriptural interpretation noted by Augustine. Indeed, on the Aristotelian account of meaning such problems do not arise. This paper shows that Abaelard is like others in this respect in not in general finding translation problematic. Two particular cases, oppositio in adiecto and accidental predication, however, present problems for him and the paper examines and tries to explain the differences between the account given in the Dialectica and that given in the Logica 'Ingredientibus'."

23. ———. 2011. "A Note on the Attribution of the Literal Glosses in Paris, BnF, lat. 13368 to Peter Abaelard." In *Arts du langage et théologie aux confins des XIe et XIIe siècles: textes, maîtres, débats*, edited by Rosier-Catach, Irène. Turnhout: Brepols.

    "I could go on to give more examples of the way in with the *Literal Glosses* fail to agree and fail to offer any trace of the phllosophical positions set out by Abaelard in his *Dialectic* and his *Logics* but at this point I think that have shown enough to at least raise considerable doubt about the authorship of these texts. I was convinced as soon as I began to read the *Literal Glosses* that they are not the work of the great Peripatetic of Pallet. He was the greatest star of his day and, as Geyer surely saw, they are the product of much lesser light." (p. 646)

24. ———. 2011. "*De Interpretatione* 5-8: Aristotle, Boethius, and Abelard on Propositionality." In *Methods and Methodologies. Aristotelian Logic East and West, 500-1500*, edited by

Cameron, Margaret and Marenbon, John, 207–228. Leiden: Brill.

"Boethius' commentaries on *de Interpretatione* provided the Middle Ages with their introduction to the theory of meaning. Boethian semantics is developed on the basis of the distinction made by Aristotle in *De Interpretatione* 1, between the signification of terms and that of affirmations and negations – defined, remember, as the species of simple assertions. On this account of them affirmations signify mental states in which the mental items signified by their component significant terms are combined and negations signify mental states in which they are separated. Missing in the theory is an account of compound propositions showing how their meanings are obtained from the meanings of their components. Such an account requires a notion of unasserted propositional content. With it we may also locate what is common to different speech acts and explain how it is that they differ. The relevant differences are the differences in what we now call their force." (p. 211)

25. ———. 2012. "Logical Consequence." In *The Oxford Handbook of Medieval Philosophy*, edited by Marenbon, John, 289–311. New York Oxford University Press.

"In the present chapter, I will give an outline of this history with each section corresponding to what I take to be an important phase in it. In the first I consider the material transmitted to the Early Middle Ages from Antiquity in order to show how thinking about consequence and, in particular, about the conditional proposition became the central project of early-twelfth-century logic. In the second I try to summarise the extraordinary development by Abelard of a unified relevantistic theory of the conditional and argument on the basis of Boethius's confused accounts of the hypothetical syllogism and topical inference. This phase of my history ends with the collapse of Abelard's project when it was discovered that his proposed logic was inconsistent. It is followed by a period of crisis, discussed in the third section, and its resolution late in the twelft h century in favour of the medieval version of the classical account of logical consequence, which became the standard one for the following century. This account is

supplemented, however, with a relevantistic version of the consequence relation for use in special circumstances. The third phase ends, as does the chapter, with William of Ockham's rejection of this pair of consequence relations in favour of a contrast between what he calls material and formal consequences in which relevance as a semantical requirement no longer has a place." (pp. 289-290)

26. ———. 2016. "Abaelard on Logical Truth." In *Formal Approaches and Natural Language in Medieval Logic: Proceedings of the Xixth European Symposium of Medieval Logic and Semantics, Geneva, 12-16 June 2012*, edited by Cesalli, Laurent, Goubier, Frédéric and Libera, Alain de, 59–76. Turnhout: Brepols.

    "Abaelard insists in his *Dialectica* and other works that the dividing opposite of any given proposition is formed by negating it as a whole and that this truth-functional opposite should be represented by preposing the negative particle to the proposition. He distinguishes the operation of propositional negation, iterable without limit, which he calls destructive negation, from the application of the negative particle to the predicate of an affirmation, forming what he calls its separative negation, to signify the separation of the predicate from the subject, a proposition which is a contrary of the original rather than its

    contradictory. Separative negation is not iterable and if their subject term is empty both an affirmation and its separative negation are false. Abaelard also insists, explicitly contradicting Boethius, that the copulative conjunction «et» combines two propostions to form a single proposition which may be negated with destructive negation(39)." (pp. 68-69)

    (...)

    "Nowhere, as far as I know, does Abaelard classify the principles of conditional simplification. Given what he says about repetition and his remarks on propositional *loci,* it is hard, however, to suppose that he

would not classify it too as imperfect and local even though holds for all substitution of terms. But again it doesn't really matter since he clearly supposes that it is logically true in just the same way as «si est homo, est animal' is logically true as are all instances of contraposition and transitivity. Because he thinks this, however, he has left himself with no room for escape from the arguments which would be directed at his logic during his last decade in Paris(66)." (p. 76)

(39) See C. J. Martin, «Logic», in J. Brower – K. Gulfoy (eds.), *The Cambridge Companion to Abelard*, Cambridge University Press, Cambridge 2004, pp. 158-199.

(66) See Martin, «Logic».

27. ———. 2016. "Modality without the Prior Analytics: Early Twelfth Century Accounts of Modal Propositions." In *Logical Modalities from Aristotle to Carnap*, edited by Cresswell, Max, Mares, Edwin and Rini, Adriane, 113–132. Cambridge: Cambridge University Press.

    Abstract: "Peter Abaelard's birth around 1079 coincided with the promulgation by Pope Gregory VII of a decree instructing his bishops to ensure that all clerics were trained in the liberal arts, and Abaelard's life was shaped by the consequent increase in the number and importance of teaching masters. These early twelfth century teachers commented on the works of what would later be called the logica vetus , including from Aristotle only the Categories and De Interpretatione . Abaelard also had some access to the *Sophistical Refutations* and, indeed, seems to have known a little about the *Prior Analytics*. The latter work, however, played no role in the development of thinking about modal propositions in the period to be considered here. Rather it was Aristotle's remarks on the proper placing of the negative particle in forming the contradictory of a given modal proposition in *de Interpretatione* 12, and 13, and a distinction made by Boethius between different forms of modality in his *De Syllogismis Hypothetic*is that prompted early twelfth century philosophers to investigate the nature of modal propositions."

28. ———. 2016. "The Invention of Relations: Early Twelfth-Century Discussions of Aristotle's Account of Relatives." *British*

Journal for the History of Philosophy no. 24:447–467.

Abstract: "Aristotle's discussion of relatives in the Categories presented its eleventh- and twelfth-century readers with many puzzles. Their attempt to solve these puzzles and to develop a coherent account of the category led around the beginning of the twelfth century to the invention of relations as items which stand to relatives as qualities stand to qualified substances. In this paper, I first discuss the details of Aristotle's accounts of relatives and the related category of ‘situation’ and Boethius' commentary on them. I then examine some of the earliest mediaeval commentaries on the Categories showing how the notion of relation, and in particular of individual relations, was developed. I conclude by showing how Peter Abaelard's treatment of relations in his Dialectica was part of an ongoing and sophisticated debate over the nature of relations."

29. ———. 2018. "The Theory of Natural Consequence." *Vivarium* no. 56:340–366.

    Abstract: "The history of thinking about consequences in the Middle Ages divides into three periods. During the first of these, from the eleventh to the middle of the twelfth century, and the second, from then until the beginning of the fourteenth century, the notion of natural consequence played a crucial role in logic, metaphysics, and theology. The first part of this paper traces the development of the theory of natural consequence in Abaelard’s work as the conditional of a connexive logic with an equivalent connexive disjunction and the crisis precipitated by the discovery of inconsistency in this system.

    The second part considers the accounts of natural consequence given in the thirteenth century as a special case of the standard modal definition of consequence, one for which the principle *ex impossibili quodlibet* does not hold, in logics in which disjunction is understood extensionally."

30. ———. 2019. "Only God Can Make a Tree: Abaelard on Wholes and Parts and Some Evidence of His Later Thinking about Them." *Oxford Studies in Medieval Philosophy* no. 7:44–66.

Abstract: "Problems about the nature of integral parts and wholes werecentral to twelfth-century discussions of the individuationand persistence over time of both substances and artifacts.This paper examines in detail Abaelard's contribution tothese discussions arguing that Abaelard proposes a solutionto these problems which preserves our common senseintuitions about identity over time. In Abaelard's work wefi nd an explicit solution to the problem of the identity overtime of living things which appeals to the persistence of thevegetative soul through the loss or addition of corporealmatter. In work from the school of the Montani weapparently also have an account of Abaelard's solution to theproblem of the identity over time of artifacts which distinguishes between the role of a part in an integral whole and the material which plays that role such that the rolepersists when the matter is replaced."

31. McLaughlin, Mary Martin. 1969. "Abelard's Conceptions of the Liberal Arts and Philosophy." In *Arts libéraux et philosophie au Moyen Age*, 523–530. Paris: Vrin.

32. Mesaroş, Claudiu. 2005. "From Porphyry to Abelard: How Many Questions on Universals?" *Chôra* no. 3:253–262.

    Abstract: "From the panoply of authors that tried to offer their solutions on the well known problem of the universals in the present paper there are selected three of them: Porphyry, Boethius and Abelard. The first, Porphyry is the one that can be considered the parent of the problem and in his *Isagoge* we can find its first formulation and for this we can have two alternative readings: a dialectical and a neo-platonic one. In the case of the second, Boethius, we also find two ways of interpreting the problem: a dialectical one and the latter from a theological point of view. The last of these authors, Abelard, we can observe an account of the problem from the perspective of his status theory which can be said to resemble the theological reading from Boethius."

33. Mews, Constant J. 1984. "A Neglected Gloss on the *Isagoge* by Peter Abelard." *Freiburger Zeitschrift fur Philosophie und Theologie* no. 31:35–55.

Reprinted as Essay II in: Constant J. Mews, *Abelard and his Legacy*, Aldershot: Ashgate 2001.

"Conclusion

This study has been concerned with the close relationships, both textual and thematic, between the anonymous *Glossae secundum vocales*, found in the Milan, Biblioteca Ambrosiana MS. M. 63 sup., ff. 73ra-81vb, and various known writings of Abelard on logic and theology.

These anonymous glosses seem to represent a revision made by Abelard of his *Logica 'Ingredientibus'*, while they appear to have been themselves revised in the L*ogica 'Nostrorum petitioni sociorum*'. Geyer's argument that they were compiled by a disciple of Abelard from various genuine glosses of his master is unnecessarily complicated and does not fit with the evidence. The text of the *Glossae* as found in the Ambrosian library manuscript may not be free from a number of scribal errors incurred in copying of the work, but this does not mean that the glosses themselves cannot be genuine. Detailed comparison of the work with other writings of Peter Abelard confirms Ottaviano's opinion that the *Glossae secundum vocales* were written by Abelard himself." (p. 55)

34. ———. 1987. "Aspects of the Evolution of Peter Abaelard's Thought on Signification and Predication." In *Gilbert de Poitiers et ses Contemporains. Aux Origines de la 'Logica Modernorum'*, edited by Jolivet, Jean and Libera, Alain de, 15–41. Napoli: Biblioplis.

Reprinted as Essay VIII in: Constant J. Mews, *Abelard and his Legacy*, Aldershot: Ashgate 2001.

"In another study, I have advanced the hypothesis that some arguments of the *Dialectica* may not only be less sophisticated than those of the glosses on Porphyry, Aristotle and Boethius, but may predate those of the *Logica 'Ingredientibus'*. The intention of this paper is to look in a little more detail at the evolution of Abaelard's thought on signification and predication through comparison of arguments in the *Theologia*

'Summi boni' and *Theologia Christiana* with those in the *Dialectica* and glosses. We shall also examine references Abaelard makes in *TChr* [*Theologia Christiana*] to his *Grammatica* (either no longer extant or not yet identified),

enigmatically described as a *retractatio predicamentorum*, and suggest that this work contained some important new ideas of the peripatetic philosopher." (p. 16, a note omitted)

35. ———. 1994. "Philosophy and Theology 1100-1150: The Search for Harmony." In *Le XIIe siècle: Mutations et renoveau en France dans la première moité du XIIe siècle*, edited by Gasparri, Françoise, 159–203. Paris: Léopard d'Or.

Reprinted as Essay II in: C. J. Mews, *Reason and Belief in the Age of Roscelin and Abelard*.

"In the *Historia calamitatum*, Peter Abelard passed over in silence his long period of study under Roscelin of Compiègne. Over a decade earlier, he had been chastised by Roscelin for not recognizing the debt which he owed to his former master, with whom he studied at Loches 'from being a boy to being a young man', perhaps from around 1093 to 1100. (66)" (p. 168, a note omitted)

(...)

"Sometime around 1100, Abelard came to Paris to study under William of Champeaux, then teaching dialectic as well as theology at the cathedral school of Notre-Dame. After attending William's lectures on dialectic, he established himself as a teacher in his own right at schools attached to the royal castles of Melun and Corbeil." (p. 168)

(...)

"William left St-Victor in 1113 to become bishop of Châlons-sur-Marne, a position he held until his death in 1121. Abelard was invited to teach at the cathedral school of Notre-Dame. Probably sometime before 1120, Abelard began work on his *Dialectica*. In the first of its five tractates, dealing with various parts of speech, there are frequent discussions with the opinions of 'our teacher' or 'our teacher V.', once identified as

‘our teacher W.’, undoubtedly William of Champeaux. The section which might have dealt with universal categories is missing from the manuscript. The criticisms of ‘our teacher’ relate not to universal categories as such, but to the question of whether or not a noun signified everything on which it was imposed. This is the debate he presents as between Garmundus, who held ‘rationally’ that an utterance signified only what was in *sententia vocis,* and his teacher who held that it signified whatever that on which the vox was imposed, supposedly on the authority of Priscian’s definition that a noun signified a substance with a quality. (79) Abelard’s insistence here that album principally signified a quality, only secondarily a substance, restated the Aristotelian argument emphasised by the *Glosule* on Priscian. He was contradicting William’s definition in the *Introductiones* that an utterance like ‘animal’ signified a thing. Abelard also rejected William’s idea that a thing like ‘race’ inhered in a verb, like ‘he runs’, which meant no more than ‘he is running’. (81) The verb ‘is’ did not carry any substantive significance itself in ‘Socrates is white’ (as distinct from its meaning in ‘Socrates is')." (p. 169, some note omitted)

(66) *Epist. ad Abaelardum*, ed. Reiners, p. 63. (...)

(79) *Dial*, pp. 112-3.

(81) *Dial*, p. 123.

36. ———. 2001. "Hugh Metel, Heloise, and Peter Abelard. The Letters of an Augustinian Canon and the Challenge of Innovation in Twelfth-Century Lorraine." *Viator. Medieval and Renaissance Studies* no. 32:59–91.

    Abstract: "The fifty-five letters of Hugh Metel (ca. 1080-1150), an Augustinian canon of Toul, were edited by C. L. Hugo in 1731, but have attracted little scholarly attention, even though some of them are addressed to such famous personalities as Bernard of Clairvaux, Peter Abelard, and Heloise. This paper questions simplistic attempts to describe Hugh as a traditionalist by showing that although he admired Bernard of Clairvaux, he was much more interested than Bernard in combining classical poetic allusions with scriptural imagery. Hugh was interested in innovative educational trends in the

twelfth century, but became critical of negative tendencies, such as those embodied in Peter Abelard. At the same time his two letters to Heloise provide valuable evidence into the extent of her reputation as an innovative writer. Hugh's prose is compared to other contemporary letter collections, in particular the Epistolae duorum amantium, which, this article argues, records the early letters of Abelard and Heloise."

37. ———. 2003. "Peter Abelard on Dialectic, Rhetoric, and the Principles of Argument." In *Rhetoric and Renewal in the Latin West 1100-1540. Essays in Honour of John O. Ward*, edited by Mews, Constant J., Nederman, Cary J. and Thomson, Rodney M., 37–53. Turnhout: Brepols.

    "Analysis of Abelard's dialectic has often concentrated on his teaching about universals as an issue in ontology. The topic of the meaning of a universal term (a term predicated of different individuals) was only a preliminary issue, however, leading up to analysis of the principles of argument. By far the largest part of the *Dialectica* is taken up with discussion of topics, the principles on which all argument is based. Abelard both summarizes and revises what Boethius has to say in his *De differentiis topicis* and *In Topica Ciceronis*. As Jean Jolivet argued in his 1969 study *Arts du langage et théologie chez Abelard*, Abelard's discussion of universals was part of a much broader analysis of signification in general.(16) He argued that whether Abelard was writing about language as a whole, or more specifically as theological discourse in particular, he introduced a consistent questioning of the notion that language ever signifies things, an approach that he suggested could be called *non-réalisme*.

    Jolivet was principally concerned with Abelard's critique of traditional semantics. More recently, John Marenbon has questioned the assumption that Abelard never moved beyond being a critical thinker, by arguing that after an early phase in his teaching, dominated by logical concerns, he transferred his attention to an ethically based theology, directed at nothing less than 'moral reformation'.(17)" (p. 40)

(16) Jean Jolivet, *Arts du langage et théologie chez Abélard* (Paris: Vrin, 1969).

(17) Marenbon, *The Philosophy of Peter Abelard*, p. 213.

38. ———. 2004. "Logic, Rhetoric and the Topics in the Middle Ages. Peter Abelard and Aristotelian Tradition." In *Die Lektüre der Welt: zur Theorie, Geschichte und Soziologie kultureller Praxis. Festschrift für Walter Veit = Worlds of Reading: on the Theory, History, and Sociology of Cultural Practice*, edited by Heinze, Helmut and Wlller, Christiane, 25–35. Bern: Peter Lang.

39. Mews, Constant J., and Flint, V. I. J. 1995. *Peter Abelard: Authors of the Middle Ages: Volume II, Nos. 5-6*. Aldershot: Ashgate.

    Contents: 5. Constant J. Mews: Peter Abelard 1-88; 6. V. I. J. Flint: Honorius Augustodunensis 89-183.

    "Only with the researches of Cousin, first published in 1836, has Abelard's significance as a thinker begun to be appreciated.

    Abelard's earliest known writings on dialectic are relatively brief, so-called 'literal' glosses on key texts then being used in the teaching of logic: Porphyry's *Isagoge* or Introduction, Aristotle's *Categories* and *Periermeneias* or *On Interpretation* of Aristotle and Boethius' *On Divisions*. These texts, along with Boethius' *On Categorical Syllogisms*, *On Hypothetical Syllogisms* and *On Different Topics*, had begun to supplant more derivative treatises on the subject since the late tenth century.(80) Abelard would never gain more than a passing knowledge of other Aristotelian works, like the *Sophistical Refutations* and *Prior Analytics*, which only became known in Paris in the 1130s(.81).

    In the 'literal' glosses on the *Isagoge*, Abelard examined classes in general (like genus, species, and so on) as *voces* or vocal utterances of human imposition in a manner already developed by Roscelin of Compiegne. Roscelin himself may have been influenced by the ideas of the anonymous *Glosule* on Priscian's *Grammatical Institutes*, an influential commentary from the late eleventh century which applied Aristotelian principles to

understanding the 'causes' of the voces discussed by Priscian. (82) In particular it refined Priscian's rather crude definition that a noun signified 'a substance with a quality', by defining a noun such as *homo* as an utterance originally imposed to name or denote an individual person, but signifying the quality of manhood.(83)" (p. 27)

(81) De Rijk 1970^2, xvi-xviii.

82 On the *Glosule*, see M. Gibson, *The Early Scholastic «Glosule» to Priscian, «Institutiones Grammaticae»: The Text and its Influence',* Studi Medievali 3a ser. 20, 1 (1979), 235-54. Mews 1992 suggests that its author is the John who taught that dialectic was an *ars vocalis,* according to the *Historia Francica*, ed. Bouquet, 12, 3, and numbered Roscelin, Robert of Paris and Arnulf of Laon among his disciples.

(83) Ed. De Rijk, *Logica Modernorum* 2.1, 228 n.1.

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De Rijk, L.M. de, *Logica Modernorum: a Contribution to the History of Early Terminist Logic*, 1 (Assen 1962, 1967).

Mews, C. J. 'Nominalism and Theology before Peter Abaelard: New Light on Roscelin of Compiegne', *Vivarium* 30 (1992), 5-37.

40. Moonan, Lawrence. 1989. "Abelard's Use the "Timaeus"." *Archives d'histoire doctrinale et littéraire du Moyen Age* no. 56:7–90.

"In part I this study presents, in the order in which they occur in the *Timaeus*, the texts which Abelard uses. I distinguish 1) verbatim quotations of sentence length or more, 2) texts where he is plainly paraphrasing the *Timaeus*, and 3) texts to which arguably purposeful allusions are to be found in Abelard. I draw attention to interesting peculiarities of Abelard's text, to the varying extent to which the critical state of the texts we now have for Abelard permits comparison with what is available in

either the text or the apparatus of the modern edition of Calcidius.(3) And I note potentially

significant features of the doctrinal and literary contexts in Abelard where the *Timaeus* texts are being used. In particular I note which of four discernible genres, arguably to be distinguished in Abelard, are in question in the various uses of the texts. Towards the end of part I, Abelard's poetical uses of the *Timaeus,* which have hitherto had less specific attention than they merit, are isolated and examined.

In part II I go on to consider just how Abelard handled themes or issues in which texts from the Timaeus appeared (in pt I) to have been playing a noteworthy part.

(...)

In part III, I offer some conclusions and some fresh starting-points. Besides conclusions of a narrower sort, as on the number, distribution and nature of Abelard's textual debts to Plato and his translators, some wider ones are drawn, on the specific content of certain positions of Abelard which are not otherwise easy to appreciate justly, and on what specifically was at issue between him and his early critics, on certain matters of importance. Notably, the study permits us to argue that, on the notorious question of whether God could make a better, or any other, world than he did, the *Timaeus* was indeed of great importance, but only in a rather special way: not by providing grounds of substance for any serious condemnation alleging failure in orthodoxy, but by making it only too easy for some of his critics to organise opposition to Abelard's theological work more generally from defenders of orthodoxy." (pp. 8-9)

(3) J. H. Waszink, ed., in cooperation with P. J. Jensen, *Timaeus a Calcidio translatus Commentarioque instructus,* Leyden 1962, second edn 1975. This is vol. 4 of Plato Latinus, general editor R. Klibansky,

41. Noël, Roxane. 2021. "Abelard’s *Homo Intelligitur* Puzzle: On the Relation Between Universal Understandings and a World of Singulars." In *Women’s Perspectives on Ancient and Medieval Philosophy*, edited by Chouinard, Isabelle, McConaughey, Zoe,

Ramos, Aline Medeiros and Noël, Roxane, 221–238. Cham (Switzerland): Springer.

Abstract: "What is understood when “man” is understood? This question proves troublesome for Peter Abelard’s nominalist account of universal understandings which, to be sound, must attend to things as they really are. If there are no universal things, how can universal understandings be sound? His answer, in the *Treatise on Understandings*, is that such understandings, far from being about nothing, are about natures. However, it is hard to see how this solves the problem, given how he states earlier in the treatise that natures are identical to individuals. In this paper, I present a reading of what he means by “nature” that allows us to make sense of his proposed solution to the problem. In addition, I contend that, for his solution to work, the relevant relation between the mind and the world is to be understood as attention (or “attending to”), instead of his previous view based on similitude."

42. Normore, Calvin G. 1987. "The Tradition of Mediaeval Nominalism." In *Studies in Medieval Philosophy*, edited by Wippel, John F., 201–217. Washington, D.C:: The Catholic University of America Press.

"When does nominalism begin? Most of our earliest sources are completely silent about this question, but there are two sentences by the twelfth-century historian Otto von Freising which just might suggest an answer. It is thought that Otto studied in Paris from about 1127 to 1133, so his testimony has some authority. In book I of his *Gesta Frederici Imperatoris*, Otto writes of Peter Abaelard that "he had for his teacher first one Roscelin, who first taught in our time the *sententia vocum*."(6) This gnomic remark could perhaps be glossed with the help of Otto's claim just a bit later in the passage that Abaelard, "holding in the faculty of natural studies the *sententia vocum seu nominum*, incautiously introduced it into theology." (7)" (p. 203)

(...)

"What, then, is mediaeval nominalism and with which of the two faces of twentieth-century nominalism does it connect? My

argument here has been that mediaeval nominalism began in a series of worries about the relation of sentences and clauses to the world, worries made central by Abaelard, and that it is as much a problem in semantic theory as in metaphysics. I have argued that it has nothing to do with the problem of universals and that seeing it as focused on the problem of universals simply distorts our picture of what went on. I think it less distorting but still inaccurate to see it as a position about the ontological status of abstract entities. The impulse toward eliminating a layer of semantic entities for sentences to signify would support a parsimony about abstract entities but does not absolutely require it.

Nominalists resist multiplying things when they multiply terms, but there remains ample room for disagreement about how this economy is to be obtained. This disagreement about the methods by which language can describe the world without being in any way isomorphic with it is what underlies the debate between supporters of the *complexe significabile* and their opponents. It is a family quarrel and I suspect just one of the many which a thorough investigation of the tradition of mediaeval nominalism and the efforts to do physics and theology from a nominalist perspective will reveal." (pp. 16-217)

43. ———. 1992. "Abelard and the School of the *Nominales*." *Vivarium* no. 30:80–96.

"What of the positive evidence that the Nominales were in any sense Abelard' s followers. Otto [of Freising] says that Abelard held the 'sententia vocum seu nominum' in natural philosophy and introduced it into theology, and Walter Map says that he was 'princeps' among the Nominales. We know that Abelard was a charismatic and popular teacher, and we have no evidence at all of his followers (who must have been many) being called by any other name. We must conclude, then, that either he did not found a distinctive school or that the Nominales are that school. On the other hand I know of no text which both identifies itself as from the Nominales and calls Abelard 'our master' and no text which attributes views identified in the text as Abelard' s to the Nominales. The identification of the Nominales as Abelard's followers would,

then, have to rest squarely on finding them characterized by distinctive theses which we have independent reasons to think of as in some way peculiar to Abelard.(9)

(9) The need to find *distinctive* theses and not merely theses which Abelard and the Nominales both held is emphasized in Courtenay [1992a.

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Courternay, W, J. 1992a, ' Nominales ' and Rules of Inference, in: theorie = *Argumentations-theorie. Scholastische Forschungen zu den logischen und semantischen Regeln korrekten Folgen*s (Eighth European Symposium for Medieval Logic and Semantics, Freiburg i.B., May 24-27, 1988), ed. K. Jacobi. forthcoming [1993].

Map, Walter. *De nugis curialium*. Latin text edited, with a preface, by Montague Rhodes James. Oxford, Clarendon Press, 1914. Anecdota Oxoniensia, Medieval and Modern Series, 6.

Otto of Freising, *Gesta Frederici* I, ed. G. Waitz and B. De Simson, Hannover-Leipzig 1912.

44. Novikoff, Alex J. 2014. "Peter Abelard and Disputation: A Reexamination." *Rhetorica*:323–347.

Abstract: "This paper examines Abelard’s engagement with disputation (*disputatio*) from the vantage point of twelfth-century scholasticism.

Eschewing the well-worn details of Abelard’s personal life and philosophical positions, analysis is instead focused on two parallel dimensions of his career: the manner in which he attempted to face-off with his adversaries through public debate and his underlying theory of disputation. It is argued that Abelard’s theory is to be found not in his theological or logical works, but in his polemical letters and his ethical dialogue, the *Collationes,* which together offer a coherent hermeneutical strategy for discerning truth.

Abelard’s contribution to the art of disputation needs to be assessed in light of his broader involvement in the scholastic method and contemporary Jewish-Christian relations."

45. Nuchelmans, Gabriel. 1973. *Theories of the Proposition. Ancient and Medieval Conceptions of the Bearers of Truth and Falsity*. Amsterdam: North-Holland.

    Abelard: pp. 139-163.

46. Omelyantchyk, Valentin. 1999. "Abelard, a follower of Ammonius? Early medieval commentaries on *Peri hermeneias* 23 a 7 - 23 a 18." In *Entwicklungslinien mittelalterlicher Philosophie: Vorträge des 5. Kongresses der Österreichischen Gesellschaft für Philosophie (Innsbruck, 1.-4. Februar 1998)*, edited by Leibold, Gerhard and Löffler, Winfried, 64–72. Wien: Hölder-Pichler-Tempsky.

47. Panaccio, Claude. 2010. "Mental Language and Predication. Ockham and Abelard." *Analytica, Rio de Janeiro* no. 14:183–194.

    Abstract: "One of the main tenets of my book *Le discours intérieur. De Platon à Guillaume d'Ockham* was that strictly speaking, the idea of mental language originated with William of Ockham in the late 1310s and early 1320s.

    In a recent paper [*], however, Peter King claims that "Abelard was the author of the first full-fledged theory of mental language in the Middle Ages". In this paper I would like to reply to King's claim, and to point out the very significant differences that exist between Abelard and Ockham on mental language."

    [*] King, P. 2007. "Abelard on Mental Language". *American Catholic Philosophical Quarterly* 81, pp. 169-187.

48. ———. 2012. "Universals." In *The Oxford Handbook of Medieval Philosophy*, edited by Marenbon, John, 385–402. New York Oxford University Press.

    "Peter Abelard, at the same period [early-twelfth century], goes so far as to reformulate Porphyry's questions in a straightforwardly semantical way (see King 2007, 263–68). 'Are genera and species real or in bare thoughts alone?' is reinterpreted as asking about genus and species terms like the words 'animal' and 'man' if they 'signify any truly existing things' (Peter Abelard 1994 , 51). 'Are genus and species bodies

or incorporeals?' becomes: 'Do they [genus and species terms] signify subsistents that are corporeal or that are incorporeal?' (*ibid.*). And 'Are they separated or in sensibles?' is understood as a way of asking if these terms 'signify an intrinsic substance existing in a sensible thing' or something separate? (*ibid.*, 53). These questions, Abelard adds, 'rightly arose about universal words' (*ibid.*, 54), making it clear that Porphyry's questionnaire, in his interpretation, is about the 'modes of signifying' of general terms." (p. 391)

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King, Peter. 2007. Abelard's Answers to Porphyry. *Documenti e studi sulla tradizione filosofica medievale* 18:249–70.

Peter Abelard. 1994. 'From the "Glosses on Porphyry" in his *Logica ingredientibus*'. In Spade 1994, 26–56.

Spade, Paul V. 1994. *Five Texts on the Medieval Problem of Universals*. Indianapolis, IN: Hackett.

49. Pinzani, Roberto. 2003. *The Logical Grammar of Abelard*. Dordrecht: Kluwer.

"Having hopefully clarified what we are looking for and which notional tools we will utilize, it is perhaps worth saying where the subject of our study lays. The notion of logical grammar allows to unify, from a thematic point of view, doctrines and exegetic traditions not always originated from a single archetype text. The logical-linguistic works of Aristotle (first of all the *De Interpretatione*) and Priscian's *Institutio*, represent the main sources for Abelard's dialectic.

(...)

In addition to the comments on the *Categoriae* and *Isagoge* which put into practice the 'nominalism' (or, better, semanticism) of the author, we have comments or original treatises devoted to *De Interpretatione* and Boethius' logical works. In the *Dialectica* the part which precedes the treatise on syllogistic (Treatise 1 of *Dialectica*), is devoted to the grammatical analysis of terms and sentences, whereas the first books of the syllogistic deal with the different kinds of

categorical propositions with particular attention to the issues of the predicative link, syncategorematic expressions and modal sentences. In the treatises on topics (in *Introductiones Dialecticae* and in Treatise 3 of *Dialectica*) as will be seen, Abelard considers the truth of hypothetical propositions, as well as the meaning of the predicative link. *De Hypoteticis* (Treatise 4 of *Dialectica)* contains the syntactic analysis of hypothetical forms (the semantic interpretation of which is postponed to the treatise on topics). The books on defmition and division (Treatise 5 of *Dialectica*), due to their close links with both categories and topics, offer the same occasions to debate about and study the syntax and semantics of declarative sentences. In conclusion we can say that Abelard enlarged the previous context of logical grammar (*De Interpretatione*) so as to include almost the whole *logica vetus*, by carrying out a sort of contamination of the logical authorities with the texts of the grammatical tradition." (p. 4)

50. ———. 2018. *The Problem of Universals from Boethius to John of Salisbury*. Leiden: Brill.

    Chapter 8: *The Position of Abelard on Porphyry*, pp. 198-234.

    "I will focus on the writings devoted to the Porphyrian problem. My reconstruction of Abelard's position on the problem of universals is essentially based on the commentaries on Porphyry in the *Logica Ingredientibus* and the *Logica nostrorum petitioni sociorum*. In these works Abelard does not abide by the genre rules of the literal glosses and provides lengthy and independent doctrinal developments. The reader is invited to reflect upon the fact that in addition to the problems raised by Porphyry, "there are other no less demanding issues, such as the common cause of imposition and the conceptual meaning."

    This observation seems on the one hand to indicate the urgency of certain important themes, and on the other a somewhat unconventional style.(2)

    The general picture which emerges is that of a discussion taking place within a rigid framework: universals are the genera and species mentioned by Porphyry. However, there are

'wormholes' in the established framework that lead to hidden theoretical points. One of these has to do with a concept of property which is closer to contemporary sensibilities than one may expect. It was mentioned during our discussion of realism (see in particular the section on the 'missing thesis') and it will be further discussed here. The issue is linked to the theme of syntactic and semantic categorization, and it is of particular importance in Abelard's works, since his dialectics arises from a combination of logic (in the Aristotelian tradition) and grammar (in the tradition of Priscian commentators).(3)" (pp. 198-199, a note omitted)

(2) Cf. *Log. Ing.*, 8, 11–14. This point is duly noted by P. King, P. King, 'Abelard's answers to Porphyry,' *Documenti e studi sulla tradizione filosofica medievale*, 18 (2009), 249–270.

(3) The first two chapters of our *The Logical Grammar of Abelard* are devoted to this contamination and the topic of categorization.

51. Piolata, Thomas. 2021. "The Significance of Supposition. Abelard and Bonaventure on the Question of God Begetting God." *Collectanea Franciscana* no. 91:27–49.

    Summary: "This article treats the way in which Peter Abelard and Bonaventure deal with the logic of the phrase *Deus genuit Deum*, that is, how to understand logically the idea – rooted in the Creed – that God generates God ("God from God"). As Augustine had affirmed, essence cannot generate itself. Consequently, this aspect of the faith poses a potential problem. To handle it, the logical theory of supposition is key. This theory concerns the reference of a given term in a phrase, and not its signification. Abelard did not have the privilege of supposition. By the time of Bonaventure, however, it had become a standard tool of logical analysis. The goal of this study is thus to articulate the logical treatment of this phrase in Abelard and Bonaventure, and thereby to highlight the importance of the theory of supposition."

52. Potter, Joel M. 2009. "The Status of Status: Boethian Realism in Abelard." *Carmina Philosophiae* no. 18:127–135.

Abstract: "Peter Abelard's claim that universals are only words is well known, yet its metaphysical bearing for Abelard's philosophy is much disputed. Peter King has recently suggested that Abelard's nominalism is only an element of his larger irrealist metaphysic. Against this interpretation, I argue that Abelard's view is better understood as a form of moderate realism and a development of the solution attempted by Boethius in his Second Commentary on Porphyry's Isagoge. Both Abelard and Boethius clearly deny the independent existence of universals, yet they should not be called irrealists, since they agree that universal words or concepts have a firm basis in real, individual things."

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   Reprinted as chapter III in: L. M. de Rijk, *Through Language to Reality. Studies in Medieval Semantics and Metaphysics*, Edited by Bos Egbert, Northampton: Variorum Reprints, 1989.

   "It is most unfortunate that as late as in the second edition of his *Theory of Universals* Richard Aaron has based his rather unfavourable view on Peter Abailard's contribution to the solution of the problem of universals on the older work of our famous logician only, viz. the Logica Ingredientibus. As is known, the French Master's most mature solution is found in the Logica Nostrorum petitioni (LNP) (*).

   In this work (LNP 522, 10 ff.) Abailard attributes the commonness of common nouns neither to extramental things nor to words (voces), rather he states that it is significant word (sermo), that is either singular or universal. He finds much support in Aristotle's definition of the universal: 'a universal is that which is by its nature predicated of a number of things.' (**) Abailard lays much stress on the nature of the formation of sermones, which to his mind is a human establishment

(hominum institutio), unlike the formation of extramental things and that of words taken as articulated sounds, which are creations of nature. His solution is entirely focused on his explicit distinction between the material identity of vox and sermo as opposed to their formal diversity ('non-identity').

There is, he says, a clear formal distinction between 'being predicable of many,' or: 'predicability' and 'that which is predicable of many'. It is predicability that must belong to a vox for it to be a universal; just being something that is predicable of many is not enough.

Well, Abailard makes every effort to explain the formal difference between vox (word, i. e. articulated sound) and sermo (significant word), which should be put beside their material identity. The distinction is so important to him that we need not wonder that throughout the whole discussion Abailard makes use of his best weapon, his incomparable skill in the field of linguistic (or rather: semantic) analysis." (p. 139)

(*) Richard I. Aron, *The theory of Universals*, Oxford, 1967 (2nd ed.), p. 13.(...)

(**) *De interpreta*tione 7, 17a 39-40.

2. ———. 1981. "Abailard's Semantic Views in the Light of Later Developments." In *English Logic and Semantics: From the End of the 12th Century to the Time of Ockham and Burleigh*, edited by Braakhuis, Henk A.G., Kneepkens, Corneille Henri and Rijk, Lambertus Marie de, 1–58. Nijmegen: Ingenium Publishers.

   Reprinted as chapter VI in: L. M. de Rijk, *Through Language to Reality. Studies in Medieval Semantics and Metaphysics*, Edited by Bos Egbert, Northampton: Variorum Reprints 1989.

   "1. Semantics in Abailard's solution of the problem of universals. Abailard's attempt at solving the problem of universals may be characterized as a remarkable achievement in the filed of semantics. The procedure of this solution found in his mature work, the *Glosses on Porphyry* (*) can be divided into two stages: first, the extensive discussion of the formal

distinction between *vox* and *sermo*, the the semantic analysis of the intensional act of intellection." (p. 1)

(*) *Logica nostrorum petitioni,* ed. Geyer (Münster 1933), pp. 505-533 (henceforth quoted as L.N.P.)

"Finally, I will briefly sum up some of the important items of Mediaeval semantics which may be fitted into the frame-work of what I have labeled the 'semantic stratification of appellative names'.

First. There is the distinction of *esse actuate* and *esse habituate* as adhered to by many 13th century authors but energetically rejected by Roger Bacon, whereas William of Sherwood turns out to stand somewhere half-way between Roger and the majority. The point at issue is the significative force of an appellative noun. Whereas others commonly accepted a name's referring to an *esse habituale* (that is, being common to present, preterite and future being and even to what actually is and what actually is not), Roger most strictly held that even in such metaphysical propositions as *'omnis homo de necessitate est animal'* the subject term can only refer to actually existing things (therefore they are all false on Roger's view). William, though admitting the distinction between *esse actuale* and *esse habituale,* regarded such propositions as equivocal. This reminds us of William's view that a name's meaning is determined by the language - users rather than by speech itself *(Syncat.,* 52, 25 - 26). The pivotal point of this controversy seems to be the different application of our *F.R.* On Roger's view, for instance, the determination *'de necessitate'* in propositions such as *'omnis homo de necessitate est animal '* is unable to strip an appellative noun of its primary function, of signifying only existing things, whereas his opponents are apparently of the opinion that that phrase compels the noun to withdraw to its second semantic level of designating just an *esse habituale,* with the result that the proposition is true.

Secondly, the problems concerning verbs expressing a mental attitude may be looked at from the same point of view. To quote Abailard (L.N.P. 531, 9 - 13; cfr. also above, pp. 4 - 5): When it is said: "I want a hood (*desidero cappam*); well, every hood is

this or *that* hood", yet it does not follow that I want *this* or *that* hood. If, however, one would say as follows: "I want a hood; well, every one who wants a hood is wanting this or that hood; (therefore I am wanting *this* or *that* hood) ", then, indeed, the argument would go on correctly.

However, the assumption would be false, then. This much is certain, Abailard rejects that in *'I want a hood'* and *'every hood is this hood or that hood'* the term *'hood'* has the same signification. As a matter of fact the term *'hood'* in the former proposition, unlike that in the latter proposition, does not designate a hood actually existing, (except in case, I have some particular hood in mind, of course). So we have to conclude that the verb *'desidero'* governing the object *'cappam'* precludes us from taking it for an actually existing hood and compels us to understand it in the second-level-meaning of *'a concrete, particular, hood',* whether or not actually existing." (pp. 50-51)

No doubt, it is Abailard who initiated many developments in Mediaeval semantics. So I have considered it useful to draw the attention to the achievements of this great master in the field of logic, since 'the logic before Ockham' cannot be properly understood unless Abailard is recognized as the man who stood, in many respects, at the craddle of fourteenth century logic." (p. 52)

3. ———. 1985. "Martin M. Tweedale on Abailard: Some Criticisms of a Fascinating Venture." *Vivarium* no. 23:81–97.

"Mr. Tweedale's study is bound to give any of his readers the firm impression that, as logician, Peter Abailard has accomplished a tremendous achievement. Unfortunately, however, Tweedale, (...) is on the wrong track in claiming- throughout his study that the modern interpreter has to 'ferret' Abailard's answers out of 'rather obscure passages' (p. 7), and that he is inconsistent (p. X and *passim).* Tweedale has failed to appreciate Abailard's lucidity and clear language. He has missed the point several times and more than once this is due to his defective knowledge of Latin. However, let me not move too hurriedly to my conclusion.

In writing this book, the author had two main objectives in mind, as we learn from the *Preface*. First, 'to present in a form easily accessible to professional philosophers, theologians and historians those scattered portions of Abailard's logical writings which seem to record a very original scrutiny of the foundations of logic and in particular the problem of unversals'. Secondly, 'to interpret the texts in a way that would connect them with the ancient tradition and also make them intelligible to contemporary philosophers.' So chapters I and II try to give an insight into the classical and post-classical background. The core of the essay is to be found in Chapters III-V; Chapter VI contains a comparison between Abailard and Frege.

Without doubt, the author has succeeded in enlarging the modern scholar's acquaintance with, and admiration of, Abailard as a logician and early Medieval philosopher and theologian. Even someone who has had only a glimpse of the contents of this rich essay, cannot help experiencing a kind of thrill on realising that he is meeting in Peter Abailard a remarkable and original thinker.

However, to write a successful book something more is needed. To my mind the author was heavily hampered in realising the two objectives he had set himself, as a result of his poor knowledge of (both classical and Medieval) Latin grammar and syntax. Sometimes his judgment of Abailard's achievements is incorrect, for no other reason than his inability to correctly read Abailard's concise language." (pp. 81-82)

4. ———. 1986. "Peter Abelard's Semantics and His Doctrine of Being." *Vivarium* no. 24:85–127.

"6. *Conclusion*. Upon surveying Abelard's investigations about sentencehood it may be stated that it certainly developed gradually and, as a result, so to speak, of our author's continuously scrutinizing the recalcitrant problems concerning the ways in which, in our linguistic behaviour, we deal with the vital problem of being.

First, Abelard makes us recognize the peculiar nature of the substantive verb 'to be' ('esse'), peculiar indeed, since it is the only verb that is capable of conjoining but, at the same time,

when serving, thus, as a device for predication, conveys, due to its proper invention, the notion of 'substantialness' ('essentia'). As was said before (above, p. 109), Abelard's entire discussion of the problem is ostensibly concerned with mastering the antagonism between coupling and predication. First, he considers the vicissitudes the predicate noun cannot escape undergoing as the very result of this antagonism and finds a remedy in splitting up the different strata present in nouns such as 'album' ('the *or* a white thing'). In this endeavour, the chimaera and the like (the 'non-existents') turn out to be a real spoil-sports.

In the *Dialectica,* then, Abelard maintains, a a whole, his previous position (which is found in two parts of the *Logica Ingredientibus, viz.* the *Perihermeneias* commentary and the one on Boethius *De topicis differentiis),* but sets on to refine it in that he gives the *coupling* of 'substantialness' a predominant position over and against the *predication* of a (substantial or accidental) form. However, he aptly combines this move (quite unavoidably, it may seem) with a subtle emptying of the notion of 'essentia' ('substantialness'), with the result that, from now on, 'est' ('is') has developed into a mere container (meaning 'undetermined substantialness') for a 're-al' ('thing-like') content (or sememe) conveyed by a predicate noun (which also may be a participle of an ordinary verb). An additional result is that, on this interpretation, the existential import seems to come from the predicate noun, so that our chimaera is no longer a spoil-sport. Finally, the empty-container view of the copula is completed by Abelard's suggestion to take the 'is' *plus* the predicate noun as merely one linguistic construct.

(...)

However this may be, Abelard's achievements in semantics are astonishingly great and even remain unparalleled for centuries." pp. 123-124 and 125.

1. Preliminary: *Significatio* in Abelard; 2. *Nomen, verbum, oratio*; 3. On the predicative-copulative function of the verb; 4. The noun and verb in Abelard. A survey; 5. Sentencehood: connection and predication; 5.1. Some preliminary remarks on

naming and predication; 5.2. Predication as a semantic problem: linguistics vs semantics 5.3. On dating the logical works of Abelard; 5.4. Abelard's tackling of the problem of Predication in *Glossae super Periermeneias*; 5.5. The present interpretation confirmed by *Super Topica Glossae*; 5.5. The discussion of predication in the *Dialectica*; 6. Conclusion.

Note: This paper is meant as a continuation to the series '*On Ancient and Mediaeval Semantics and Metaphysics'* published in this Journal [Vivarium] from 1977-82. For bibliographical reasons the original title has been dropped and the studies will be continued under separate titles.

5. ———. 2003. "The Logic of Indefinite Names in Boethius, Abelard, Duns Scotus, and Radulphus Brito." In *Aristotle's Peri hermeneias in the Latin Middle Ages. Essays on the Commentary Tradition*, edited by Braakhuis, Henk A.G. and Kneepkens, Corneille Henri, 207–233. Groningen: Ingenium Publishers.

   "Aristotle's doctrine of indefinite names (nouns) was handed down to the Middle Ages together with Boethius' comments and explanations. Boethius' view of the matter has two characteristic features. For one thing, there is a certain ambiguity on his part concerning the precise semantic value of such terms; for another, Boethius deviates considerably from Aristotle in that he explicitly assigns the property of 'holding indifferently of existents and non-existents' not only to the indefinite *rhéma* (as it is found in Aristotle, De interpr. 3, 16b15) but to the indefinite name (*onoma*) as well.

   Until the end of the 12th century the logic and grammar (1) of indefinite terms (nouns and verbs) was a much debated issue. Although assiduously echoing the well-known *auctoritates* Medieval thinkers did not always go the whole way with their predecessors. For example, Abelard and Scotus, starting from their own philosophical tenets, more or less inconspicuously corrected some dubious elements in Boethius' interpretation of Aristotle's doctrine of the indefinite name. Peter Abelard, especially, took great pains to precisely define the meaning of indefinite terms. He focussed his attention on the proper

meaning of indefinite terms rather than on the question whether they are 'holding indifferently of existents and non-existens'. In contrast, 13th-century scholars like Duns Scotus and Radulphus Brito based their discussion of the proper meaning of the indefinite name upon the question '*Utrum nomen infinitum aliquid ponat*' ("Whether an infinite name posits something"), which calls to mind Boethius' claim that indefinite names 'hold indifferently of existent and non-existents'.

Abelard's discussion of the proper meaning of the indefinite name is also interesting in that it helps us to gain a good understandiiip of what Boethius had in mind in claiming that the indefinite name 'siginifes an infinite number of things' ('*significat infinita*'). For, thanks to Äbelard's expositions, it becomes clear that the phrase '*significare infinita*', which, on the face of it, may be taken as referring to the extensional of the indefinite name, on closer inspection proves to concern its intension, because the controversy between Abelard and Boethius turns out to be about two different views of the indefinite name's intension rather that about any opposition of intension as against extension." (pp. 207-208.)

(1) For the grammatical approaches to the problem of the indefinite term in the 12th century, see C.H. Kneepkens, "Orléans 266 and the Sophismata Collection: Master Joscelin of Soissons and the infinite words in the early twelfth century", in St. Read (ed.) *Sophisms in Medieval Logic and Grammar*. Acts of the Ninth European Symposium for Medieval Logic and Semantics, held at St Andrews, June 1990 (Nijhoff International Philosophy Series, 48; Dordrectt/Boston/London 1993), 64-85.

6. Rosier, Irène. 2002. "Abelard and the Meaning of the Propositions." In *Signification in Language and Culture*, edited by Gill, Harjeet Singh, 23–49. Shimla: Indian Institute of Advanced Study.

   Abstract: "For Abelard (first half of the twelfth century), nouns signify things on one hand, inteilections on the other. But what about propositions, which are composed of words? Do they

signify things, intellections, or neither of those? We will consider the various problems involved in that question, which lead Abelard to conclude that, although they are about things, propositions signify something which is neither a thing, nor a complex of things. nor an intellection, but a dictum : “what is said by the proposition". It is the dictum which is true or false. Although it is “absolutely nothing”, it is a projection in reality of the way our intellect connects things. When I think of Socrates and of his whiteness, I decide to connect them by saying Socrates is white, or to separate them by saying Socrates is not white, thus seeing these two things as connected in some way, as being ins some kind of relation. But this connection does not exist in reality: it is by comparing this connection which I produce with the actual state of the world, that What I am actuaily saying, not the words themselves but the dictum they express, will be judged true or false. Abelard’s positions will be discussed in connection with other logicians and grammarians of his time. It will be shown that, although the theory of the dictum answers problems, it seems not to have been known, even in his own school, and other theories were devised. The relevance of this theory for theology will also be discussed briefly."

7. Rosier-Catach, Irène. 2007. "Priscian on Divine Ideas and Mental Conceptions: the Discussions in the *Glosulae in Priscianum*, the *Notae Dunelmenses*, William of Champeaux and Abelard." *Vivarium* no. 45:219–237.

   Abstract: "Priscian's *Institutiones Grammaticae*, which rely on Stoic and Neoplatonic sources, constituted an important, although quite neglected, link in the chain of transmission of ancient philosophy in the Middle Ages. There is, in particular, a passage where Priscian discusses the vexed claim that common names can be proper names of the universal species and where he talks about the ideas existing in the divine mind. At the beginning of the 12th century, the anonymous *Glosulae super Priscianum* and the *Notae Dunelmenses*, which heavily quote William of Champeaux (as master G.), interpret the passage in the context of a growing interest in the problem of universals, raising semantic as well as ontological questions, and

introducing a Platonic view on universals in the discussions on the signification of the noun. Moreover, this same passage will be used by Abelard to elaborate one of his opinions about the signification of universal or common names-that they signify "mental conceptions".

8. ———. 2017. "Understanding as Attending. Semantics, Psychology and Ontology in Peter Abelard." In *The Language of Thought in Late Medieval Philosophy. Essays in Honor of Claude Panaccio*, edited by Pelletier, Jenny and Roques, Magali, 249–274. Dordrecht: Springer.

   Abstract: "How can we explain that understandings (*intellectus*) and sound understandings are formed or that expressions signify when there is no *res subiecta* that corresponds to them? Abelard discusses this question in various contexts relating to the formation of understandings, the signification of nouns, the problem of universals, and the formation of propositions. In all of them, the notion of *attentio-attendere*, Augustinian in origin, plays a crucial role. It orients Abelard towards an intentionalist semantics, which insists on the difference between the speaker's act of focusing on something (the *modus attendendi*) and this something as existing (*the modus subsistendi*), and away from a semantics based on the notion of similitude. I would like to show how all these analyses are connected, thereby showing the links between ontology, semantics, and psychology in Abelard's thought."

9. Schuman, Boaz Faraday. 2024. "Do Thoughts Have Parts? Peter Abelard: Yes! Alberic of Paris: No!" *British Journal for the History of Philosophy* no. 32:974–998.

   Abstract: "Spoken sentences have parts. Therefore they take time to speak. For instance, when you say, 'Socrates is running', you begin by uttering the subject term Socrates, before carrying on to the predicate. But are the corresponding thoughts also composite? And are such thoughts extended across time, like their spoken counterparts? Peter Abelard gave an affirmative response to both questions. Alberic of Paris denied the first and, as a corollary, denied the second. Here, I first set out

Abelard's account. I then present a series of arguments against Abelard, reconstructed from (sometimes fragmentary) manuscripts associated with Alberic's school. I conclude with an observation about present philosophy of language: this twelfth-century debate points to some undefended (and largely unstated) assumptions common to more recent thinking about propositions."

10. Seuren, Pieter Albertus Maria. 2009. *Language from Within: Vol. I: Language in Cognition*. New York: Oxford University Press.

    Summary of the two volumes: "Volume I begins by setting up certain central principles of the natural ontology according to which humans develop a theory of the actual world with the help of nonactual, thought-up 'worlds' or, better, situations. It then presents a view of how language expresses thoughts developed in terms of this natural ontology, with an emphasis on the mechanism of reference not only to extensional, actually existing objects but also to intensional, thought-up objects. An important aspect, elaborated in Chapter 4, is the fact that human communication does not, as is usually thought, consist in the transfer of propositionally structured information, but, rather, in a socially binding form of position-taking with respect to such information.

    We then go on to a discussion of the general semantic aspects of language in the context of the total ecological 'architecture' of language, mind, and world.

    This leads to a cursory tour of lexical meaning and of the ways lexical meanings are structured so as to make linguistic utterances fit into given contexts or discourses.

    Concentrating again on propositional content, basic principles of logic are introduced in Volume II, although not in the traditional fashion. A new and unconventional view of logic is developed there, in which the logical constants are treated as lexical items, in fact as lexical predicates, with the special property that their meanings allow for the computation of entailments. It is argued that this reduction of logic to lexical meaning shows better than anything else the relevance of logic

and logical analysis for the study of linguistic meaning. This point of view is reinforced in Chapter 10 of Volume II, where it is shown that presuppositions are a general semantic property of lexical predicates and where it is argued that a proper theory of presuppositions requires a trivalent presuppositional logic. We then concentrate, in Chapter 3 of Volume II, on a reconstruction of the natural logic which nature may be taken to have instilled into human cognition.

This reconstructed logic is then placed in a historical perspective, which shows that basic natural predicate logic is, in fact, largely but not entirely identical with the logic proposed and defended by the Edinburgh philosopher William Hamilton in the nineteenth century. Aristotelian predicate logic is dissected in Chapter 5 of Volume II and reconstructed on the basis of Aristotle's own texts, whereby it is found that Aristotle was not guilty of the logical error of undue existential import but left his logic incomplete. It is also found that the twelfth-century French philosopher Abelard completed Aristotelian predicate calculus in Aristotle's spirit, avoiding undue existential import in a way that leads to a logically sound system that is more powerful than standard modern predicate logic. Chapter 4 of Volume II shows that traditional predicate logic, with its undue existential import, has maximal logical power, in stark contrast to standard modern predicate logic, which has hardly any logical power left. It also shows that the logically sound Abelardian system of predicate logic has much greater logical power than standard modern predicate calculus, while still staying within the bounds of a strictly extensional ontology - a fact which raises questions regarding the status of standard modern predicate calculus in mathematics and mathematical logic.

In Chapter 6 of Volume II it is shown that traditional predicate logic is also much more functional from the point of view of transmitting information than its standard modern counterpart. The fact that, as a matter of principle, linguistic utterances need anchoring in context before they can be keyed to a given situation and the objects in it, is first discussed in Chapter 3, in the context of Aristotle's concept of proposition.

Chapters 7 to 9 of Volume II are devoted to a further theoretical elaboration of the context-sensitivity of natural-language sentences and utterances. The notion of presupposition is central in this respect. Chapter 10 of Volume II is devoted to the logical aspects of the context-sensitivity of language. A presuppositional logic is developed for both the propositional operators and the universal and existential quantifiers. In this logic, a distinction is made between, on the one hand, a default, discourse-restricted area of metalogical relations, which is taken to have some degree of psychological reality, and a purely theoretical area which has no psychological reality but is presented merely to show the character and properties of the logic involved." (pp. 7-8).

11. ———. 2010. *Language from Within: Vol. II: The Logic of Language*. New York: Oxford University Press.

    Chapter 4: *Logical power, Abelard, and empirical success rates*, pp. 122-146.

12. Shimizu, Tetsuro. 1995. "From Vocalism to Nominalism: Progression in Abaelard's Theory of Signification." *Didascalia* no. 1:15–46.

    "In the present paper, I propose to analyse Abaelard’s theory of signification with reference to his evolution from vocalism (or so called early nominalism) to nominalism in the strict sense. I shall examine (1) how the vocalist theory is defined and criticized by Abaelard in his *Glossae* on Porphyry’s *Isagoge* with the incipit “Ingredientibus”, (2) how he revises the vocalist theory in answering objections, and (3) how his later sermo-theory in his another gloss on Porphyry, entitled *Glossulae super Porphyrium* and distinguished by the incipit “Nostrorum petitioni sociorum”,(2) is different from that of the Glossae ‘I’. In other words, I suppose three stages in Abaelard’s discussion: the first stage is the vocalist definition of universals in the *Glossae* ‘I’, which is his starting-point in it; the second is Abaelard’s revision of vocalist theory of signification in the *Glossae* ‘I’ ; and the third is the sermo-theory in the Glossulae ‘NPS’, which is a further revision of vocalism, but deserves to be called nominalism, and not vocalism any longer. That is,

Abaelard's change in terminology from *vox* to *sermo* involves a revision in his basic conception of word itself." (p. 15, two notes omitted)

(2) While using the abbreviation 'LNPS' for Geyer's edition, I shall call this gloss Glossulae 'NPS'(...)

13. ———. 1999. "Words and Concepts in Anselm et Abelard." In *Langage, sciences, philosophie au XIIe siècle*, edited by Biard, Joël, 177–197. Paris: Vrin.

    "The main concern of the present article is with the theory of words and concepts in Anselm and Abelard. The Augustinian tradition tells us that mental concepts are words (*verba*) and that they correspond to God's Word, and the expository tradition since Philo combines the story of creation with Plato's *Timaeus*, identifying primordial ideas in God's mind before creation with God's words, or Word. By contrast, grammar - the preliminary, or introductory, discipline in early medieval schools -begins its course from vocal sounds (*voces*), so that words in grammar are defined as « vocal entities ». Furthermore, dialectic treats names and verbs as a subspecies of *vox significativa secundum placitum*, at least in the relevant chapter of Aristotle's *De interpretatione*. How, then, did the scholars at that period deal with the supposed inconsistency between these secular disciplines and the traditional Christian teaching on words?

    To answer this question, I shall first examine a theory of the signification of names in the field of grammar from the late eleventh century, and show that the dominant tendency at that time was to interpret grammar on the basis of Aristotle's theory of categories. Then, I shall go on to examine Anselm and Abelard's viewpoints to show that both, basing themselves on Aristotle's *De interpretatione*, introduced new theories on signification independently from the theory in grammar, while they differed from each other in how to accept the Augustinian theory of God's Word and consequently on how to apprehend words in general." (p. 177)

14. ———. 2006. "Word and *Esse* in Anselm and Abelard." In *Anselm and Abelard. Investigations and iuxtapositions*, edited

by Gasper, Giles E.M. and Kohlenberger, Helmut, 179–195. Toronto: Pontifical Institute of Mediaeval Studies.

"The medieval controversy about the nature of universals was about nothing other than the relationship between word and thing. In order to understand the history and essence of the controversy, it is most important to examine the thoughts of the two key figures: Anselm and Abelard, respectively the revered authority among the realists (*reales*), and the founder of the nominalists (*nominales*). Though there certainly lies a crucial divergence in their views, nevertheless Abelard, as well as contemporary realists, owes many of his ideas, conceptions and terms to Anselm. Having examined elsewhere their views on the relationship between word and concept, I would like to examine here those on the relationship between word and the world. Through this examination I shall show how Anselm's metaphysical investigation about God's locution was transformed into Abelard's logical one about human words.

In the following, I shall first examine Anselm's theory of God's locution, showing how he explains it in terms of human language and in its relationship with created things, by examining some passages from his *Monologion* and *De grammatico*.

Secondly, I shall focus my attention on Abelard's corresponding theories in his two commentaries on Porphyry, *Glosse 'ingredientibus*' and *Glossule* '*nostrorum petitioni sociorum*'." (p. 179)

"Conclusion. The terms and concepts that Anselm proposed in his meditation on God's locution as the origin of created things constitute a common vocabulary for the controversy about universals. Even Abelard, the founder of nominalism, when refuting the realists, uses these terms and concepts to differentiate himself from them. Such terms, among others, are *essentia, esse hominem,* and *status hominis,* which is Abelard's substitute for Anselm's *esse hominis*. Again, Anselm's idea of *significatio* as an act of producing understanding in the hearer becomes the main idea in Abelard's semantics. We can, however, recognize elements of discrepancy between them as

well as these examples of agreement. Abelard excludes *essentia* from his theory of universals, separating it from *esse hominem,* and shifts the idea of *esse hominis* to the one of *status hominis*. Again, Anselm's *intellectus* produced by a word is the understanding by which an *essentia,* or something's *esse,* is understood, and the latter is based on the *principalis essentia* in God, while Abelard's is separated from *essentia* and even from the facts in reality *(status),* in his later theory, though connected in his earlier one. It seems that Abelard cultivates a new realm of conceptions independent of things' *essentia;* this realm is properly for human beings, not for God, the creator. In this sense, 'Deus homo' happened between Anselm and Abelard." (p. 195)

15. ———. 2006. "The Place of *Intellectus* in the Theory of Signification by Abelard and *Ars Meliduna*." In *Intellect et imagination dans la philosophie médiévale / Intellect and imagination in medieval philosophy / Intelecto e imaginação na filosofia medieval / Actes du XIe Congrès international de philosophie médiévale de la Société internationale pour l'Étude de la philosophie médiévale (S.I.E.P.M.): Porto, du 26 au 31 août 2002*, edited by Pacheco, Maria Cândida and Meirinhos, José F., 927–939. Turnhout: Brepols.

    "The main concern of the present paper is with some theories of *significatio* in the 12th century, and how *intellectus* and *imaginatio* play a role in them, but not in others. In the present paper, I shall restrict my attention to Abelard and *Ars meliduna*, hoping to contrast them.

    ABELARD'S THEORY OF SIGNIFICATION

    As for Abelard's theory, I will make some comments concerning the present subject, with a summary of the conclusions that I have described elsewhere (1). In *Glosse super Porphyrium* ("Ingredientibus"), Abelard's theory of signification bound up with his explanation and revision of the vocalist theory of a universal. He starts with the definition of the universal, which involves the idea of *impositio* and *nominatio*, and so far the theory contains the name-things relationship only. Abelard, however, also shows its difficulties, by raising the two cardinal

aspects of signification: the first concerns *nominatio*, or *significatio* in the broader sense, while the second, the *intellectus* that a name produces in the hearer, and this act of a name is *significatio* in the strict sense.

Then he tries to solve the difficulties and presents his revision of the theory regarding each of the two aspects (2)." (p. 927)

(...)

CONCLUSION

In sum, we can contrast Abelard and the *Ars meliduna* as for how *intellectus* are treated with reference to signification. For both of them, a *status* is some thing or some fact in the world, independent of *intellectus*, though it might be an object of *intellectus*,

but by no means a mental entity. This is the only point on which both will agree. To begin with, they oppose each other as for what is the *status*. For Abelard, status is *causa impositionis*, while for the *Ars meliduna*, it is the object of signification. On the contrary, *intellectus* is the object of signification for Abelard, while it is the *causa impositionis* for the *Ars meliduna*. Abelard thinks of *intellectus* from the hearer's point of view basing himself on Aristotle's *De interpretatione*, so that he attends to the act of producing *intellectus* in the hearer, while the *Ars meliduna* thinks of *intellectus* from the speaker's point of view, basing itself on Priscian's grammar, so that it attends to the vocal words as revealing the speaker's *intellectus*. Thus the *Ars meliduna* insists on the reverse of what Abelard insisted on." (p. 939).

(1) Shimizu, T., From Vocalism to Nominalism: Progression in Abaelard's Theory of Signification, *Didascalia*, 1,15-46.

(2) Abaelardus, *Glossae super Porphyrium*, hrsg. von Geyer, B., *Peter Abaelards philosophische Schriften* I,1933: 16, 25-30; 18,4-19,20.

16. Spencer, Mark K. 2011. "Abelard on *Status* and their Relation to Universals. A Husserlian Interpretation." *International Philosophical Quarterly* no. 51:223–240.

"The discussion of universals in Peter Abelard's Logica 'Ingredientibus' has been interpreted in many ways. Of particular controversy has been the proper way to interpret his use of the term status. In this paper I offer an interpretation of status by comparing Abelard's account of knowledge of universals to Edmund Husserl's presentations of categorial and eidetic intuition. I argue that status is meant to be understood as something like an ideal object, in Husserl's sense of the term. First, I present Abelard's discussion of status and distinguish this term from universals, things, acts of understanding, and forms. Next, I consider Husserl's account of categorial and eidetic intuition. Finally, I draw parallels between the two while showing how an interpretation of status as ideal object overcomes the interpretive problems encountered by other commentators on Abelard."

17. Spruyt, Joke. 2003. "The Semantics of Complex Espressions in John Duns Scotus, Peter Abelard and John Buridan." In *Aristotle's Peri hermeneias in the Latin Middle Ages: Essays on the Commentary Tradition*, edited by Braakhuis, Henk A.G. and Kneepkens, Corneille Henri, 275–303. Turnhout: Brepols.

    "Peter Abelard's Exposé on Single and Non-Single Propositions in the *Dialectica*(38)

    One of the works in which Abelard had concentrated on the question of single or simple propositions is the Dialectica, II, ii, in the treatise entitled 'De specierum differentiis categoricarum'. (39) At the beginning of his discussion Abelard makes it very clear that the property of being a single expression is based on the meaning (*sententia*) of an expression. In the same way as there are single words (*unae*), i.e. words that have one meaning, as well as non-single ones (*multiplices*), or the ones that have more than one meaning, he tells us, there are also complex expressions (*orationes*) that can be either single (*unae*) or non-single (*multiplices*). Moreover, it is not the privilege of complete propositions to be subjected to such a distinction, but incomplete expressions also, such as definitions or descriptions, can be either single or non-single." (p. 288)

(38) Abelard also discusses this topic in the *Logica 'lngredientibus ', Glossae super Periermeneias*, ed. Geyer (1927), 382ff. (see the contribution by C. Strub, elsewhere in this volume).

(39) *Dial.* II, ii, ed. de Rijk (1970), 222-31.

References

Christian Strub, *Propositio una / multiplex in Abelard: A Note on the Relationship of Dialectic and Grammar*, same bolime, pp. 257-273.

18. Strub, Christian. 2003. "*Propositio una / multiplex* in Abelard: A Note on the Relationship of Dialectic and Grammar." In *Aristotle's Peri hermeneias in the Latin Middle Ages. Essays on the Commentary Tradition*, edited by Braakhuis, Henk A.G. and Kneepkens, Corneille Henri, 257–273. Turnhout: Brepols.

"In his semantics, Abelard draws a basic threefold distinction between (a) what is said; (b) the object that something is said about; (c) the meaning of what is said. What is said are single words (*dictiones*) or sequences of such words (*orationes*); in the latter case they may be either incomplete expressions (such as 'a white man') or complete expressions, that is, full sentences (such as 'A man is white'). The meaning of what is said is grasped through specific mental concepts called understandings (*intellectus*). The object that something is said about is a thing (*res*) or a state of affairs (*dictum propositionis*). These objects are never named or expressed directly by a word or a sequence of words but always through understandings. Therefore, a criterion for the unity of sequences of words would have to depend upon a criterion for the unity of understandings. (9)

The task, then, for clarifying the distinction between unitary andmultiple understandings is to assign conditions that sequences of words, usually sentences, must meet in order to signify a unitary understanding. For this task it makes no difference initially whether we find these conditions at the level of utterances or of syntax or semantics." (pp. 259-260)

(9) Cf. Jolivet (1982), 26: "C'est du cote de l'intellection qu'il faut done chercher !'unité de la phrase, car, du simple point de vue de l'écoulement du temps, on ne pourrait jamais avoir que des instants successifs .... "

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19. Stump, Eleonore. 1988. "Logic in the Early Twelfth Century." In *Meaning and Inference in Medieval Philosophy*, edited by Norman, Kretzmann, 31–55. Dordrecht: Kluwer.

On Abelard, pp. 44-47.

"The extant twelfth-century commentaries on Boethius's *De top. diff.* give us reason to believe that it was a controversial theory and that it was associated with Peter Abelard. A number of the commentaries know of the claim that syllogistic inferences hold in virtue of their form and not because they are warranted by a Topic.(60) In some of those commentaries this view is associated with views similar to Abelard's or even explicitly ascribed to a master P., who Green-Pedersen argues should be identified as Abelard.(61) And, in general, the commentaries which raise the issue of the Topical dependence of categorical syllogisms recognize it as controversial.

(...)

The evidence from these commentaries and our examination of early twelfth-century treatises, then, suggests that the separation of categorical syllogisms from Topical inferences in the twelfth century was controversial and original with Abelard. Up to the time of IMm [*Introductiones Montane minores*] around 1130, we find no recognition of this view, which plays so large a part in Abelard's *Dialectica*, but in the commentaries we have evidence that it was a very controversial view which tended to be associated with Abelard." (pp. 44-45)

(60) For a survey of these commentaries see Green-Pedersen 1974 and 1977. For the commentaries, see Green-Pedersen

1977, esp. pp. 143-4, also 138, 139, 141-2; and Green-Pedersen 1974, pp. 26-7, 27-30.

(61) For the identification of Master P. with Abelard, see Green-Pedersen 1974, pp. 19, 27, and 29; cf also Green-Pedersen 1977, p. 141.

References

Green-Pedersen, N. J. 1974. "William of Champeaux on Boethius' Topics according to Orleans Bibl. Mun. 266." *Cahiers de l'Institut du Moyen-age grec et latin* 13: 13-30.

Green-Pedersen, N. J. 1977. "The Doctrine of 'maxima propositio' and 'locus differentia' in Commentaries from the 12th century on Boethius' 'Topics'." *Studia Mediewistyczne* 18: 125-163.

20. ———. 1989. *Dialectic and Its Place in the Development of Medieval Logic*. Ithaca: Cornell University Press.

Chapter 5: *Abelard on the Topics* (pp. 89-109) and Chapter 6: *Logic in the Early Twelfth Century* (pp. 111-133).

"In this essay, I examine the general character of Abelard's discussion of Topics to show its place in the philosophical tradition between Garlandus Compotista and the thirteenth-century terminists; and then I consider in detail Abelard's discussion of those particular Topics which are the principal concern of early twelfth-century logic treatises to help determine the place of Abelard's work in the historical tradition of the twelfth century. In what follows I concentrate on Abelard's *Dialectica*, leaving to one side his commentary on Boethius. I think that it will be some time before a definitive account of Abelard's work on Topics can be written, and I am not attempting to do so here. For my purposes it is enough to make a preliminary study of Abelard's major work, *Dialectica*, investigating in detail Abelard's discussion of Topics there. (In the following essay I will say something more about Abelard's commentary on Boethius's *De top. diff.*).

A comparison of the tables of contents of Garlandus's *Dialectica* and Abelard's will suggest some of the fundamental

differences between them. Garlandus's treatment of hypothetical syllogisms is roughly five times as long as his treatment of categorical syllogisms, and it is by far the lengthiest and most elaborate part of the book. In Abelard, the section on hypothetical syllogisms seems perfunctory, and the section on categorical syllogisms is almost twice as long. What is at least as significant, if not more so, is that Abelard places his discussion of Topics before the section on hypothetical syllogisms but after the section on categorical syllogisms, unlike Garlandus, who puts his treatment of the topics before any discussion of either sort of syllogism." (pp.89-90)

21. Tarlazzi, Caterina. 2014. "'Iam Corpus' or 'Non Corpus'? On Abelard's First Argument Against Material Essence Realism in the Logica 'Ingredientibus'." *Vivarium* no. 52:1–22.

    Abstract: "This paper investigates Abelard's first argument against the 'material essence' realist view on universals in the Logica 'Ingredientibus'. It analyses three different interpretations of the argument, those of Alain de Libera, Peter King and Martin Tweedale. Much depends on the (for this section, single) manuscript reading 'iam corpus' in a crucial passage. The paper argues against the manuscript reading (endorsed by some scholars) and in favour of the emendation 'non corpus' suggested by the editor, Bernhard Geyer. The emended reading is supported by comparison with similar arguments of Abelard and his school found in published and unpublished sources."

22. ———. 2019. "'Collectio'-Theories of Universals in the Time of Peter Abelard and Boethius' Infinite Regress Argument Against Multiple Genus." In *Mereology in Medieval Logic and Metaphysics: Proceedings of the 21st European Symposium of Medieval Logic and Semantics*, edited by Amerini, Fabrizio, Binini, Irene and Mugnai, Massimo 75–108. Pisa: Edizioni della Normale.

23. ———. 2021. "The Debate Over Universals in the Time of Peter Abelard: What It Is, And Is Not, About." *British Journal for the History of Philosophy* no. 29:1012–1033.

Abstract: "From the nineteenth century onwards, the so-called ‘Debate over Universals’ from the time of Peter Abelard (c. 1100–50) is regarded as one of the major problems of medieval philosophy. This paper tries to advance the current approaches (which fall into two broad categories: a more analytical line of enquiry and a more historical one) by establishing a new understanding based on assumptions and questions. Through a comprehensive analysis of both published and unpublished logical commentaries from the first half of the twelfth century, it shows that – contrary to the received narrative – a lot is not discussed, but rather assumed. It therefore investigates what the debate is not about – arguing that this is just as relevant as what the debate is about."

24. Taylor, Andrew. 1998. "A Second Ajax: Peter Abelard and the Violence of Dialectic." In *The Tongue of the Fathers*, edited by Townsend, David R. and Taylor, Andrew, 14–34. Philadelphia: University of Pennsylvania Press.

    "The disputations in which Abelard first made his reputation offer an extreme instance of the adversarial method that remains the fundamental paradigm of academic philosophizing in the West.(63) This adversarial method now seems all too obviously characteristic of a specific culture, that male culture that “thrives on argument and prides itself on distinction"(64) yet to retain its authority the method must claim

    both objectivity and universality. It cannot afford to reveal itself as a masculine game. Abelard glories in this culture, but he shows as much, and in doing so gives the game away. Whether the figure of Ajax marks aggression, fear, or some combination of the two, he calls into question dialectic’s pose of impersonality. Dialectic’s claims to impersonal objectivity bear all too strongly the marks of its human proponents." (p. 30)

25. Teräväinen, Juha. 1983. "Ultimate Reality and Meaning in 12th Century Logic." *Ultimate Reality and Meaning* no. 6:22–31.

    "When discussing the task of logic Abelard notes that the function of logic is teaching people to distinguish valid arguments from non-valid, and this on the basis of logical principles (Abelard, 1933, p. 506). But then Abelard notes also

that there are other indispensable concerns, namely those involving important distinctions regarding the nature of the things (Abelard, 1970, p. 287). Here the modern researcher mainly

regrets the 'ambivalence' of Abelard's opinion (e.g. de Rijk, 1967, p. 188; Pinborg, 1972, p. 51). But for Abelard these 'external' aspects are necessary.

Abelard deals with non-logical fundamentals chiefly in his theory of terms (Abelard, 1919-1927, p. 112); when discussing the theory of argumentation and the theory of propositions he is interested in the strictly formal character of these logical matters (cf. e.g. Abelard, 1919-1927, p. 308f.). It even seems that he distinguishes between an inquiry that is strictly logical and one searching for truth itself (Abelard, 1954, p. 305).

While presenting the copula of an affirmative proposition he gives both the formal (the identity theory; Abelard, 1970, p. 132) and the metaphysical (the inherence theory; Abelard, 1919-1927, p. 360f.) aspect. The latter he deserts for the former, since the identity theory presumes nothing outside the proposition itself. Abelard's tendency was, therefore, towards a form of logic where non-logical presumptions are rejected or simply made superfluous." (pp. 24-25)

References

Abelard, P. 1919-1927. *Logica lngredientibus*, ed. Geyer, in *Peter Abaelards Philosophische Schriften*. Beitrãge zur Geschichte der Philosophie und Theologie des Mittealters xx, 1-3, Münster i.W.: Aschendorffsche

Verlagsbuchhandlung.

_____1933. *Logica Nostrorum petitioni sociorum*, ed. Geyer, in *Peter Abelards Philosophische Schriften*. Beitrãge zur Geschichte der Philosophie und Theologie des Mittelalters XXI, 4, Munster i.W.: Aschendorffsche

Verlagsbuchhandlung.

_____1954. *Scritti di logica*, ed. M.Dal Pra. Milan: Fratelli Bocca.

_____1970. *Dialectica*. Edited by L.M. di Rijk. Assen: Van Gorcum.

Pinborg, J. 1972. *Logik und Semantik im Mittelalter. Ein Überblick*, Stuttgart-Bad Cannstatt: Frommann-Holzboog.

Rijk, L.M. de, 1967. *Logica Modernorum,* Vol. II, part one. Assen: Van Gorcum.

26. Thom, Paul. 2006. *Medieval Modal Systems: Problems and Concepts*. Aldershot: Ashgate.

    Chapter 3: *Abélard*, pp. 43-64.

    "Abélard distinguishes between the syntactic features of a proposition *secundum constructionem* and *in sensu*. He asks two principal questions about modal propositions: What role does modality play in their syntactic structure, and. How are they derived from the corresponding assertorics?

    With regard to the first of these questions, Abélard's view is that modal words qualify neither the subject nor the predicate nor the whole proposition, but the relation between predicate and subject. On the second question, his view is that modal propositions are in sense de rebus - i.e. they share their subjects with the simple propositions from which they derive, rather than having the sense of those simple propositions as their subjects.(3) This is what it means to be de rebus. The doctrine that modal propositions are de rebus I will call actualism, since it claims that modal propositions are about the same actual things that are the subjects of assertoric propositions. Actualism, as we shall see, is not necessarily an anti-metaphysical doctrine." (p. 44)

    (3) Abélard (1956) 198:8-9. These words occur at the climax of a long polemic, 195:11-198:11, against 'his master's' *de sensu* analysis, according to which modals are about the sense of the corresponding simples.

    References

Abélard, P. (1956), *Dialectica*, edited by L.M. De Rijk, Van Gorcum, Assen

27. ———. 2012. "Logical Form." In *The Oxford Handbook of Medieval Philosophy*, edited by Marenbon, John, 271–288. New York Oxford University Press.

"An explicit formulation of a concept of logical form can be found in Abelard's distinction between perfect and imperfect inferences. A perfect inference is one where the truth of consequent is clear from the structure of the antecedent (*ex ipsius antecedentis complexione*) because the construction of the antecedent is arranged in such a way as to contain the construction of the consequent—as happens in syllogisms.

(22) An imperfect inference lacks this kind of structural integrity, even if it is necessary—as is the inference 'If every man is an animal, every man is animate' or the inference 'If every man is an animal, no man is a stone'. (23) Our knowledge of imperfect inferences comes from our knowledge of the things that the inference is about (men, animals and stones in the above examples), not just our knowledge of the inference's

structure. (24) But knowledge of a perfect inference depends on no such knowledge since the inference holds for all terms similarly arranged, whether the premises relating them are true of false. (25) Imperfect inferences, by contrast, do not hold for all terms similarly arranged: if we replace 'man' by 'stone' in 'If it's a man it's an animal', the resulting inference is false. Perfect inferences don't depend on the nature of things, and their structure (*complexio*) preserves a necessary consequence equally in all things, no matter how they are related. (26)" (p. 276)

(22) *Dialectica*, in Peter Abelard (1956), henceforth *Dial.*, 253:31–254:1: 'Haec autem inferentia alias perfecta est, alias imperfecta. Perfecta quidem est inferentia, cum ex ipsius antecedentis complexione consequentis veritas manifesta est et antecedentis constructio ita est disposita, ut in se consequentis quoque constructionem contine at, veluti in syllogismis aut in his hypotheticis quae formas habent syllogismorum'.

(23). *Dial.*, 255:1–6.

(24) *Dial.*, 255:13–17.

(25) *Dial.*, 255:31–37.

(26) *Dial.* [256:20-24[‘Istae ergo consequentiae recte ex natura rerum verae dicuntur quarum veritas una cum rerum natura variatur; illae vero veritatem ex complexione, non ex rerum natura, tenent quarum complexio necessitatem in quibuslibet rebus, cuiuscumque sint habitudinis, aeque custodit, sicut in syllogismo vel in consequentiis quae formas eorum tenent, ostenditur’.

28. Thompson, Augustine. 1995. "The Debate on Universals before Peter Abelard." *Journal of the History of Philosophy* no. 33:409–429.

    "This essay is an experiment, in which I shall attempt three things. First, I shall draw together the widely scattered discoveries and scholarship that have ppeared since 1980 and reread our sources for the debate in light of them.

    Next, I shall propose that the theories advanced by participants in the debate on universals before Abelard, which have hitherto seemed fragmentary and incoherent--intelligible only in terms of their culmination in or their refutation by Peter Abelard--can be fitted into a coherent narrative. This narrative calls into question the trustworthiness of Peter Abelard and John of Salisbury's widely accepted version of the debate. Finally, it suggests that, discounting his self-promotion, Peter Abelard was a far less pivotal thinker than conventional wisdom would have him." (p. 411)

29. Tweedale, Martin. 1967. "Abailard and Non-Things." *Journal of the History of Philosophy* no. 5:329–342.

    "On several occasions in his logical writings Abailard extracts himself from embarrassing ontological implications of his analyses of language by resorting to the notion of a something that is not a thing. I shall note here two such occasions and then discuss Abailard's explanations of this procedure based on the grammatical distinction of personal and impersonal

constructions. Since the texts on this latter topic are especially confusing, a considerable portion of my effort will be spent on making sense of them as preparation for drawing some conclusions about Abailard's overall approach. My purpose here is to show how Abailard's grammatical analyses are fundamental to his defence of a number of metaphysical positions. I also want to suggest that Abailard's grammatical approach, especially on the question of *dicta*, contains insights of continuing interest." (p. 329)

30. ———. 1976. *Abailard on Universals*. Amsterdam: North-Holland.

    Contents: Preface IX-X; Introduction 1; I. Plato and Aristotle 17; II. Boethius and Porphyry 53; III. Abailard's Critique of Realist Solutions 89; IV. Abailard's Theory of Abstract Entities 133; V. Abailard's Theory of *Dicta* and *Status* 133; Vi. Abailard and Frege: A Comparison 305; Bibliography 329; Index of Names and Subjects 331; Index of Textual Extracts 335-337.

    "In writing this book I have had two main objectives in mind. The first was to present in a form easily accessible to professional philosophers, theologians and historians certain scattered portions of Abailard’s logical writings which seem to me to record a very original scrutiny of the foundations of logic and in particular of the problem of universals. I am of the opinion that if and when a complete history of logic in the West is written Abailard’s ideas will appear as one of the ablest and most penetrating efforts to establish a philosophical foundation for the subject. To accomplish this objective I have arranged, translated and commented on relevant passages from Abailard’s works in such a way that the reader, even if he knows no Latin, can follow Abailard’s train of thought and see the relationships between texts whose bearing on each other is far from immediately apparent. The translations are very literal, sometimes to the point of awkwardness. But one must remember that the original is rarely any sort of paragon of literary style. Scholastic writing in logic generally sacrifices beauty to economy and accuracy. Sometimes, Abailard is too economical, and then I have inserted in the translation what is required to give an intelligible rendering. (Such insertions are

bracketed.) For those who know Latin the original text is also provided from the most recent modern editions of Abailard's works.

The second objective was to interpret the texts in a way that would connect them with the ancient tradition and also make them intelligible to contemporary philosophers. I have tried to be both critical and sympathetic in this interpretive work. Indeed, criticism of Abailard without sympathy is almost bound to be superficial since he so frequently contradicts himself and talks in ways he himself knew to be misleading. Besides, Abailard is writing at a time when the conceptual tools of scholastic logic were being created; consequently it is not to be expected that his works would display the rigor of those, say, of Ockham or Tarski.

Chapters I and II give the classical background to the problem of universals, allowing the reader a glimpse of some of its ramifications. The real work of presenting and analysing texts takes place in chapters III through V. If the reader already has a good idea of the history of the subject, he could well limit himself to just this core part of the essay. Chapter VI tries to give a sense of the continuing relevance of Abailard's discussions by a comparison with Frege's philosophy of logic. I thought it was better to concentrate on one central figure in modern logic than attempt a general comparison with all the various strands of thinking on the subject since the nineteenth century. Only this last chapter supposes a bit of familiarity with modern philosophy. Elsewhere I have tried to write in a way historians and theologians, as well as philosophers, could understand. Certainly the range of interests a book on this topic appeals to should not be narrowed any more than necessary." (from the *Preface*)

"This work shows how Abailard elaborated and defended the view that universals are words, avoided the pitfalls of an image theory of thinking, and propounded a theory of "status" and "dicta" as objects of thought without treating them as subjects of predication. His defense of these views is shown to depend on certain fundamental departures from the Aristotelian term

logic of his day, including a proposal for subjectless propositions, the treatment of copula plus predicate noun as equivalent to a simple verb, and a transformation of the 'is' of existence into the 'is' of predication." (Review by P. S. Spade, *Noûs*, 14, 1980, pp. 479-483)

31. ———. 1980. "Abailard and Ockham: Contrasting Defences of Nominalism." *Theoria* no. 46:106–122.

    Abstract: "The Scholastics inherited from the Greeks a certain ideal of scientific knowledge, an ideal which both the nominalists and the realists of the middle ages accepted. In this paper I want first to show briefly how that ideal seems most naturally to lead to some form of realism as regards universals. I then review the attempts by Abailard in the 12th century and Ockham in the 14th to escape the realistic conclusions that apparently follow from that ideal, and in the course of this discussion I try to make clear just where their approaches differ. Finally, I point out that Ockham's approach suffers from certain basic difficulties which do not beset Abailard's and hope that this will motivate among the nominalistically minded a certain sympathy for the Abailardian view despite its admittedly enigmatic and nearly self-contradictory character."

32. ———. 1982. "Abelard and the Culmination of the Old Logic." In *The Cambridge History of Later Medieval Philosophy. From the Rediscovery of Aristotle to the Disintegration of Scholasticism, 1100-1600*, edited by Kretzmann, Norman, Kenny, Anthony and Pinborg, Jan, 143–157. Cambridge: Cambridge University Press.

    "Of all the scholastic logicians writing while the old logic (*logica vetus*) was still virtually the whole of the logical curriculum in the schools, Abelard is generally conceded to have been the most profound and original. (1) He himself was keenly aware of the subtlety required of the logician and in one place says it depends on a divinely bestowed talent, rather than anything that can be developed by mere practice.(2)Abelard treats dialectic (= logic) as an *ars sermocinalis*, i.e., like grammar a linguistic science. Its peculiar subject matter is arguments as expressed in language, whose validity it tries to

judge in a scientific way.(3) This linguistically oriented conception of the subject means that dialectic will overlap to some extent with grammar. In the first section below I shall selectively explore this overlap; in the second section I shall consider some of Abelard's views on more purely logical topics.

For Abelard logic also had a close relation to *physica*,(4) i.e., the sciences of nature, since in explaining the 'uses of words' the logician must investigate in a general way the 'properties of things' which the mind uses words to signify. This relationship leads to a concern with the psychology of signification, to be explored in the third section below, and with ontology, the topic of the fourth section. This discussion is necessarily very selective and must omit consideration of many of Abelard's philosophical insights on relevant topics." (p. 143)

(1) For example, Jolivet 1969, p. 338: 'Logicien, Abelard doit être mis tres haut. On ne connait avant lui aucun medieval qui soit de sa taille.'

(2) See Abelard 1956, p. 471.4-9.

(3) See Abelard 1954, p. 209.

(4) See Abelard 1956, pp. 286.31-287.1.

References

Jolivet, Jean (1969). *Arts du langage et théologie chez Abélard* (Etudes de Philosophie Médiévale, 57), J. Vrin.

Dal Pra, Mario, ed. (1954). *Pietro Abelardo. Scritti Filosofici, Editio Super Porphyrium, Glossae in Categorias, Editio Super Aristotelem De Interpretatione, De Divisionibus, Super Topica Glossae*, Bocca.

Peter Abelard (1956). *Dialectica*, ed. L. M. De Rijk (Wijsgerige teksten en studies, 1), Van Gorcum.

33. ———. 1987. "Reply to Professor de Rijk's "Martin M. Tweedale on Abailard: some criticisms of a fascinating venture"." *Vivarium* no. 25:3–22.

"I reply to professor de Rijk's criticisms of my book "Abailard on Universals". First I admit serious errors in some of my

translations and offering some revisions of those. Second, I defend some of my other translations as well as my interpretation of what Abailard intends by '"essentia"' and my contention that Abailard's doctrine on universals is not a form of conceptualism."

34. ———. 1992. "Logic (I): from the Late Eleventh Century to the Time of Abelard." In *A History of Twelfth-Century Western Philosophy*, edited by Dronke, Peter, 196–226. Cambridge: Cambridge University Press.

    V. Abelard and his Contemporaries, pp. 216-226.

    "Abelard (1079-1142), it seems, was the first philosopher in the Latin West since ancient times to make full use of Aristotle's *De interpretatione* and Boethius' commentaries on it. The main effect of this appears to have been a greatly increased role for psychological considerations in semantic theory.

    Abelard promotes ideas (*intellectus*) to a key position in his analysis of how words signify. Having a simple idea is a mental act of attending to some nature of a thing; it differs from acts of sensing *(sensus*) in that it does not require an actually existent object or 'subject thing', whereas sensing does.

    Imagining too does not require the actual existence of what is imagined, but unlike having an idea it does not distinguish out any particular nature.(92)

    There are, as well, complex ideas corresponding to whole propositions, whereas simple ideas correspond to nouns and verbs. To construct a complex idea out of simple ones requires a joining activity of the mind.(93)

    Some words we use function merely as joiners or disjoiners without signifying any idea; such are the copula and various conjunctions like 'if and 'or'. Other words modify ideas without themselves signifying an idea; the modal operators and quantifiers are examples of this class. Such is Abelard's attempt to differentiate psychologically 'definite' and 'indefinite' terms, i.e. what later were to be called 'categorematic' and 'syncategorematic' terms.(94)" (pp. 216-217)

(92) Abelard 1919-33, pp. 317.9-15 and 20.20-8. See also the *Tractatus de inlellectibus*, Ulivi 1976, pp. 103-4. For more on Abelard's psychology see Tweedale 1976, pp. 169-79; J. Jolivet, *Arts du langage et théologie chez Abélard* (2nd ed., Paris 1982), pp. 368-9; and K. Jacobi, 'Die Semantik sprachlicher Ausdrucke, Ausdrucksfolgen und Aussagen in Abailards Kommentar zu Peri Hermenias', *Medioevo* VII (1981) 41-89, at pp. 47-9.

(93) Abelard 1919-33, p. 339.20-30.

(94) Abelard 1919-33, pp. 337—40, and Minio-Paluello II 1958, 20-1. A different view is found in Abelard's *Dialectica* in de Rijk 1970, pp. 118-20. See I. Dambska, 'La semiotique des "Dictiones Indefmitae" dans la *Dialectique* d'Abelard', CIMAGL xxi (1977) 10-20.

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Peter Abelard. (1919-27). Logica 'lngredientibus', ed. B. Geyer in *Peter Abaelards philosophische Schriften*, BGPTM xi.1-3.

_____(1933a). Logica 'Nostrorum petition! sociorum', ed. B. Geyei in *Peter Abaelards philosophische Schriften*, BGPTM xxi. 4.

_____(1933b). *Glossae super librum Porphyrii secundum vocales*, ed. C. Ottaviano [Un opuscolo di Abelardo], Testi Medioevali Inediti, Fontes Ambrosiani III, Florence.

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_____(1970). Petrus Ahaelardus: *Dialectica*, ed. L. M. dc Rijk (2nd ed.), Assen

_____(1976). *La psicologia di Abelardo e il 'Tractatus de Intellectibus*', ed. L. U. Ulivi, Rome.

35. Valente, Luisa. 2013. "Philosophers and Other Kinds of Human Beings according to Peter Abelard and John of Salisbury." In *Logic and Language in the Middle Ages: a volume in honour*

of Sten Ebbesen, edited by Fink, Jacob Leth, Hansen, Heine and Mora-Marquez, Ana María 105–124. Leiden.

"To celebrate Sten Ebbesen's birthday I would like to offer a paper about Peter Abelard and John of Salisbury; two twelfth-century thinkers who share with Sten and his favourite medieval masters—Boethius of Dacia, Radulphus Brito and John Buridan, *mutatis mutandis*—an interpretation of philosophy which emphasizes rationality, logic, and freedom. In particular, I intend to consider, although of necessity in a somewhat partial and provisional manner, both Peter Abelard's and John of Salisbury's views regarding the status of the philosopher within the context of their thoughts on the variety of kinds of human beings.

I will begin by analysing a passage from Macrobius's *Commentarii in somnium Scipionis,* for the text of book 1, chapter 8 is explicitly quoted by Abelard in both his *Theologia christiana* and *Dialogus inter philosophum, iudeum et christianum*. Macrobius's views are, in my opinion, one of the chief sources of Abelard's and Salisbury's own representations of philosophers whether they are real or simply ideal persons." (p. 105)

36. ———. 2015. "*Aliquid amplius audire desiderat*: Desire in Abelard's Theory of Incomplete and Non-Assertive Complete Sentences." *Vivarium* no. 53:221–248.

Abstract: One of the peculiarities of Peter Abelard's analysis of incomplete and non-assertive sentences is his use of the notion of desire: in both *Dialectica* and *Glosses on Peri hermeneias* the terms *desiderium* and *desidero* move to the foreground side by side with *optatio*, *expectatio, suspensio* and the related verbs. Desire plays a structural role in Abelard's descriptions of the compositional way in which the linguistic message is received, changing step by step from incomplete to complete: the person who receives the incomplete message (e.g., 'Socrates' or 'Socrates legens') desires to get further information through other words since he knows that the purpose of such words or sequences of words (their causa inventionis) is to combine with other words in order to form a

complete sentence. On the other hand, the expression of the speaker's attention to his inner affections renders the same semantic content a different complete sentence (injunction, prayer, or *desiderativa oratio*)."

37. Viri, Federico. 2022. "Mental Actions in Semantics. On Abelard's Question "Can a True Proposition Generate a False Understanding?": A Tentative Interpretation." *Vivarium* no. 60:192–225.

    Abstract: "This article aims to demonstrate the interdependence of semantics and noetics against the referentialist trend in Abelard studies conceiving semantics as confined to the truth/falsity function. The article takes as a turning point of the argument Abelard's question "can a true proposition generate a false understanding?" which secondary literature does not take into account. Starting from the analysis of this question, the article aims to show the development of an enhanced notion of understanding compared to the Boethian one. The core of this enhanced notion of understanding is the action of *attentio*, which is the condition for the elaboration of a coherent and global definition of signification (de rebus and *de intellectibus*). The analysis of the mental

    action of *attentio* entails the description of other kinds of mental actions, leading one to conceive understanding as a multi-layered complex of actions."

38. Wade, Francis C. 1963. "Abelard and Individuality." In *Die Metaphysik im Mittelalter. Ihr Ursprung und ihre Bedeutung*, edited by Wilpert, Paul, 165–171. Berlin: Walter de Gruyter.

    "Peter Abelard, in his *Logica Ingredientibus* proposed to inquire into and solve "diligenter et perquiramus et solvamus" (1) the questions concerning genus and species, which Porphyry had refused to answer in

    his *Introduction* to the *Categories* of Aristotle. Abelard states his intention: "and since it is known that genera and species are universals and in them Porphyry touches on the nature of all universals generally, let

us inquire here into the common nature of universals by studying these two (genus and species), and let us inquire also whether they apply only to words or to things as well."(2)

The thesis of this brief paper is that Abelard, in spite of his diligent inquiry, could not explain genus and species owing to his unanalyzed conception of an individual." (p. 165)

(1) *Logica Ingredientibus*, 913. All references to Abelard will be made to B. GEYER, P*eter Abaelard's Philosophische Schriften*, in: BGPhMA. 21, Münster, H.I 1919, H. 2 1921, H. 3, 1927, H. 4 1933.

(2) *Log. Ingred.* 913~17, trans, by R. McKEON, *Selections from Medieval Philosophers,* I, New York: Scribner's Sons, 1929, 221.

39. Wciórka, Wojciech. 2008. "Abelard on Porphyry's Definition of Accident." *Mediaevalia philosophica Polonorum. Bulletin d'information concernant les recherches sur la philosophie médiévale en Pologne* no. 37:168–181.

"Abelard explicitly distinguishes two senses of the word "accident" when used with reference to things(2). The broader sense includes all forms, i.e. beings belonging to any category other than substance. According to this sense it is true to follow Boethius and say that every thing is either a substance or an accident(3). However, it is the narrower, 'Porphyrian' sense of "accident", and Abelard's understanding of it, that will be the focus of this paper." (p. 168, two notes omitted)

(2) *LI Isag*. 83.31-37.

(3) Boethius, *In Categorias Aristotelis libri quatuor*, in: Patrologiae cursus completus, vol. 64, J.-P. Migne (ed.), Paris 1847 (hereafter, *In Cat.*), 192A. Cf. In Cat. 169D, where he plainly follows Porphyry, *In Aristotelis Categorias commentarium*, A. Busse (ed), *Commentaria in Aristotelem Graeca*, vol. 4.1, Berlin 1887, 71.20-22.

40. ———. 2019. "Indispensable Parts and Abelard's Circle." In *Mereology in Medieval Logic and Metaphysics: Proceedings of*

the 21st European Symposium of Medieval Logic and Semantics, 135–178. Pisa: Edizioni della Normale.

41. Wilks, Ian. 1993. *The Logic of Abelard's Dialectica*, University of Toronto.

    Available at ProQuest Dissertation Express. Order number: NN82768.

    Abstract: "In this work I provide a fairly discursive treatment of Abelard's logical theory, discussing his views on a considerable number of syntactic and semantic issues at the levels of argument, statement and word: the formulation of syllogistic rules, the *oratio*, assertion, tense, grammatical voice and number, the copula and the copula verb phrase, the quantifier, and the negative particle; the nature and varieties of inference, the nature of the statement, the co-referential theory of truth, identity conditions for names, signification, reference, the intellectus, imposition, abstraction and the status. My contention is that there is a unifying theme in Abelard's treatment of all of these issues: his concern to develop a logic with no theoretical reliance on what, for the purpose of this study, I call 'the standard ambiguity'. This ambiguity is present in Aristotelian formulations of syllogistic logic, where a statement such as 'Every man is mortal' will be described by a formula such as this: mortal is in the whole of man. This formula treats 'mortal' and 'man' as names referring, in each case, to a single item of some sort, and suggests that the statement 'Every man is mortal' simply expresses a relation holding between two such items. The general effect of the standard ambiguity is to suggest that logic has these kinds of items, and their relations, as its subject matter. For Abelard the subject matter of logic is language. A statement is to be considered syntactically as a group of words, not as a pair of standardly ambiguous items; but this view presupposes that the structural requirements of syllogistic inference (and in particular, conversion) can actually be met by statements considered in this light. I interpret Abelard's theory of syntax as an attempt to prove the truth of this presupposition; this is the essential business of Part 1 of my study. In Part 2 I show that Abelard likewise provides theories of inference, truth and

meaning which avoid theoretical reliance on the standard ambiguity, and treat these issues instead in terms (respectively) of the formal properties of syntax, coreferentiality in subject and predicate names, and the abstracted *intellectus*."

42. ———. 1998. "Peter Abelard and the Metaphysics of Essential Predication." *Journal of the History of Philosophy* no. 36:365–385.

    "Abelard's explanation of his reasoning in the passages from *DP* (where he justifies the statement that a penalty is *bona* but not *bonum* by observing that "changing the gender in adjectival names often varies the sense"(65) is obviously inadequate in capturing the full subtlety of his analysis, and one naturally assumes that he is writing for an audience expected to be already schooled in some of these technicalities. Indeed, a much fuller description of those technicalities is possible than any he provides in any one place; I have attempted to supply that desideratum in this study.

    The general lesson we take from the above sequence of texts begins with the insight that what is one essentially can be many definitionally, and that a predicate fully applicable to some member of that definitional plurality can fail to be fully applicable to so me other member. Most predicates, one would think, would either be fully applicable to all, or fully inapplicable; but some--those which actually constitute the differences in definition -- fall in this middle ground, where of at least one member they are adjacently and essentially predicable, and of at least one other they are only essentially predicable. As we have seen, there are three such cases that loom very large in Abelard's work: "predicable of many" in the definitional plurality that constitutes the universal, "is generated" in the definitional plurality that constitutes God, and "is good" in the definitional plurality that constitutes a good thing; the importance of these cases in providing centerpiece doctrines for his critical metaphysics, theology and ethics show the method they employ to be of the highest ìmportance for this philosopher.(66)

And one should, finally, give a thought to the unìqueness of thìs analytic approach; in the catalogue of methods that philosophers have used in quest of truth, this one of Abelard's presents itself to view as a distinctly nove! entry." (pp. 384-385)

(65) *DP,* x 29 (2335-37).

(66) Indeed, the potential range of application can be extended to the very distinction of genus and species itself, since the genus can be viewed as standing to the species just as the bronze of the statue does to the statue itself. See *LI Per*, 79 (5-14), 10 (29-34), and Jolivet, *Arts du langage*, 303.

References

Petrus Abaelardus. *DP = Dialogus inter philosophum, Iudaeum, et Christianum*, ed. Rudolf Thomas (Stuttgart: Frommann-Holzboog, 1970);

_____*LI = Peter Abaelards philosophische Schriften t: Die Logica *ingredientibus,* "ed. Bernhard Geyer, *Beitrãge zur Geschichte der Philosophie und Theologie des Mittelalters* 21.1-3 (Münster: Aschendorff, 1919- 27);

_____*LI Per --- Glossae superPeri ermeneias, LI* 21.3;

J. Jolivet, *Arts du langage et thiologie chez Abélard*, 2nd ed. rev., Études de philosophie médiévale, vol. 57 (Paris:J. Vrin, 1982),

43. ———. 1998. "Abelard on Figurative Language and Transferred Meaning." In *The Future of the Middle Ages and the Renaissance: Problems, Trends, and Opportunities for Research*, edited by Dahood, Roger, 171–186. Turnhout: Brepols.

"Enlightened study of semantic theory will repeatedly teach the same basic lesson about human language: that meaning is mapped onto words in a highly complex way, so that a simple correspondence of one distinct unit of meaning to each distinct word is rarely, probably never, what is involved in the meaningfulness of a whole sentence, clause, or even phrase. Context matters; words bear the meaning they do only by virtue of their use alongside other words-and can bear a quite

different meaning alongside other words. We typically understand a word by viewing it in context, which is as much as to say that we typically impute meaning to words not in fine-grained units of meaning, which correspond precisely to individual words, but in larger, less fine-grained units of meaning, which correspond less precisely to larger syntactic structures-to whole phrases, clauses, or even sentences.

It is impossible to do semantic theory at any level of sophistication without at least a rudimentary understanding of these facts. We find lots of evidence for this claim in the work of twentieth-century philosophers of language; and, perhaps more surprisingly, we find a good deal of similar evidence in the work of the medievals. It is, for instance, a fact that one of the medieval period's greatest semantic theorists, Peter Abelard, clearly had and expressed some insights along these lines; and it is the precise purpose of the present study to focus in on this one particular case, by paying special attention to his discussion of figurative language and transferred meaning. The issue of context dependency as a determiner of meaning was important enough to Abelard that he wrote in some detail about it-important enough, indeed, that he even changed his mind about it. In what follows I convey a few of his insights and suggest the direction in which they seem to have undergone a shift." (p. 171(

44. ———. 2007. "Abelard on Context and Signification." *American Catholic Philosophical Quarterly* no. 81:189–208.

Abstract: "Abelard maintains that individual words in a sentence represent distinct semantic units of its overall meaning. He employs two strategies to defend this position in the face of troublesome counterexamples. One strategy-the earlier of the two-sacrifices normal intuitions about what a word is, often labeling what seem to be words as non-signifying syllables. The later strategy invokes a rather fluid conception of what the signification of a word is, allowing this signification considerable latitude to alter under the contextual influence of other words. This evolution of strategy is linked to a new willingness on Abelard's part to adopt the principle of charity in interpreting sentences; this approach presumes the truth of the

statement, and tries to find an interpretation which bears that presumption out. This new willingness to adopt the principle is in turn linked to Abelard's developing vocation as an interpreter of biblical texts."

45. ———. 2008. "Peter Abelard and His Contemporaries." In *Handbook of the History of Logic, Vol. 2: Mediaeval and Renaissance Logic*, edited by Gabbay, Dov and Woods, John, 83–156. Amsterdam: Elsevier.

    "It is standard practice to develop an account of categorical logic which starts with a discussion of words, and moves through categorical propositions to the categorical syllogisms themselves. Abelard consciously adopts a parallel course for the logic of hypotheticals by beginning with a treatment of topics and hypothetical propositions. In general we can think of Abelard's development of material as falling along these two axes: discussion of words and categorical propositions leading to categorical syllogisms; and then discussion of topics and hypothetical propositions leading to hypothetical syllogisms. This way of organizing material is overtly embraced by Abelard in the *Dialectica*, in his attempt to depart from the commentary format. So it can be taken as representing his most basic intuitions on how the subject matter of logic should be organized.

    I will structure my discussion below accordingly. Part 1 deals with words, categorical propositions and categorical syllogisms. Part 2 deals with topics, hypothetical propositions and hypothetical syllogisms. These two parts complete the treatment of Abelard, and Part 3 turns to his contemporaries and their schools." (pp. 84-85)

46. ———. 2016. "Latin Logic up to 1200." In *The Cambridge Companion to Medieval Logic*, edited by Dutilh Novaes, Catarina and Read, Stephen, 94–118. Cambridge: Cambridge University Press.

    4.4: *Twelfth Century: Peter Abelard*, pp. 108-111.

47. ———. 2020. "Peter Abelard." In *Encyclopedia of Medieval Philosophy: Philosophy between 500 and 1500. Second*

Edition, edited by Lagerlund, Erik, 1406–1413. Dordrecht: Springer.

Abstract: "The characteristic doctrines of Peter Abelard (1079–1142) can be arranged under the headings of logic, metaphysics, and ethics.

Abelard rejects the position that logical theory deals with universals taken as things (*res*).

It deals with words, whose signification is explained by their association with thoughts stripped of individuating detail. His account of propositions is shaped by his distinction between propositional force and propositional content, and by his notion of the *dictum*, the causally efficacious non-thing which is what a proposition says. His account of inference is especially focused on the nature of conditionals and the sorts of relationships between terms that can be used to verify them.

Abelard's most characteristic metaphysical view is that the only things which exist are individuals. Forms exist as individual to the things they inhabit, not as shared between things. Material objects are indeed matter/form composites, but their forms are simply arrangements of underlying matter; material objects are thus usefully subject to mereological analysis (i.e., analysis in terms of part/whole relations). Humans, but not animals, have immaterial souls, and are capable of freedom. By contrast God is not free; he can only do the things he does. Abelard's most characteristic ethical view is that it is the consent, not the action, that is to be judged as sinful or meritorious. A sinful consent is marked by contempt for God, and is formed explicitly in violation of God's law.

Law is itself revealed both in the Old and New Testament – yielding Old and New Law, respectively – but is also innately present to humans in the form of natural law. Meritorious consent is marked by love of God – in other words, by charity. Charity is the theological equivalent of justice, which itself holds central place among the cardinal virtues. Justice and charity both enjoin regard for the interests of others, but charity additionally does this as a product of the love of God,

and for that reason counts as a more fundamental virtue than justice." (pp. 1406-1407)

Digital Quadrivium Project



History of Logic

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Buridan's Logical Works. I. An Overview of the *Summulae de dialectica*

The place of Buridan in the history of philosophy

"In this essay, I wish to question the view that the distinction between medieval and early modern philosophy is primarily one of method. I shall argue that what has come to be known as the modern method in fact owes much to the natural philosophy of John Buridan (ca. 1295-1361), a secular arts master who taught at the University of Paris some three centuries before Descartes. Surrounded by conflicts over institutional governance and curricular disputes, Buridan emerged as a forceful voice for the independence and autonomy of teachers in the faculty of arts, arguing that philosophy as properly practiced belonged to them, the "artists artistae", not to those who taught in the so-called 'higher' faculties of theology, law, and medicine. Now such voices had been heard before at Paris, most notably from Averroist arts masters in the late 13th and early 14th-centuries.(*) Buridan is different, however, because unlike Boethius of Dacia and John of Jandun, he knew how to make the case for artistic autonomy without denigrating the theology and thereby inviting official condemnation. His trick was not to argue that there are 'two truths', one acquired and the other revealed, which might well come into conflict with each other, or that propositions whose truth has been revealed in scripture in no way qualify as *scientia*. It was rather to recognize the profoundly different methods of theology and philosophy, without losing sight of the fact that what counts as evidence in a proof in natural philosophy does not work in a

theological argument, even if both have the same conclusion, such as that the human soul is immortal. Buridan seems to think that if only people would respect the differences between the rules of philosophical and theological inquiry, no conflicts would arise. He is not so naive as to claim this could ever happen, of course. But it does explain why he almost always diagnoses such conflicts in terms of some logical or linguistic confusion on the part of the people who propose them.

Buridan is also different because in him the secularizing sentiment already present in the Latin Averroists begins to take shape as a way of doing philosophy, i.e., as a philosophical grammar. This is clear in his greatest work, the *Summulae de Dialectica*, a comprehensive account of the titles of philosophical discourse written for the guidance of students and scholars alike. Due in large part to the enormous popularity of the *Summula*e and his commentaries on Aristotle's metaphysics and natural philosophy -- copies were made or (later) printed and circulated throughout France, Germany, Italy, Scotland, and Eastern Europe, well into the 16th century -- Buridan helped make possible the secularization of philosophical practice a crucial first step on the road to modernism." (pp. 34-35)

Notes

(*) Fabienne Pironet, "Le sujet de la science dans les "Regulae" de Descartes", *Medioevo*, 24, 1998, pp. 267-281.

From: Jack Zupko, "John Buridan and the Origins of Secular Philosophical Culture", in: Stefano Caroti, Jean Celeyrette (eds.), *Quia inter doctores est magna dissensio. Les débats de philosophie naturelle à Paris au XIV siècle*, Firenze: Olschki 1994, pp. 33-48.

Buridan's logical work

"The extant writings of Buridan consist of the lectures he gave on subjects comprised in the curriculum of the faculty of Arts at Paris. In the fourteenth century this curriculum was largely based on study of the treatises of Aristotle, along with the *Summulae logicales* of Peter of Spain and other medieval textbooks of grammar, mathematics and astronomy. Buridan composed his own textbook of logic, a *Summula de dialectica*, as a "modern" revision and

amplification of the text of Peter of Spain, and he also wrote two treatises on advanced topics of logic, entitled *Consequentiae* and *Sophismata*, which are among the most interesting contributions to late medieval logic. All of his other works are in the form of commentaries, and of critical books of *Questions*, on the principal treatises of the Aristotelian corpus. The literal commentaries are extant only in unpublished manuscript versions, but the books of*Questions* on Aristotle's *Physics, Metaphysics, De anima, Parva naturalia, Nicomachean Ethics*, and *Politics* were published, along with Buridan's writings in logic, after the invention of printing. (...) Most of the printed editions represent the lectures Buridan gave during the last part of his teaching career, though earlier versions are found among the unpublished manuscript materials. Until a critical study of the manuscripts is made, however, there is no sure way of determining any order of composition among Buridan's works, or of tracing the development of his thought over the thirty odd years of his academic career.

Buridan made significant and original contributions to logic and physics, but one of his major achievements was that of vindicating the independence of natural philosophy as a respectable study in its own right, and of defining the objectives and methodology of the scientific enterprise in a manner which gave warrant for its autonomy in relation to dogmatic theology and metaphysics. This achievement was intimately connected with the movement of fourteenth century thought known as Nominalism, and with the controversies precipitated at the universities of Oxford and Paris by the doctrines associated with William of Ockham. Buridan's own philosophical position was thoroughly nominalistic, and indeed very similar to that of Jean de Mirecourt, a theologian of Paris whose teachings were condemned in 1347 by the chancellor of the university and the faculty of theology. That Buridan was able to escape the charges of theological scepticism that were directed against his fellow nominalists of the theological faculty was no doubt due, in part, to his personal qualities of prudence and diplomacy. But it was also due to his methodological, rather than metaphysical, way of employing the logic and the epistemological doctrines of nominalism in formulating the character and the evidential foundations of natural philosophy.

The formal logic presented in Buridan's *Summula de dialectica* is closely related, in topical structure and in terminology, to the so-called terminist logic of the thirteenth century represented by the textbooks of William of Sherwood and Peter of Spain. Though it presupposes the nominalist thesis that general terms are signs of individuals and not of common natures existing in individuals, it does not exhibit any strong evidence of direct influence by the logical writings of Ockham, and it may well have been developed independently of such influence on the basis of the modern logic (*logica moderna*) already well established in the Arts faculties of Oxford and Paris. The doctrine of the supposition of terms, basic to this logic, is used in defining the functions of logical operators or syncategorematic signs in determining the truth conditions of categorical propositions of various forms, and in formulating the laws of syllogistic inference both assertoric and modal. Treatises on topical arguments, fallacies, and on the demonstrative syllogism, conclude the work. Buridan's *Sophismata*, designed to constitute a ninth part of the*Summula*, was apparently written much later in his life, since it contains criticisms of the theory of propositional meanings, or *complexe significabilia,* which Gregory of Rimini introduced in 1344. This work presents a very fully developed analysis of meaning and truth which corresponds fairly closely to that of Ockham's *Summa logicae*, but it goes well beyond the work of Ockham in presenting original and highly advanced treatments of the problem of the non-substitutivity of terms occurring in intensional contexts, and of the problem of self-referential propositions represented by the paradox of the Liar. Buridan's treatment of these problems exhibits a level of logical insight and skill not again equalled until very recent times. His treatise on *Consequentiae*, which develops the whole theory of inference on the basis of propositional logic, marks another high point of medieval logic whose significance has only been appreciated in the twentieth century." (pp. 442-444 of the reprint)

From: Moody Ernest A. Moody, "Jean Buridan", in: Charles C. Gillispie (ed.), *Dictionary of Scientific Biography*, Vol. II, New York: Charles Scribner's Sons 1969, pp. 603-608. Reprinted in: E. A. Moody, *Studies in Medieval Philosophy, Science, and Logic.*

Collected Papers 1933-1969, Berkeley: University of California Press 1975, pp. 441-453.

Philosophical grammar

"Anneliese Maier once remarked of later scholastic natural philosophy that, «what changes is the method of knowing nature», so that «what is interesting is not the knowledge *(scientia*), but the method of knowing (*modus sciend*i)».(36) Buridan was one of the major agents of this change. His contribution was to rewrite the grammar of philosophy, supplanting older forms of inquiry with the more powerful method of the *Summulae de Dialectica*, the compendium of logical teachings that was his masterwork. By welding the logic of the *moderni* together with the indigenous Parisian tradition of propositional logic into a single, comprehensive package, he was able to effect a quiet revolution in the speculative sciences. The *Summulae* is essentially a 'how-to' book for the philosopher. The student who mastered its techniques would be equipped not only to read authoritative texts with confidence, but also to advance his knowledge through independent study and dialectical engagement with others.

To modern readers, the *Summulae* looks like a commentary on another text (which it is) on the way to a systematic overview of Aristotelian logical theory. But appearances can be deceiving. Buridan tends to be skeptical of systematizing pretensions in other fields,(37) and there is nothing in his remarks to suggest that he is interested in logical theory in the modern sense. Like most of his colleagues in the arts faculty, he believed that logic and grammar are not speculative but «practical sciences, for they teach its how to construct good syllogisms and well-formed expressions».(38) Once, when asked where the science of dialectic is taught, he does not reply 'in the *Summulae*'. Rather, his answer fragments along the lines of the division of sciences in the arts curriculum: «If it is asked where the science of dialectic is taught, we say that it is taught in the book of the *Metaphysics* as far as metaphysical conclusions are concerned, in the book of the *Posterior Analytics* as far as the conclusions of the posterior science [of demonstration] are concerned, in the book of the *Physics* as far as physical conclusions are concerned, and so on for the other [special] sciences». (39) If Buridan does have a theory

of logic, it must be extracted piecemeal from these texts and from the *Summulae*, often with great difficulty, and always with the nagging uncertainty that we have not quite captured what is going on.(40) It seems a better hermeneutical strategy to take Buridan at his word when he says that what holds logic together is not any single subject matter, but its relation to other subjects in the arts curriculum, over which it is said to rule.(41)

How did this new logic change the practice of speculative philosophy? Here we must turn to the details, which I cannot explore here. Suffice it to say that the extent to which Buridan uses logical techniques to clarify and resolve speculative questions is striking even by medieval standards. Thus, we find him considering the nature of universals by determining the significance of terms such as 'universal', 'whole' and 'part'; the relation between bodies and souls by establishing which names have been imposed on the soul to signify distinct natures and which signify merely diverse operations; the limits of human knowledge by asking how the existence of a substance can be inferred from the existence of an accident; the proper subject matter of psychology by distinguishing the various definitions of the soul; the nature of virtue by representing it in terms of the analytical concept of *impetus*; or the basis of human freedom by examining the epistemic character of propositions the will is capable of accepting or rejecting. What these topics have in common is the dialectical method taught in the *Summulae*. The *Summulae* gives the rules of the game." (pp. 44-46)

Notes

(36) Annelise Maier, *Ausgehendes Mittelalter. Gesammelte Aufsätze zur Geistesgeschichte des 14. Jahrunderts*, I Band. Roma: Edizioni di Storia e Letteratura 1964: «was sich ändert, ist die Methode des Naturekenntnis» (p. 434); «was interessiert, ist der modus sciendi, nicht die scientia» (p. 439).

(37) For example, he doubts whether anyone could show that the whole of physics is one, or even the whole of metaphysics (*In Metaphysicen Aristotelis Quaestiones* VI, 2, Johannes Buridanus 1518, fol. 33vb). Buridan has a more organic conception of the unity of each speculative science. Thus, «the whole of metaphysics derives its unity from our attribution of everything to it to the term 'being',

just as an army is unified by its commander» (*In Metaphysicen Aristotelis Quaestiones* VI, 2, Johannes Buridanus 1518, fol. 34ra). The commander metaphor is used of logic in the preface to the *Summulae*, but in the sense of leading reason to its desired goal (demonstrated truth) and repelling the invader (fallacies), not in the sense of unifying the study of dialectic.

(38) Buridan, *In Metaphysicen Aristotelis Quaestiones* VI, 2, Johannes Buridanus 1518, fol. 34rb: «logica et grammatica sunt scientiae practicae, docent enim quomodo faciamus bonos syllogismos et orationes congruas».

(39) Buridan, *In Metaphysicen Aristotelis Quaestiones* VI, 4, Johannes Buridanus 1518, fol. 15va: «Et si quaeratur ubi traditur illa scientia dialectica, dicitur quod in libro Metaphysicae quantum ad conclusiones metaphysicales, et in libro Posteriorum quantum ad conclusions posterioristicas, in libro Physicorum quantum ad conclusiones physicales, et sic de aliis».

(40) See especially his remarks on modal syllogisms. Of course, by treating Buridan's logic as *praxi*s rather than *theoria*, I am not calling into question all of the good scholarship that has been done on its different aspects over the past few decades, and from which I -- like every other student of Buridan -- have learned a great deal. These books and articles give legitimate readings of the text, but in a different way, i.e., by showing Buridan's place within the broader thematic traditions of medieval logic, e.g., as regards doctrine of supposition, syllogisms, consequences, sophismata, etc.

(41) In any case, logic as a freestanding discipline would have made little sense to someone accustomed to thinking of it as «the art of arts (*ars artium*)». The value of logic as a discipline is expressed in terms of its relation to other disciplines. That is why Buridan begins the *Summulae* with the quotation from the pseudo-Aristotelian *Rhetoric to Alexander* (*Summulae* I, preface, New Haven, Yale University Press, 2001, p. 25): «Just as the commander is the savior of the army, so is reasoning with erudition the commander of life (*ratiocinatio cum eruditione est dux vitae*)».

From: Jack Zupko, "John Buridan and the Origins of Secular Philosophical Culture", in: Stefano Caroti & Jean Celeyrette (eds.),

Quia Inter Doctores Est Magna Dissensio. Les débats de philosophie naturelle à Paris au XIVe siècle, Firenze: Leo S. Olschki 2004, pp. 33-48.

Summary of the Summulae de dialectica (to be completed)

References to the English translation are from: John Buridan - *Summulae de Dialectica* - Translated by Gyula Klima, New Haven, Yale University Press, 2001.

"In its most extensive form Buridan's *Summulae* consists of the following eight treatises:

I. On Propositions

II. On Predicables

III. On Categories

IV. On Suppositions

V. On Syllogisms

VI. On Topics

VII. On Fallacies

VIII. On Definitions, Divisions, and Demonstrations

Buridan himself at one time regarded his *Sophismata* as treatise IX, but there is no genuine formal connection between treatise IX and the rest, which are organized quite differently. (5)

On the texts commented upon by Buridan

Buridan's basic idea was to 'read', i.e. comment upon, basic introductory texts. For Tracts I-VII the basic text was taken from a contemporaneous interpolated version of Peter of Spain's thirteenth-century handy Introduction to logic, the *Tractatus* or *Summulae logicales*. Buridan himself added a special tract to deal with demonstrative knowledge, which he prefaced with two short expositions on division and definition, subjects that Peter and the writers of the adapted texts had neglected, as had other authors of thirteenth-century handbooks of logic. When dealing with the

introductory texts commented upon by Buridan in his *Summulae*, one has to distinguish between the Tracts I-VII and Tract VIII, *De demonstrationibus*.

[a] As for Summulae I-VII, it is clear throughout the work that Buridan had a text at his elbow that had already been considerably altered in the course of transmission, and which he himself may have subjected to further changes, and time and again major ones at that. Buridan regularly uses the term 'auctor' when referring to the text he comments on. Peter of Spain's work originally contained twelve treatises. (6) The 'auctor' had fused Peter's Tracts 8-12 (on relatives, ampliation, appellation, restriction, and distribution) with his own version of the tract on supposition (treatise IV). That left seven treatises. Thus Buridan's additional tract *De demonstrationibus* became *Summulae* VIII.

Buridan's text of tracts I-VII consists of lemmata from the auctor's *Summulae*, where the material is presented in such a way as to be easily memorized, and more extensive comments on those lemmata. As Pinborg (7) pointed out, the way Buridan speaks about his choice of Peter's work permits the conclusion that "using Peter of Spain's manual was not the obvious thing to do", and Pinborg may well have been right in his conjecture that Buridan was the first to introduce Peter's manual as a textbook at university level in Paris, where earlier it had been used only at less exalted levels of education ('pro iunioribus'; see also section 11.2.4). Buridan might have made his choice out of the different versions available at the time, but seems to have considered it unnecessary to make a complete version of his own, as may appear from his frequently criticizing that auctor's text quoted in the lemmata.

Buridan commented very extensively on the standard material, which he often re-interprets in ways its authors could scarcely have imagined. He certainly makes no secret of his intentions, as can be gathered from the general Introduction (*Prooemium*) prefaced to the whole work:

Prooemium: "Propter quod de logica tota volens sine nimis exquisita perscrutatione disserere quaedam communia, elegi specialiter descendere ad ilium logicae tractatum brevem quem venerandus doctor magister Petrus Hispanus dudum composuit, exponendum et

supplendum, immo etiam et aliter aliquando quam ipse dixerit et scripserit dicendum et scribendum, prout mihi videbitur opportunum."

[Therefore, wishing to learn something in general about logic in its entirety without an excessively detailed investigation, I have chosen to deal in particular with that short treatise of logic which the venerable professor, master Peter of Spain, composed a while ago, by commenting on and supplementing it; indeed, occasionally I am going to have to say and write things that differ from what he has said and written, whenever it appears to me suitable to do so. *Translation by Gyula Klima, Summulae,* p. 4]

In the Renaissance edition of what was issued as Buridan's Summulae,(8) John Dorp's comments have taken the place of Buridan's and thus the reader had no means of seeing how original Buridan was. This much is certain, as Buridan went on commenting upon the 'auctor', he seems to have grown increasingly irritated with the text at his elbow, and sometimes simply dispensed with it, composing instead an alternative text to comment on (thus I, 8, IV and VII).

[b] The basic text underlying Buridan's eighth treatise *De demonstrationibus* is still more difficult to identify. It is not found in any interpolated text of Peter's *Summulae* and it is uncertain if it is by Buridan's own hand. The first major survey of logic to include a chapter on demonstration was William of Ockham's *Summa logicae*, which may be only about ten years older than Buridan's, but it is unknown to what degree, if any, Buridan, or his exemplar, was inspired by Ockham. In any event, by adding treatise VIII Buridan produced a book covering all the main subjects of Aristotle's *Organon* as well as the usual medieval additions to logic, such as the doctrine of the properties of terms.(9)" (pp. XIII-XV)

Notes

(5) For more evidence of the independent character of the *Sophismata*, see: Johannes Buridanus, *Summulae. De practica sophismatum*, edited by Fabienne Pironet, Turnhout 2004, esp. pp. XII-XIV.

(6) See Peter of Spain, *Tractatus, called afterwards Summule logicales*. First Critical Edition from the Manuscripts with an Introduction by L.M. de Rijk, Assen 1972, ch. 3 of the Introduction.

(7) J. Pinborg, 'The Summulae, Tractatus 1, De Introductionibus', in: *The Logic of John Buridan*. Acts of the Third European Symposium of Medieval Logic and Semantics, ed. J. Pinborg, Copenhagen 1976, p. 72.

(8) Johannes Buridanus, *Compendium totius logicae,* cum Joannis Dorp expositione. Unverand. Nachdr. der Ausg.: Venedig 1499, Frankfurt/Main 1965.

(9) For more information about Treatise VIII, *De demonstrationibus,* see De Rijk's edition of this treatise, that appeared as part 8 in the present series.

From: Ria van der Lecq, "Introduction" to: Johannes Buridanus, *Summulae de propositionibus*, Turnhout: Brepols 2005.

"The first seven treatises of Buridan's work do, indeed, correspond to this description though the revision is sometimes so thorough that it is difficult to discern the remaining traces of Peter's text. Treatise 8, in which the main topic is the theory of knowledge and science, has no counterpart in Peter's *Tractatus*, nor has Treatise 9, *On Sophisms*, though it is not totally unrelated to Peter's Treatises 8-12. Treatise 8 retains the format adopted for the earlier part of the work, viz. alternation between (a) a text consisting of logical theorems (concise definitions, rules, etc.) and (b) an extensive commentary which explicates and supplements those theorems. The difference of Treatise 9 consists in the fact that the material for commentaries is furnished by logical examples -- *sophismata* -- rather than by logical theorems. The treatise on sophisms illustrates how some of the theorems of the preceding treatises may be put to use, but it is not a systematic practical companion to the preceding collection of theorems. In short, Treatise 9 bears all the marks of having an independent origin from the rest of the Summulae into which it was never successfully integrated." (pp. XII-XIII)

From: Fabienne Pironet, "Introduction" to: Johannes Buridanus, *Summulae: De practica sophismatum*, Turnhout: Brepols 2004.

The editorial project of the Summulae

"The present fascicle is number one of the first complete edition of Buridan's *Summulae*, which contains nine treatises, including a new edition of his *Sophismata*. The plan is being realized by an international team composed of scholars from Belgium, Denmark and the Netherlands. A first and overly optimistic version of the project was discussed in 1975 at the Third European Symposium on Medieval Logic and Semantics, which was devoted to the logic of John Buridan. In 1986 The Buridan Society was formed with the explicit purpose of producing an edition of the *Summulae*, and guidelines for the work were laid down. The following scholars initially joined the Society: E.P. Bos, H.A.G. Braakhuis, S. Ebbesen, H. Hubien, R. van der Lecq, E Pironet, L.M de Rijk, J.M.M.H. Thijssen.

To make the task manageable, it was decided to aim only at an edition based on a handful of manuscripts carefully selected on the advice of H. Hubien, who had made pilot studies of the tradition. Also, considering that all participants in the project were scholars with many other obligations and hence likely to be distracted from the work on Buridan at unpredictable times, it was decided to publish each fascicle of the work as soon as it was finished without regard to regular intervals or an orderly progression from fascicle 1 to fascicle 9." (p. XI)

"Buridan's philosophical production is closely connected to his work as a university teacher. He wrote commentaries on Aristotle, some of which have been edited, as has also his treatise on consequences. And then there is his *Summulae* or *Summa Logica(e)*, undeservedly neglected by historians of logic because it has never been printed. To be sure, there are printed books from the 16th, 17th and 18th centuries purporting to contain the work, but in fact they do not, despite their frequently going under Buridan's name. A fair number of preserved manuscripts, however, testify to the popularity of the *Summulae* during the late 14th century and well into the 15th, especially at the Central European universities".

In its most extensive form Buridan's *Summulae* consists of the following eight treatises:

I. On Propositions

II. On Predicables

III. On Categories

IV. On Suppositions

V. On Syllogisms

VI. On Topics

VII. On Fallacies

VIII. On Definitions, Divisions, and Demonstrations

Buridan himself at one time regarded his *Sophismata* as treatise IX, but there is no genuine formal connection between treatise IX and the rest, which are organized quite differently. (*)" (pp. XII-XIII)

Notes

(*) For more evidence of the independent character of the *Sophismata*, see: Johannes Buridanus, *Summulae. De practica sophismatum*, edited by Fabienne Pironet, Turnhout 2003, esp. pp. XII-XIV.

From: Ria van der Lecq, "Introduction" to: Johannes Buridanus, *Summulae de propositionibus*, Turnhout: Brepols, 2005.

Treatise I. De propositionibus

"The opening chapter of *De propositionibus* consists of six parts and covers some preliminaries. In the first part dialectic (logic) is defined in a way that echoes Aristotle's *Topics* 1.1 101b2-4: dialectic is the art of arts (*ars artium*), which has access to the principles of all inquiries (*methodi*). Dialectic should be distinguished from science (*scientia*). In every science training in logic has to come first, since every science needs to use syllogisms or other types of argument, the doctrine of which is taught by logic. Since logic is mostly exercised in a disputation, and a disputation cannot take place without speech (*sermo*) nor can speech occur without utterance (*vox*) or utterance without sound (*sonus*), sound is the starting point of Buridan's inquiry. Sound is divided into utterance and non-utterance, and utterance (*vox*) into significative and non-significative. Some

significative utterances (*voces significativae*) are significative by nature, others by convention. Chapter concludes with the division of conventionally significative utterances into complex (expressions or *orationes*) and incomplex ones (noun and verb). In his comments on this last distinction Buridan mentions Aristotle's division of ' expression' (*oratio*) into mental, vocal and written expressions. The distinction between mental and vocal language plays an important role in the *Summulae* and in Buridan's semantics in general. Spoken words and propositions are meaningful only by convention, whereas mental words and propositions signify naturally. Mental propositions are the bearers of truth and falsity. Vocal propositions are propositions only in so far as they designate mental propositions, and vocal propositions are true or false only in so far as they designate true or false mental propositions. (22)

Chapter 2 gives the traditional definitions of 'noun', 'verb' and 'expression' (*oratio*). Thus, a noun is a conventionally significative utterance, without time (*vox significativa ad placitum sine tempore*). Obviously, this definition does not apply to mental words: mental words are not *voces* and do not signify *ad placitum*. Peter of Spain does not intend to define mental nouns, but only spoken nouns, concludes Buridan. This is one of the first signs of Buridan's problems with Peter's text.

In chapter 3 we arrive at the core of this treatise: propositions. Peter's definition (a proposition is an expression that signifies something true or false) gives rise to Buridan's repeated warning that this definition applies to spoken language only (1.3.1). A mental proposition does not signify something true or false, it is something true or false. Next (1.3.2), propositions are divided in categorical and hypothetical propositions. In this part Buridan presents his theory that the concepts involved in a mental proposition are its subject, its predicate and a so-called complexive concept. Subject and predicate are called the matter of a proposition, because they are presupposed when a proposition is formed by adding an affirmative or negative complexive concept, i.e. the copula. The following parts discuss the definitions of subject and predicate (1.3.3), and various classifications of propositions: assertoric (*de inesse*) and modal (1.3.4), universal, particular, indefinite and singular (1.3.5) and, finally, affirmative and negative (1.3.6).

Chapter 4 is about the opposition between pairs of categorical propositions that "share both terms", i.e. in which the same two terms occur. If the shared terms occur in the same order, the propositions are contraries, subcontraries, contradictories or subalterns. This results in a simple square of opposition presented in 1.4.2 (page 61). When categorical propositions are per se true, they are said to be in natural matter (1.4.3). When they are *per accidens* true, they are said to be in contingent matter; when they are impossibly true, they are said to be in remote matter. This is the way Buridan explains Peter of Spain's text, although he himself prefers to use the term 'matter' for the subject and predicate of a proposition, as explained in 1.3.2. The fourth and final part of chapter 4 (1.4.4) explains what it means for propositions to be contraries, subcontraries, contradictories or subalterns.

Chapter 5 discusses the concept of formal equivalence (*aequipollentia* or *aequivalentia*) of propositions. The various relationships between categorical propositions with oblique terms and those between categorical propositions in which the predicate precedes the copula are clarified by means of two diagrams.(23) In addition four rules of equivalence are formulated.

Propositions can be converted in three ways: simply, accidentally, and by contraposition. This thesis as found in Peter of Spain's manual is discussed in chapter 6. What is a conversion? According to Buridan a formal conversion is the formal consequence holding between two propositions that share both terms, but in reverse order (1.6.1). In a simple conversion (1.6.2) the quality and the quantity of the propositions remain the same, as in 'some man is an animal; therefore, some animal is a man'. More complicated is accidental conversion (1.6.3), which involves changing the quantity of the proposition, as in 'every man is an animal; therefore, some animal is a man'. Various doubts arise, e.g. how should we convert 'some stone is in a wall' or 'a donkey is dead' or propositions about the future or the past? Buridan solves most of these problems by means of his theory of supposition. Conversion by contraposition (1.6.4) means changing the finite terms into infinite ones, as in 'some man is not a stone; therefore, some non-stone is not a non-man'. Buridan shows that conversions of this kind are not formal.

Hypothetical propositions of various kinds are discussed in chapter 7. Buridan denies Peter of Spain's thesis that a hypothetical proposition contains two categorical propositions. It would mean that a true hypothetical proposition like 'if a donkey flies, then a donkey has feathers' would have its principal parts false, which is absurd. Buridan finally arrives at a definition which is 'safer' (*tutior*) than Peter's: a hypothetical proposition is a proposition that has several subjects, several predicates and several copulas, but none of these is predicated of the rest by means of one copula (1.7.1). Peter distinguishes six species of hypothetical propositions: conditional, conjunctive, disjunctive, causal, temporal, and local. Buridan points out that some texts do not provide the species 'temporal' and 'local', and with good reasons, as he argues (1.7.2). In Peter's view the truth of a conditional requires that the antecedent cannot be true without the consequent. Given his remarks in 1.7.1 Buridan cannot possibly agree with this opinion, although "for the sake of brevity, and because phrases signify conventionally", he goes along with Peter's manner of speaking (1.7.3). On the topic of causal propositions Buridan corrects Peter, saying that "it is not properly said that the antecedent is the cause of the consequent". One should rather say that "the thing signified by the antecedent is the cause of the thing signified by the consequent" (1.7.6). A similar critical attitude regarding Peter's text can be seen in 1.7.8 (*De locali)*. There Buridan proposes to use a less complicated method to decide whether a hypothetical proposition (be it temporal or local or pertaining to some other Aristotelian category) is true or false.

Chapter 8, on modal propositions, is the last chapter of the treatise. Apparently, the topic was very important for Buridan, for not only is it very large, he also wrote almost the entire chapter himself, saying that "the author of the *Summulae* discusses modal propositions very briefly and incompletely." Only the first line is Peter's: "A mode is a determination belonging to the thing" (1.8.1). Obviously, taken literally, this sentence expresses a realist position, which Buridan rejects. Buridan's ontology and semantics require that 'thing' (*res*) in this context is restricted to supposit for significative terms. 24 The first eight paragraphs (*partes*) of the chapter discuss propositions that are modal in the proper sense, i.e. propositions in which the mode ('possible', 'impossible', 'necessary', 'contingent', 'true' or

'false') affects the copula, as in 'every man is necessarily an animal'. These are distinguished from propositions in which the modal term is predicated of a *dictum*, as in 'it is possible that a man runs' (*possibile est hominem currere*). The latter are called composite modals, but, according to Buridan, composite modals are in fact assertoric propositions. In proper modals the mode has to be placed between the subject and the predicate (1.8.3); the mode is a part of the copula. In the following parts Buridan discusses the quality (1.8.4) and quantity (1.8.5) of proper modals. Part 7 is about equivalency (*equipollentia*) of modal propositions, resulting in a *magna figura* of oppositions (see text: p. 100), and part 8 contains some rules regarding conversions of modal propositions, e.g. 'if the antecedent implies the consequent, then the contradictory of the consequent implies the contradictory of the antecedent'. The ninth part (1.8.9) discusses composite modals. Rules regarding their quality, quantity and conversion are the same as the rules for assertoric propositions. The remaining part of the book (1.8.10) discusses propositions that are contingent both ways (*de contingenti ad utrumlibet*).

11.3.3. *Prooemium*

"Just as the commander is the savior of the army, so is reasoning with erudition the commander of life."

This is Buridan's opening statement of the Preface (*Prooemium*) of the *Summulae*. The quotation comes from a "certain letter" of Aristotle to Alexander. The attribution appears to be false, (25) but this is not the place to discuss that question. It is Buridan's interpretation of this statement that concerns us here. The commander of an army, says Buridan, saves the army in two ways: first, by repelling the enemy, second, by leading it in the right direction. Logic is to be called reasoning with erudition (*ratiocinatio cum eruditione*), because it educates (*erudit* lit. 'polishes') us in all modes of reasoning and in every science, and it can be compared to the commander of an army, because it eliminates false arguments and it directs us to good arguments.

Furthermore, Buridan points out that, according to Aristotle, there are two most eligible ways of life: the *vita contemplativa* and the *vita civilis seu activa*: the life of a scholar and a scientist and the life of an

active citizen. Training in logic helps the scholar to obtain knowledge and discover the truth, and it helps the active citizen to decide what to strive after and what to avoid. In other words, logic is important not only for (future) scholars, but also for (future) politicians. It is the main constituent of a truly liberal education." (pp. XX-XXV)

Notes

(22) For the importance of this distinction see my Introduction to *De suppositionibus*, esp. p. XXV and my paper 'Mental Language: A Key to the Understanding of Buridan's Semantics' (forthcoming).

(23) Gyula Klima (in his translation pp. 44-45) presents a summary reconstruction of these figures in which he shows how these two diagrams are related to the modal diagram of chapter 8. For a detailed discussion of Buridan's modal diagram Klima (*ibid*. p. 43, n. 77) refers to G.E. Hughes, "The Modal Logic of John Buridan," in *Atti del Convegno internazionale di storia della logica: Le teorie delle modalità*, ed. G. Corsi, C. Mangione, and M. Mugnani, Bologna 1989, pp. 93-111.

(24) As I argued in my Introduction to *Summulae*, *De suppositionibus* (p. XXVI), Peter's realism might be one of the reasons for Buridan's growing irritation with Peter's text.

(25) John Buridan, *Summulae de Dialectica*, transl. Klima, p. 3, n. 1.

From: Ria van der Lecq, "Introduction" to: Johannes Buridanus, *Summulae de propositionibus*, Turnhout: Brepols, 2005.

Treatise II. De praedicabilibus

"The present edition contains the second tract, *De praedicabilibus*, which deals with the five 'predicables', introduced by the Neoplatonist commentator of Aristotle, Porphyry (c. 233 - c. 304 A.D.) in his introductory book (*Isagoge*) to the Stagirite's *Categories*, viz. 'genus', 'species', 'differentia', 'proprium', and 'accidens'. From as early as the eleventh century, medieval authors commented upon Boethius' (480 - 524) translation of, and commentary upon, this work.

Buridan's discussion of the predicables is mainly based on the corresponding tract of Peter of Spain's manual. His comments are

preceded by the complete text of the lemma from Peter to be discussed. It should be no surprise that Buridan's quotations should go back to an adapted version of Peter's text." (p. XVII)

"II.3.2. A summary of its contents

2.1.1. The opening chapter discusses preliminary items. In this section the technical use of the word 'praedicabile' is explained. Buridan's terminism notably appears from his definition of the term 'praedicabile' properly used, in which the phrase 'praedicari de pluribus' equals 'supponere pro pluribus'.

2.1.2. The formal difference is discussed which exists between 'praedicabile' and 'universale', in spite of their being said convertibly of one another. Buridan feels obliged to reject Hispanus' view of the matter. Again, Buridan's terminism comes to the fore in his identifying 'inesse' and 'praedicari vere et affirmative'.

2.1.3. The division of the predicables is given, including an alternative one given by those who start from the erroneous assumption that the main division of the predicables should be based upon the distinction 'in quid' versus 'in quale'.

2.2. Chapter II deals with genus.

2.2.1. The common definition of genus is given and explained. Equivocal terms (such as 'canis') are said not to be the genus of their different meanings. Buridan's terminism makes him underline that if 'animal' is said to be predicated of 'man', both the subject and the predicate term have material supposition.

2.2.2. The concepts 'idem ('differens' or 'diversum') genere, specie' etc. are discussed. It is noteworthy that the identification of 'subject-substrate' and 'accident' (which is found in some versions of Hispanus' text: 'in aliquibus libris') is rejected by Buridan (lines 75 ff.).

2.2.3. The phrases 'in eo quod quid' and 'in eo quod quantum' etc. are explained.

2.2.4. - 2.2.5. An alternative definition of 'genus' and the latter's usual division into 'genus generalissimum' and 'genus subalternum'.

2.2.6. The definition of 'genus generalissimum' is given and completed by Buridan. In line with common doctrine, the 'genus generalissimum' is divided into the ten categories, and 'ens' is said not to be their 'genus superveniens'.

2.2.7. presents the definition of 'genus subalternum'. Again, the role of material supposition is pointed out.

2.3. This chapter discusses 'species'.

2.3.1. - 2.3.4. 'Species' is defined and divided. Buridan corrects Peter of Spain's definition of 'species specialissima'. The 'Porphyrian Tree' is introduced and explained.

2.3.5. contains the definition of 'individuum' and discusses some interesting 'dubia' on this matter, e.g. the question whether, contrary to the definition of 'individual', individual terms such as 'Johannes' may be predicated of many. Buridan rejects such suggestions by pointing to the equivocation involved in the use of proper names said of diverse individuals. Also the peculiar position of the term 'deus' is discussed.

2.4. Chapter IV deals with 'differentia'.

2.4.1.-2.4.5. The logical use of the word 'differentia' is explained. In Buridan's view, the phrase 'differentibus specie' found in the common definition should be dropped. An alternative definition of 'differentia' is mentioned, and the use of the phrases 'differentia constitutiva' and 'differentia divisiva' is explained. Finally, a corollary is added.

2.5. This chapter deals with 'proprium'.

2.5.1.-2.5.2. The predicable 'proprium' is defined. In this context, some key terms (e.g. 'praedicatio essentialis' versus 'praedicatio denominativa') are discussed, including Buridan's favourite device 'connotatio aliena'.

2.6. This chapter deals with 'accidens'.

2.6.1. Porphyry's definition of the predicable 'accidens' is explained along the lines of terminist logic. Buridan remarks that the 'adesse' of the definition should not be taken in the sense of 'inesse secundum

inhaerentiam proprie dictam', rather 'adesse alicui subiecto' is equivalent to 'praedicari vere et affirmative de illo'.

2.6.2. Another definition of 'accidens' is given. In an interesting 'dubitatio', Buridan discusses the relationship between 'praedicabile' and 'praedicatum' and that between the four 'predicates' found in Aristotle's *Topics* and the five 'Porphyrian predicables'.

2.6.3. A third definition of 'accidens' is discussed.

2.6.4.-2.6.5. 'Accidens' is divided into 'accidens separabile' and 'accidens inseparabile', and the proper nature of the latter is explained.

2.7. The final chapter deals with the specific properties of each of the five predicables and the properties they have in common. It contains a great number of interesting incidental remarks on various matters, such as 'praedicatio univoca' vs 'praedicatio aequivoca', and the distinction between 'real priority' and 'formal priority' (2.7.2.); the diverse grammatical 'modi significandi' (2.7.4.); and the logical difficulties involved in the use of comparatives and superlatives (e.g. 'albius' as the species of 'hoc album' and 'illud album').

In the seventh chapter, four of Buridan's five lemmata are completely lacking in Peter's text. Conversely, Peter's final sections (*De predicatione* and *De denominativis*, p. 25, 8-32) are missing in Buridan's tract on the predicables, but both from a doctrinal and from a didactic point of view this omission is quite understandable, as these items are more properly discussed in the third tract, *De praedicamentis*.(13)

Buridan's work consists of elementary exegesis as well as extensive objections and dubitationes in which specific questions are dealt with, mostly in an original fashion." (pp. XXIV-XXXI)

Notes

(13) See Johannes Buridanus, *Summulae in Praedicamenta*, ed. E.P. Bos, 3.1.3.

From: L. M. de Rijk, "Introduction" to: Johannes Buridanus, *Summulae: De praedicabilibus*, Nijmegen: Ingenium Publishers 1995.

Treatise III. In praedicamenta

“In his commentary Buridan presents an introductory section (3.1), in which the so-called *antepredicamenta* are discussed: first the definitions of *aequivoca* ('equivocals') (3.1.1), *univoca* ('univocals') (3.1.2) and *denominativa* ('denominatives') (3.1.2); then the division of *voces* ('words') (3.1.4) and of *eorum quae sunt* ('of those things that are') (3.1.5). Thirdly, two rules on the logical relations between predicates (3.1.6) and on the relation between genus and species are discussed (3.1.7). Buridan winds up this section with a division of *incomplexa* ('things without combination', 'incomplex things') into the ten categories (3.1.8) and the discussion of a property common to the ten categories (3.1.9), viz. that incomplex things cannot form an affirmation or negation.

In section 3.2 Buridan discusses the categories in the proper sense. First a division and some characteristics of substance (3.2.1 - 3.2.3), next six properties belonging to the members of this category are treated. Section 3.3 is on quantity: first divisions and species of quantity are discussed (3.3.1 - 3.3.4), then three properties (3.3.5 - 3.3.7). Section 3.4 is on relation: first Buridan gives definitions and species (3.4.1 - 3.4.2), then four properties (3.4.3 - 3.4.6). The section On quality contains a definition of quality and *quale*, and their four kinds (3.5.1 - 3.4.6), then three properties and a note on terms belonging to different categories (3.5.7 - 3.5.10). In section 3.6 Buridan discusses the categories of *actio* (action) and of *passio* (being acted upon) are dealt with as a whole; he presents their definitions, kinds and four properties. In section 3.7 he discusses the four last categories: 'when', 'where', 'being-in-a-position' and 'having' *(quando, ubi, situs* and *habitus*).

Sections 3.8 - 3.10 discuss what are traditionally called the postpraedicamenta: 3.8 is on four kinds of opposition (*oppositio*), 3.9 is on movement (*motus*) and mutation (*mutatio*) (their kinds, and what is contrary to these *postpraedicamenta*); 3.10 is on the meanings of *prius* ('prior'), *simul* ('simultaneous') and *habere* ('to have' -- in various senses, see below, III, 3. 4, section IX).

Insight into the philosophical principles which underlie Buridan's commentary is a precondition for understanding his detailed

interpretations of the categories. These principles can partly be gathered from the *Summulae* themselves, but Buridan has made them especially explicit in other treatises, notably his *Praedicabilia (*16), *Suppositiones, Ampliationes and Appellationes (*17). I shall try to present them here briefly. I shall not discuss Buridan's position in the history of the theories about tha categories, for this would exceed the proper limits of our Introduction.

It should be noted that Buridan's view of the categories is more elaborate, and sometimes clearer in his *Quaestiones in Praedicamenta* than in the treatise from the *Summulae* discussed here." (pp. XIX-XX)

Notes

(16) Buridan's commentary (*Summulae*) on Porphyry (the *Praedicabilia*) will be edited shortly by L.M. de Rijk; his *Quaestiones in Porphyrium* have not yet been edited [see the edition by Ryszard Tatarzynski in: *Przeglad Tomistyczny* 2: 111-195 (1986), *note added by R. Corazzon]*

(17) ed. M. E. Reina, 'Giovanni Buridano, *Tractatus de suppositionibus*, prima edizione a cura di Maria Elena Reina', in Rivista critica di storia della filosofia 12 (1957), pp. 175-208; 323-353. In the editorial project of which the present text is a part, Dr. R. van der Lecq is preparing a new critical edition of Buridan's *De suppositionibus* [published in 1998].

[For a detailed summary of the contents see pp. XXIV-XLIV]

From: E. P. Bos, "Introduction" to: Johannes Buridanus, *Summulae in praedicamenta*, Nijmegen: Ingenium Publishers 1994.

Treatise IV. De suppositionibus

"The present edition contains the fourth treatise *De suppositionibus*. As can easily be gathered from the *index capitulorum* (below, p. 3), it consists of six chapters, which deal with various aspects of supposition. (20)

Each chapter consists of several parts containing a lemma followed by an exposition and commentary. Unlike the lemmata of tracts I, II and III, the lemmata of *De suppositionibus* are not taken from Peter

of Spain's *Tractatus*. Buridan discusses the topics of Peter's chapters VI (*De suppositionibu*s), VIII (*De relativis*), IX (*De ampliationibus*), X (*De appellationibus*), XI (*De restrictionibus*) and XII (*De distributionibus*), but he has used an alternative text. He does not even refer to Peter of Spain.(21) An indication that Buridan may have written the basic text himself is found in the lemmata of 4.3.7.5 and 4.3.8.4, which contain a reference to another work of his, the*Sophismata*. Moreover, the commentary never indicates that Buridan disagrees with the lemma-text. More than once, e.g. in 4.1.2 and 4.1.4, he expresses some doubts concerning the text, but he subsequently solves them. Finally, in *De suppositionibus* Buridan does not refer to any *auctor*, as he frequently did in the previous treatises.

One may wonder why Buridan felt he could not go on commenting upon Peter's text the way he had done in the first three tracts." (pp. XVII-XVIII)

(20) For an excellent Introduction to Buridan's theory of language see: M.E. Reina, *Il problema del linguaggio in Buridano*. Cf. also Th. K. Scott's Introduction to John Buridan: *Sophisms on Meaning and Truth*, New York, 1966, esp. pp. 22-49 and J. Biard, *Logique et théorie du signe au XIVe siecle*, Paris 1989, pp. 162-202.

(21) A negative reference may be found in 4.3.2 (p. 38).

[Follows a summary of the content of *De suppositionibus* who will give ample information to answer this question, pp. XVIII-XXV]

From: E. P. Bos, "Introduction" to: Johannes Buridanus, *Summulae de suppositionibus*, Nijmegen: Ingenium Publishers 1998.

Treatise V. On Syllogisms

[In preparation]

Treatise VI. On Topics

(Critical edition not yet published)

Treatise VII. On Fallacies

(Critical edition not yet published)

Treatise VIII. On Definitions, Divisions, and Demonstrations

"The present edition contains the eighth tract, *De demonstrationibus*, by far the greater of which deals with demonstrative argument, and for the sake of this prefaces it with a discussion of the standard lore concerning division and definition.

The main division of the work clearly appears from the opening lines (1.1 in the present edition), in which Buridan proposes to deal with demonstration, but thinks it indispensable to discuss first the doctrine of division and definition which lies at the bottom of that concerning demonstrative argument, despite the fact that 'auctor noster' did not pay any attention to this important part of logic ('pars logicae magis nobilis et finalis')." (p. XXI)

"The following sketch of the contents of the three main parts ('materiae') may be given.

PRIMA MATERIA: *De divisionibus*

8.1 contains the general Introduction to the whole treatise, and explains its design, especially the addition of the two preambulary tracts on division and definition.

8.1.1 presents its division and the subdivision of the tract on division, and next it defines the notions 'division' and 'composition'.

8.1.2 explains what is understood by 'componere' and 'dividere'.

8.1.3 discusses the notions 'totum' and 'pars'.

8.1.4 deals with the various divisions of 'totum' and the corresponding kinds of composition and division.

8.1.5 discusses 'tota praedicabilia' and their parts.

8.1.6 is about perfect and imperfect division. Two problematic questions ('dubitationes') are raised, one concerning the division of some genera into their species, the other about why in such cases the genus can be regarded as the totum of its species, rather than the other way round, and how a species is a subjective part of its genus.

8.1.7 discusses the remaining, less common kinds of division.

SECUNDA MATERIA: *De definitionibus*

8.2 The eight common properties of definitions and things defined are enumerated.

8.2.1 The chapter is divided into seven parts, the first of which deals with the eight properties: (a) definitio (i.e. definiens) and definitum are said reciprocally, i.e. they have converse relationships as every definiens is the definiens of its definition, and vice versa; (b) definiens and definitum are mutually convertible; (c) every definiens notifies the definitum in an explicit way; (d) every definiens is a phrase ('oratio'), while every definitum is an incomposite term, or at least less complex than the definiens; (e) neither the definiens nor the definitum are singular terms; (f) nor are they a proposition; (g) no definiens has a parabolic or metaphoric sense; (h) no definiens should suffer from superfluity or deficiency.

8.2.2 Definitions ('definientia') are divided into nominal, quiditative, causal, and descriptive ones.

8.2.3 Nominal definition is defined and discussed.

8.2.4 Quiditative definition is defined, and its properties are dealt with. In a lengthy digression three questions of semantical interest are raised and extensively answered: (a) whether phrases such as 'nasus simus' are nugatory; (b) whether definitions such as 'simum est nasus cavus' is nominal; (c) whether a subject's property should be defined by including its subject in the definition.

8.2.5 Causal definition is defined and explained, including the diverse kinds of cause (formal, material, efficient, and final cause).

8.2.6 Description is defined, and its use is clarified.

8.2.7 discusses complex definitions and their use in demonstrative arguments.

TERTIA MATERIA: *De demonstrationibus*

8.3 General division of this tract into ten chapters. (...)

8.4 The next chapter deals with similarities and dissimilarities between demonstrative and dialectical argument, and the distinction between true knowledge ('scientia') and opinion.(...)

8.5 This chapter discusses first and indemonstrables principles.(...)

8.6 This chapter deals with the notions 'de omni', 'per se' and 'secudndum quod ipsum'. (...)

8.7 The next chapter is about the diviison of 'demonstratio'.(...)

8.8 This chapter deals with the 'demonstratio propter quid', about which many difficulties ('dubitationes') can be raised, as has already been observed in the introductory text.(...)

Like the treatises I-VII the present one, too, consists of elementary exegesis as well as extensive objections and *dubitationes* in which specific questions are dealth with, mostly in an original fashion and always along the lines of thought found in Buridan's numerous commentaries on Aristotle. (37) "

Notes

(37) The conspicuous coherence in Buridan's thought coming to the fore throughout his various works is rightly highlighted by Sten Ebbesen, 'Proofs and its Limits according to Buridan, Summulae 8', in Z. Kaluza-P. Vignaux *Preuve et raisons* ... etc., Paris 1984, p. 97: 'John Buridan was (...) remarkably consistent. He almost invariably says the same about the same things, and what he says about one subject is usually consistent with what he says about any other somehow related subject. His work abounds in cross-references, from one part of a work to another, and from one work to another. He obviously wanted his readers to think of his philosophical works as one coherent corpus presenting one coherent philosophy.

From: L. M. de Rijk, "Introduction" to: Johannes Buridanus, *Summulae de demonstrationibus*, Groningen-Haren: Ingenium Publishers 2001.

[Treatise IX.] Sophismata

"The Place of the Sophismata in Buridan's Work.

As a Master of Arts, Buridan was not allowed to teach or write on questions of theology, but his work covers most of the areas of philosophy. And as was common, most of his work is in the form of commentaries on the works of Aristotle. Most important among

these are commentaries on the Physica, De Caelo, De Generatione et Corruptione, Meteorologica, and the short physical treatises known as the parva naturalia, together with both commentaries and quaestiones on the Metaphysica and quaestiones on the Ethica ad Nicomachum and the Politica.

In the area designated by scholastics as logic, Buridan wrote three major works, of which the Sophismata is one. The largest of these is the Summula de Dialectica, and as is noted in its first few lines, the Sophismata may be regarded as a ninth tract of that general survey of logic. The other major logical work is the Consequentiae, which is a study of the forms of logical inference.

While the Consequentiae would be recognized today as a work clearly belonging to the field of logic, neither the Summula nor the Sophismata could any longer be so classified. The medieval conception of logic, based on classical grammar and rhetoric, Stoic logic, and Aristotle's Organon was very broad indeed by modern standards, embracing not only formal logic, but most of what is today known as the philosophy of language, together with some issues that seem now to belong to metaphysics or the theory of knowledge. Thus Buridan is firmly within the tradition when he includes within a summa of logic consideration of the nature of language, types of languages, the nature of signs, types of terms, the structure of concepts, the nature of propositions, a theory of meaning, a theory of reference, and the nature of truth. However, because of the way many issues were conceived, even this way of classifying the topics covered is apt to be misleading, and the reader would do well to learn the nature of medieval logic not through descriptions in secondary works, but through a study of representative works of the discipline.

Within the tradition of medieval logic itself, Buridan's work can be further specified as being of that variety known as "terminist" logic. Terminist logic, while long in developing, was apparently first brought together in a systematic way in the thirteenth century e. g. in the Summulae Logicales of Peter of Spain. It was so named because it was based on a doctrine that the term is the fundamental unit of all language, and on the view that the categorematic term is the only independent.

ly meaningful element of language. Theories of meaning and reference were then developed through an elaborate analysis of what were known as the "properties of terms".

The two principal properties of terms were significatio and suppositio, though virtually every author discussed a number of derivative properties based on these. Neither of these properties was understood in the same way by all terminists, so that it is difficult to make general remarks about them, a difficulty compounded by the fact that neither property corresponds very nearly with any conception in common use today. However, it may not be too misleading to suggest that significatio was usually the basis of a theory of meaning (or perhaps better, a theory of predicability), while suppositio was used to account for the actual referential use of terms in propositions and to develop truth-conditions for propositions of all sorts. For Buridan in particular, the theory of significatio is used to explain the relation of categorematic terms and propositions both to concepts of the mind and to the things conceived by those concepts. The theory of suppositio is then an account of the ways in which categorematic terms function as referring elements in propositions of various forms and in combination with various syncategorematic words to yield true and false propositions.

Buridan's Sophismata is best understood as an advanced "problems text" in the terminist tradition, and especially as a treatment of special problems associated with the properties of terms. Virtually the entire work consists of problems associated with significatio and suppositio, though it goes without saying that a great many other sorts of issues get involved in the working out of these problems. For more than a century prior to Buridan, teachers of logic had been compiling lists of problem-sentences or sophismata to be employed by their students as exercises. But Buridan's is different from most of these in that it is rather highly structured and is deliberately placed after the Introduction to the fundamental doctrines of terminist logic in the Summula de Dialectica as a systematic consideration of special problems growing out of the application of those doctrines." (pp. 10-11)

From: Theodore Kermit Scott, "Introduction" to: Johannes Buridanus, *Sophismata*, Stuttgart - Bad Cannstatt: Frommann-Holzboog 1977.

"Summary of the Sophismata.

Although a detailed study of the problems dealt with in the work cannot be undertaken here, it may prove useful, as a guide for the reader, to summarize briefly the main themes of each chapter.

Chapter I: This chapter is intended to clarify Buridan's doctrine of *significatio*. In particular, after the statement of the sixth *sophisma*, there are eleven conclusions which together constitute a remarkably clear statement of the doctrine.

The primary aim of the sophismata of this chapter is to bring out Buridan's view that truth cannot be a function of *significatio*, because every proposition, whether true or false, signifies a corresponding mental proposition and also signifies concrete particulars. Thus the traditional definition of truth stating that a proposition is true if *qualitercumque significat esse, ita est*, must be understood very broadly.

The fifth *sophisma* is of particular interest, since it involves Buridan's rejection of a fairly common scholastic doctrine, according to which every proposition signifies an abstract entity, known as a *complexe significabile*. For Buridan, every pro

position signifies something (even if one of its terms can have suppositio for nothing), but no proposition signifies anything other than concrete particulars. Chapter II: Having determined in Chapter I that truth and falsity are not a function of signification, Buridan proceeds in this chapter to his own account of the actual truth-conditions for categorical propositions. In stating these conditions, the doctrine of suppositio is introduced, and it is shown that truth is determined by identities and differences of suppositio among the categorematic terms of the proposition in question.

After the sixth sophisma, fourteen conclusions are given. The first eight of these further clarify the doctrine of significatio and make clear its relation to truth, while the last six use the doctrine of

suppositio to state actual truth-conditions for categorical propositions.

The reader might pay particular attention to the third sophisma, which appears tautological and yet is held by Buridan to be false, because of the basis of truth in suppositio.

Chapter III: This chapter contains an extraordinarily clear account of the doctrine of suppositio. The first five sophismata and the remarks which follow the fifth sophisma introduce the basic division into suppositio personalis and suppositio materialis and discuss a number of problems in a way which helps to clarify the distinction between the two types. The remaining sophismata and the discussion accompanying them is concerned with the several divisions of suppositio personalis and the use of these additional types in providing an analysis of propositions containing quantifying words. And finally a number of rules are given governing immediate inferences involving such quantified propositions.

Chapter IV: This chapter requires special attention, since it contains Buridan's fullest discussion of his doctrine of appellatio, which differs almost entirely from a doctrine of the same name that occurs in other terminist texts. And furthermore, Buridan applies the doctrine in two ways that are not merely distinct, but are so loosely connected as to seem hardly applications of the same doctrine.

The first application of the doctrine is developed in the first eight sophismata and the remarks associated with them. According to that discussion, every categorematic term is said to have appellatio for everything it signifies, beyond that for which it stands in suppositio personalis. Furthermore, everything that is thus signified bears some relation to that for which the term stands and so determines the reason why that certain term is used to stand for the thing in question. For example, in the proposition 'Socrates is white', the term 'white' stands for Socrates, but has appellatio for the quality of whiteness possessed by Socrates.

This discussion in the early part of the chapter also includes Buridan's view of the way in which the doctrine is to be applied in cases of tensed and other modal propositions or in cases where the

logical subject or predicate of a proposition consists of more than one term.

The second application of the doctrine of appellatio is covered in the remainder of the chapter. This application has to do with the reference of terms following certain verbs usually associated with cognitive attitudes, such as knowledge, belief, opinion, doubt, etc. In such contexts a term is said to have appellatio not for some concrete substances or properties, but for the ratio which accounts for the fact that just that term and no other is used in the proposition. And because the term does have appellatio for that particular ratio, Buridan holds that it is not possible to substitute another term for that one in such a context, even though the two terms may have the same suppositio. Thus in the proposition 'You know the one approaching', the predicate 'the one approaching' may stand for Plato, but it has appellatio for the ratio by which Plato is known not as Plato but as the one approaching, so that one cannot substitute the term 'Plato' for that predicate salva veritate.

Chapter V: This chapter is a rather straightforward discussion of the doctrine of the extension (ampliatio) and restriction (restrictio) of suppositio. Buridan's version of this doctrine is orthodox and the exposition is clear. In general the doctrine is that suppositio may be limited to presently existing things or it may be extended to things existing in either the past or the future or both, depending primarily on the tense and modality of the verb of the proposition, but also on the occurrence of certain other temporal or modal words, or even on the occurrence of certain prefixes or suffixes.

Chapter VI: The discussion in this chapter is probably more important for modern readers attempting to understand terminist logic than it was for Buridan's scholastic contemporaries. Today we are accustomed to a distinction between sentences and propositions and to thinking of a proposition as an abstract, timeless entity expressed by a spoken or written sentence, so that this chapter is important in emphasizing the common medieval view of a proposition as a purely conventional group of sounds or marks. It also brings out the distinction between propositions so understood and mental propositions, which were thought of as natural signs and so as independent of the human will, both as to content and as to

truth. Thus any group of sounds or marks conventionally instituted might be a true or false proposition, depending entirely on whether it was understood to be the correlate of some true or false mental proposition.

Chapter VII: This chapter extends the discussion of the preceding one, by considering the conception of the proposition as purely conventional in the light of certain problems concerning time, which had been alive in the medieval tradition at least since Augustine. Since a proposition is not a timeless entity, but is rather an object that comes to be as it is spoken or written and exists only so long as it is spoken or preserved in written form, how are we to understand the truth of such temporal beings? Does a spoken proposition ever exist, since its words are not all spoken simultaneously? How can a proposition of present tense be true, since the present is past before the proposition fully exists? And if we make it a matter of convention of what duration the present is, it would appear that the same proposition can be either true or false, depending on which convention is adopted.

Chapter VIII: The final chapter of the work is perhaps its richest, and for that reason, it is difficult to summarize briefly. It is a collection and discussion of a number of problems, which were grouped together by medievals and called insolubilia. Originally used as a pedagogical device, insolubilia eventually became the vehicle for discussion of the most advanced problems of terminist logic. Broadly speaking, most insolubilia are paradoxes of some sort and are usually propositions which, either by what they assert or by their form, seem to imply, directly or indirectly, their own denials. But this is not true of all. Some (such as the fifth and sixth sophismata of this chapter) seem to be little more than puns, while others (for example, the sixteenth and seventeenth sophismata) pose a dilemma for action. Because of the range of problems considered, the best brief Introduction to the chapter must be an invitation to the reader to give it his detailed attention. But special mention might be made of the seventh sophisma, which may be of particular interest to modern logicians, since it contains Buridan's way of dealing with semantic paradoxes, which are among the more common and interesting insolubilia." (pp. 14-16)

From: Theodore Kermit Scott, "Introduction" to: Johannes Buridanus, *Sophismata*, Stuttgart - Bad Cannstatt: Frommann-Holzboog 1977.

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History of Logic

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Buridan's Logical Works. II. The *Treatise on Consequence* and Other Writings

Tractatus de consequentiis

(In preparation)

Quaestiones longe super Librum Perihermeneias

"The present work contains the first critical edition of John Buridan's *Questiones longe super Librum Perihermeneias Aristotilis*.

(...)

Now we should have to answer the question: when were the questions on *Perihermeneias* written? Little is known about the chronology of Buridan's works. Even a relative date is difficult to establish. However, some remarks can be made. First, there is the fact that the questions on *Perihermeneias* are quoted several times in *Tractatus* I of the *Summule* (4), in a way that makes it highly probable that the *Summule* were written after the *Questiones on Perihermeneias* (5). Now, according to professor Pinborg the first lectura of the *Summule* may be dated as early as the late 1320es (6), that is at the very beginning of Buridan's career as a teacher of philosophy at the university of Paris. This may be an indication for an early date of the *Questiones* on *Perihermeneias*, possibly as early as 1325.

There are two other reasons for assuming that the commentary on *Perihermeneias* is one of Buridan's first works. The first clue is given

by the places where Buridan refers to one of his own works: once he refers to his commentary on Porphyry's *Isagoge* (7), twice to his commentary on Aristotle's *Metaphysic*s (8), and six times to his commentary on the *Physics* (9). The way in which he refers to these tracts seems also to be significant: the reference to his commentary on Porphyry's *Isagoge* shows that this work is of an earlier date than the present work. As to the other two works, he only refers to the number of the book in which he is going to treat a particular subject, not to the number of the question. A (cross)reference to the *Summule* is not given, although, as Pinborg remarks, there is a general doctrinal concordance between the two works. The questions on *Metaphysic*s do not contain a (cross)-reference to the questions on *Perihermeneias*, at least not on the places where one would expect them. I am not certain about possible references occurring in the commentary on *Physics*. However, we should be very careful to draw conclusions from the occurrence of references, since it is always possible that we are dealing with a second or third *lectura* of the text. (10)

Another argument in favour of an early date of the tract is based on the content of the work. Doctrinal analysis of the work shows that most subjects treated in the *Questiones* on *Perihermeneias* can also be found in other works of Buridan's in a more elaborate way. The work as a whole seems to show an early stage of Buridan's doctrinal development.

Unfortunately, this argument is not as strong as it seems, since the superficial way in which some subjects are discussed in the work may be related to the character of the tract: the questions on the *Logica vetus* were probably presented to the students in an early stage of their philosophical training.

Thus, there is not much certainty about the date of the questions on *Perihermeneias*. There are some reasons to believe that we have to deal with an early work of Buridan. Although, taken separately, none of these reasons is in itself sufficient, I am inclined to consider the work as an early tract.

The *Questiones breves*.

The present work does not contain an edition of the short version of the questions on Aristotle's *Perihermeneias*." (pp. XIII-XIV)

Notes

(5) Summule I.3.3: Ad tertiam dubitationem ego tractavi expresse et diffuse I. Perihermeneias in &a questione, ad quam recurrat qui voluit.

(6) Jan Pinborg, *The Summule, Tractatis I De Introductionibus*. in: *The Logic of John Buridan* (1976) pp. 71-90.

(7)p. 6,8. The short version gives an explicit reference to the third question of this tract.

(8) p. 52,36; p. 71,34.

(9) p. 35,4 p. 41,11+14+21; p. 58, 27; p. 68, 36.

(10) Edmond Faral, "Jean Buridan: Maître és arts de l'Université de Paris," *Histoire Littéraire de la France* 28 (1949), 462-605 (separate edition 1950).

From: Ria van der Lecq, "Introduction" to: *Quaestiones longe super Librum Perihermeneias*. Nijmegen: Ingenium Publishers 1983.

Quaestiones topicorum

"The commentary edited here is a question-commentary. This means that -- like most commentaries of its kind -- it offers the reader little help to understand Aristotle's text. Or to put the same in another manner: Though we find a considerable number of references to the *Topics* we could remove practically all the references and still have almost the same commentary. Or again: Nearly all the questions are occasioned by a section of Aristotle's text, but the discussions take place within a purely medieval frame-work.

We find, however, three references to *littera* (i.e. Aristotle's text) which are most naturally taken to mean that our work presupposes an exposition of the text.(11) These references need not mean that there was ever a 'published' literal-commentary on Aristotle's *Topics* by Buridan. Yet it has been argued convincingly by Christoph Flüeler(12) that Buridan's habit was to go through a prescribed text by expounding it and discussing questions on it within the same

period, though the exposition of the text might proceed at a quicker pace than the disputation of questions. This will mean that the present work originally did not stand alone, but had an explanation of the text as its background. No trace seems to be left of such an exposition of Aristotle's *Topics* by Buridan, and perhaps it was never written down, but only spoken in the class-room.

Flüeler further argues that all or most of Buridan's commentaries have come down to us as students' reportations of oral lectures and not in Flüelera form finished by Buridan himself.(13) This seems to hold true of the present work: In I qu. 5, arg. 1a we read: *sicut hen dicebatur*; in IV qu. 4 arg. 3b: *sicut hodie dicebatur*; in V qu. 2 arg. 4a: *sicut dicebam heri*; and in I qu. 17, dist. I: *descriptiones horum sunt vobis satis notae*. Such phrases are more naturally said in an oral lecture than written in a finished text. Inevitably this leads to the question: Has the student reported the lecture in the classroom, as it was spoken, or has he later written down a full text on the basis of notes taken in the class-room? Flüeler argues convincingly(14) for the existence of reportations written down in a complete form in the class-room, but certainly we cannot consider it to be proved that all reportations were made in that way. It is hardly possible to decide the question concerning our commentary, but when reading it we should keep in mind that there probably is, so to speak, a 'mediator' between Buridan and us.

Any reader of our commentary will quickly notice that it does not pay equal regard to all eight books of Aristotle's *Topics*. The questions on book I take up about one third of the work, and the same is true about the questions on book II. The remaining books are then dealt with quickly in the last third of the commentary. This selective attitude to Aristotle's text is one which our work shares with other commentaries from the same period.(15) If we compare with the much bigger number of questions in the commentaries from the 13th century by Boethius de Dacia(16) and Radulphus Brito(17) we cannot avoid the impression that Aristotle's *Topics* interested the authors of the 14th century much less than it did earlier commentators. Or perhaps we could say that the logic of the 14th century followed a course of development of its own, and was to a lesser degree directly inspired by a reading of Aristotle than the logic of the 13th century.

Already in the earliest question-commentaries on Aristotle's *Topics* it became customary for the authors to use the beginning of book II to discuss problems about the syncategoreme *omnis* (all/every).(18) Buridan does the same in our work. We find discussions of standard sophisms like *Omne animal fuit in arca Noe* (II qu. 2); (19) *Omnis phoenix est* (II qu. 3); *Omnes apostoli sunt duodecim* (II qu. 4); *Omnis homo est omnis homo* (II qu. 4); *Omnis homo de necessitate est animal* (II qu. 6); *Totus Socrates est minor Socrate* (II qu. 4). Further Buridan discusses sophisms like *Quicquid emisti, comedisti; crudum emisti; igitur crudum comedisti*(20) (II qu. 6, cf. I qu. 5) and *Denarios in bursa mea scis esse* pares(21) (II qu. 6). It is remarkable that, except for the last two, Buridan does not include these sophisms in his own collection of sophisms (= the last section of his*Summulae*). Rather they belong to the sophisms commonly discussed in the 13th century. Perhaps it is possible to suggest that this indicates that the commentary on the *Topics* was an early work by Buridan." (p. XIII-XV)

Notes

(11) I qu. 15; lI qu. 10; VIII qu. I.

(12) Christoph Flüeler, From Oral Lecture to Written Commentaries: John Buridan's Commentaries on Aristotle's *Metaphysics*. In *Medieval analyses in language and cognition. Acts of the Symposium: The Copenhagen School of Medieval Philosophy*. Edited by Ebbesen Sten and Friedman Russell L. Copenhagen: Royal Danish Academy of Sciences and Letters 1999, 502-510.

(13) Flüeler 1999, 499-500.

(14) Flüeler 1999, 507-511; 516; 518.

(15) Cf. Niels Jørgen Green-Pedersen, *The Tradition of the Topics. The Commentaries on Aristotle's and Boethius's 'Topics'*. München-Wien, Philosophia, 1984, 89-90; 392-399.

(16) Boethius de Dacia, *Topica - Opuscola*. Edited by N. J. Green-Pedersen and J. Pinborg,. *Corpus Philosophorum Danicorum Medii Aevi* V, 1-2. Hauniae Societas Linguae et Litteraturam Danicarum/Gad 1976, 2, 461-466.

(17) Cf. Jan Pinborg, "Die Logik der Modistae". *Studia Mediewistyczne* 16 (1975), 82-86.

(18) Boethius de Dacia 1976, 2, 462; Pinborg 1975, 83-84 (Radulphus Brito).

(19) Cf. Iohannes Buridanus, *Quaestiones Elenchorum*, 8.4.3, P. 35; 9.3.2.1, p. 38.

(20) Cf. Johannes Buridanus, *De Practica Sophismatum*, 64; 73-74; cf. the next section of this Introduction.

(21) Cf. Iohannes Buridanus, *De Practica Sophismatum*, 79-80; 90; cf. the next section of this Introduction.

From: Niels Jørgen Green-Pedersen, "Introduction" to: Johannes Buridanus, *Quaestiones Topicorum*, Turnhout, Brepols 2008.

Questiones Elencorum

"The treatment of the problem of the *insolubilia* may give us some evidence for a relative date of the *Questiones elencorum*. The subject is discussed in question 19 of the present work. Someone who is not familiar with the discussions on paradoxes may wonder why the subject is treated here at all. Question 19 is one of the few questions in this work that contain no reference at all to Aristotle's text and at first sight it seems to have no connection with the subject of fallacies.

The reason that the subject is discussed here is that paradoxes were very often considered as originating from the fallacy *secundum quid et simpliciter*.(14) From that point of view an insoluble proposition, like '*Sortes dicit falsum*', supposing that Sortes says no other proposition than this one, is neither simpliciter false nor simpliciter true, and therefore it deserves the same treatment as the proposition about the black man with the white teeth. For the sake of clearness: Buridan has never defended this opinion himself. According to him the proposition *'Sortes dicit falsum*', where 'falsum' refers to the proposition itself, is simply false.

Buridan has dealt with the subject in more than one place in his works, but the most profound exposition can be found in chapter VIII of the *Sophismata*. In sophism 7 he exposes the principles of his solution. First Buridan argues that in the case presented, viz. that all

true propositions have been annihilated and only false ones has survived, when Socrates says 'every proposition is false' and nothing more, this proposition is simply false. Then he goes on to reply to some opposing arguments:

7.7.1: Some people have advanced the following view (and it was my opinion too at one time): Even if the only thing that the proposition signifies or asserts, simply in virtue of the meanings of its terms, is that every proposition is false, *nevertheless every proposition, by its very form, signifies or asserts itself to be true*, and as a result any proposition that either directly or indirectly asserts itself to be false, is false (transl. Hughes,(15) ital. ours).

(Aliqui enim dixerunt, et ita visum fuit mihi alias, quod licet ista propositio secundum significationem suorum terminorum non significet vel asserat nisi quod omnis propositio est falsa, tamen omnis propositio de forma sua significat vel assent se esse veram. Ideo omnis propositio asserens se esse falsam, sive directe sive consecutive, est falsa.) (16)

Let us follow G.E. Hughes(17) in referring to this theory (viz. that every proposition signifies its own truth) as the *meaning* theory.

Next Buridan goes on to say that strictly speaking it is not correct to say that every proposition signifies or asserts itself to be true. He prefers another view:

7.7.2: one that is quite close to the truth. According to it every proposition virtually implies a second proposition in which the subject would stand for the original proposition and the predicate 'true' would be affirmed of it.

(Ideo dicitur aliter, propinquius veritati, scilicet quod quaelibet propositio implicat virtualiter aliam propositionem de cujus subjecto pro ea supponente affirmatur hoc praedicatum ' verum'.)

Following Hughes we shall refer to this theory (viz. that every proposition implies its own truth) as the *entailment* theory. This Introduction is not the right place for a detailed study of Buridan's solution of the problem of paradoxes. What matters for our purpose here is that he first presents an opinion of which he says that he had that opinion too at one time.

Now if we take a look at his remarks in question 19 of the *Questiones Elencorum*, it becomes clear that this text must have been written before the *Sophismata*. In 19.3.2 Buridan states that every proposition formally signifies that it is true or at least it follows from every proposition that it is true:

Et sit prima suppositio quod omnis propositio de significatione forrnali significat se esse veram. Et ideo quia consequens includitur in antecedente, quaelibet propositio implicat se esse veram, nam omnis propositio est affirmativa vel negativa. Modo quaelibet illarum significat se esse veram vel saltem ad quamlibet illarum sequitur eam esse veram.

From this passage we may conclude that when writing the *Questiones Elencorum* he had no objections against the meaning theory, although he preferred the entailment theory himself.

Another text where the subject is discussed can be found in Buridan's commentary on Aristotle's *Metaphysics*. In book VI question 11 the author argues that some people suppose that every affirmative proposition formally signifies that in every way the facts are as it says they are (*qualitercumque significat esse ita est*).(18) Now 'that in every way the facts are as the proposition says they are' is considered a truth condition of an affirmative proposition. So it may be assumed that Buridan here refers to the opinion that every affirmative proposition formally signifies that this proposition itself is true: the meaning theory. According to Buridan the defenders of this opinion see the truth but they do not see it completely. Strictly speaking this opinion is not correct (iste modus loquendi vel non est verus vel non est proprius). He politely rejects this opinion with the same arguments as in the *Sophismata*, although in the *Sophismata* he seems to be more convinced of his being in the right. In the commentary on the *Metaphysics* as well as in chapter VIII of the *Sophismata* his objection against the opinion that every proposition signifies itself to be true is that in this opinion the signification of e.g. 'a man is an animal' would be "that a man is an animal' is true', that is, if the expression 'itself to be true' (se esse veram) is taken materially. This is incorrect, because according to Buridan in the *Sophismata*, "that a man is an animal' is true' is a proposition about second intentions, whereas the original proposition 'a man is an

animal' is a proposition about first intentions. In other words, as formulated in the commentary on the *Metaphysic*s, '*equus est asinus*' does not signify the proposition 'a horse is a donkey'; it only signifies horses and donkeys. If the expression 'itself to be true' or 'that a horse is a donkey' is taken not materially but significatively, the opinion would not be correct either, because in that case ' that a horse is a donkey' would not refer to anything (*pro nullo supponit*), since there is no such thing as a horse being a donkey, and in just the same way there neither is nor can be such a thing as that proposition being true. Now something that does not and cannot exist cannot be signified or asserted, according to Buridan. The vocal proposition '*homo est asinus*' signifies the corresponding mental proposition, but in reality outside the mind it only signifies men and donkeys and nothing else. From Buridan's discussion in the commentary on the *Metaphysics* and the *Sophismata* it can be concluded that this account holds for propositions that cannot possibly be true, like 'equus est asinus' and for insoluble propositions, like 'every proposition is false'. What does hold for every proposition is that it implies its own truth (comm. on*Metaphysics*: *tamen ad omnem propositionem de mundo sequitur quod ipsa est vera*), if at any rate it is formulated (*saltem si formaretur*).

It is clear that Buridan's theory as well as the arguments he uses to defend it are very similar in the *Sophismata* and in the commentary on the *Metaphysics*. The treatment in the *Sophismata* seems to be more formal, but that can be explained from the context in which the problem is discussed. Chapter VIII of the *Sophismata* is a logical treatise about the solution of *insolubilia*, whereas the subject in the commentary on the *Metaphysics* is the truth conditions of propositions in general and the question whether a proposition can be true and false at the same time.

Another text where the subject is discussed is the tenth question of Buridan's Questions on the Posterior Analytics. The subject of this question is the problem of the truth-condition of a proposition. Is the fact that in every way the facts are as some proposition says they are, a condition and a sufficient condition for the truth of that proposition (quaeritur utrum ad veritatem propositionis requiratur et sufficiat quod qualitercumque ipsa significat ita sit)? In many cases, our author argues, this is not a sufficient condition, e.g. in a

proposition that expresses its own falsity (' ego dico falsum'). Such a proposition is false, according to Buridan. Nevertheless the facts are as the proposition says they are, because the proposition signifies itself to be false, and it is false. Still the facts are not in every way (*qualitercumque*) as the proposition says they are, because it also signifies itself to be true, because that is what every proposition does (ex communi condicione propositionis).(19)

It is clear that in this connection Buridan 'defends' the opinion he rejects in chapter VIII of the *Sophismat*a and in the commentary on the *Metaphysics*: the meaning theory.

A comparison of these four texts of Buridan's leads us to the following tentative conclusion regarding the relative date of these works. The commentary on the *Posterior Analytics* should be dated first. Buridan clearly proposes the meaning theory (every proposition signifies that it itself is true) as his own. In the commentary on the *Sophistici Elenchi* (19.3.2) the meaning theory is still brought forward without any criticism (*prima suppositio quod omnis propositio de significatione formali significat se esse veram*), but Buridan adds the remark that every proposition also implies itself to be true, because every proposition is affirmative or negative. Supposedly Buridan wants to say that every speaker is implicitly claiming that he is speaking the truth. This text was probably written after the commentary on the *Posterior Analytics*. The commentary on the *Metaphysics* and the *Sophismata* are clearly of a later date. In the former work he speaks about the adherents of the meaning theory as people who see the truth, but not completely (aliqui videntes veritatem sed tamen non plene videntes), because properly speaking one cannot say that a proposition signifies itself *(unde non est propria locutio quod propositio significet seipsam*), because in some cases there would be nothing to be signified. The entailment theory seems to be advanced here as a better alternative for impossible and insoluble propositions *(licet non omnis propositio significet se esse veram quia forte nihil est ' se esse veram', tamen ad omnem propositionem de mundo sequitur quod ipsa est vera*), whereas in the *Sophismata* the meaning theory is simply rejected for every proposition. The*Sophismata* text seems to express a more radical point of view. Here Buridan does not show the sympathy for the adherents of the meaning theory in the way he did in the

commentary on the *Metaphysics*. He simply rejects this opinion as incorrect (*non videtur mihi valere de proprietate sermonis*) for every proposition, although he had defended it himself before. We are inclined to take this as an indication (although not as a proof) for a date of the *Sophismata* after the commentary on the *Metaphysics*. (20)" (pp. XV-XIX)

Notes

(14) For a historical survey: P. V. Spade, *Insolubilia*, in: *Cambridge History of Later Medieval Philosophy*, Cambridge 1982, pp. 246-253.

(15) G.E. Hughes, *John Buridan on Self-reference, Chapter Eight of Buridan's Sophismata, translated with an Introduction and a philosophical Commentary*, Cambridge 1982.

(16) Miss Fabienne Pironet is preparing a new critical edition of this text. The Latin text has been taken from her manuscript, which she was so kind as to make available.

(17) Op. cit., p. 106.

(18) A more literal translation of the expression '*qualitercumque significat esse ita est*' would be: howsoever it signifies, so it is. However, we prefer the translation given by G.E. Hughes, op.cit., p. 48.

(19) Ed. Pironet.

(20) This conclusion is confirmed by Fabienne Pironet: *John Buridan on the Liar Paradox* in: Klaus Jacobi (hrsg.) *Argumentationstheorie, Scholastische Forschungen zu den logischen und semantischen Regeln korrekten Folgerns,* Leiden 1993, 293-300. Miss Pironet's study does not include the *Questions Elencorum*.

From: Ria van der Lecq and H.A.G. Braakhuis, "Introduction" to: Johannes Buridanus, *Quaestiones Elencorum*, Nijmegen, Ingenium Publishers 1994.

Digital Quadrivium Project



History of Logic

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Buridan: Editions, Translations and Studies on the Manuscript Tradition

Introduction

I give an updated list of the published and unpublished logical and metaphysical works of Buridan, and a Bibliography of the editions and translations appeared after 2000.

A complete list of Buridan's works and manuscripts can be found in the ' *Introduction*' by Benoît Patar to his edition of "La *Physique* de Bruges de Buridan et le *Traité du Ciel* d'Albert de Saxe. Étude critique, textuelle et doctrinale" Vol. I, Longueil, Les Presses Philosophiques, 2001 (2 volumes), pp. 33* - 75*.

Summary of Buridan's works on logic and metaphysics

Logical Works:

N. B. The treatises known as *Artes Veterem* and commented by Buridan were the *Isagoge* by Porphyry and the *Categoriae (Predicamenta)* and the *Peri Hermeneias* by Aristotle.

1. *Expositio Super Artes Veterem*
2. *Quaestiones Super Artes Veterem*
3. *Expositio in duos libros Analyticorum priorum Aristotelis*
4. *Quaestiones in duos libros Analyticorum priorum Aristotelis*

5. *Expositio in duos libros Analyticorum posteriorum Aristotelis*
6. *Quaestiones in duos libros Analyticorum posteriorum Aristotelis*
7. *Quaestiones in octo libros Topicorum Aristotelis*
8. *Quaestiones in librum 'de sophisticis Elenchis' Aristotelis*

Summulae de dialectica, commentary of the *Summulae logicales* by Peter of Spain, composed by the following treatises:

1. *De propositionibus*
2. *De praedicabilibus*
3. *In praedicamenta*
4. *De suppositionibus*
5. *De syllogismis*
6. *De locis dialecticis*
7. *De sophisticis elenchis*
8. *De demostrationibus*
9. *De practica sophismatum* (sometimes considered the ninth treatise of the *Summa logicae*)
10. *Tractatus de consequentiis*

Metaphysical Works:

1. *Expositio Super Metaphysica* [in two redactions]
2. *Lectura Erfordiensis*
3. *Quaestiones Super Metaphysica* [in two redactions]

Polemical Woks:

1. *Duae quaestiones de universali*
2. *Tractatus de relationibus*
3. *Quaestio de possibilitate existendi secundum eandem et non essendi simul in eodem instanti*
4. *Quaestio de dependentiis, diversitatibus et convenientiis*

5. *Determinatio de diversitate generis ad speciem (Defensiones determinationis de diversitate generis ad speciem)*

The *Quaestiones super octo libros Politicorum Aristotelis* are not a work of Buridan, but of Nicolaus Girardi de Waudemonte (Nicholas of Vaudémont), a late Fourteenth-century French writer, as demonstrated by Christoph Flüeler, *Die Rezeption des Politica des Aristoteles an der Pariser Artistenfakultät im 13. und 14. Jahrhundert*, in: Jürgen Miethke (ed.), *Das Publikum politischer Theorie im 14. Jahrhundert*, 1992, pp. 127-138.

Detailed list with full bibliographical references

Logical Works:

1. Buridanus, Johannes. *Expositio in Artem Veterem*.

   Unpublished manuscript: Biblioteca de la Catedral de Tortosa (España) cod. 108 ff. 26r-74v.

2. ———. *Quaestiones in Artem Veterem (De Tertia Lectura; Ordinatio)*.

   This work is now available in critical edition (in three separated editions: see below).

3. Buridani, Johannis. *Quaestione Breves in Artes Veterem*.

   Unpublished manuscripts available at the Libraries of Cracow, Leipzig, and Città del Vaticano (two manuscrpits).

4. Buridan, Jan. 1986. "Komentarz Do *Isagogi* Porfiriusza [Quaestiones in Isagogen Porphyrii]." *Przeglad Tomistyczny* no. 2:111-195.

   Quaestiones Super Artes Veterem I.

   Critical edition of the Latin text with an Introduction in Polish by Ryszard Tatarzynski.

5. Buridanus, Johannes. 1983. *Quaestiones in Praedicamenta*. München: Verlag der Bayerischen Akademie der Wissenschaften.

   Quaestiones Super Artes Veterem II.

Edited by Johannes Schneider.

6. ———. 1983. *Quaestiones Longe Super Librum Perihermeneias*. Nijmegen: Ingenium Publishers.

   Quaestiones Super Artes Veterem III.

   Artistarium Supplementa Vol. 4.

   Edited with an Introduction by Ria van der Lecq.

7. Buridan, John. 1976. "Quaestio 3 *Perihemeneias*." In *The Logic of John Buridan*, edited by Jan, Pinborg, 89-90. Copenhagen: Museum Tusculanum Press.

8. Buridani, Johannis. *Expositio in Duos Libros Analyticorum Priorum Aristotelis*.

   Unpublished manuscript of 1356: Praha, Knihovna Metropolitní Kapituly, cod. L.34, ff. 107r -136v.

9. ———. *Quaestiones in Duos Libros Aristotelis Analyticorum Priorum*.

   Unpublished work available in manuscript at the Libraries of: Cracow, Leipzig, Liège, Münich, Prague, Vienne.

   Unpublished transcription by Hubert Hubien available at Peter King's Website.

10. Buridanus, Johannes. 1991. "Quaestiones Super Libris *Analyticorum Priorum*, Quaestio Xx: *Utrum Per Inductionem Probatur Propositio Immediata*." In *Historia Philosophiae Medii Aevi. Vol. I*, edited by Burkhard, Mojsisch and Olaf, Pluta, 100-103. Amsterdam: B. R. Grüner.

    Edited by Egbert P. Bos in Appendix (Anhang) to his essay: *Pseudo-Johannes Duns Scotus über Induktion* pp. 71-99.

11. Buridani, Johannis. *Expositio in Duos Libros Analyticorum Posteriorum Aristotelis*.

    Unpublished manuscript: Città del Vaticano, Biblioteca Apostolica Vaticana, Urb. lat. 1489, f. 119ra - 150rb.

12. ———. 2006. Quaestiones in Duos Libros Aristotelis *Analyticorum Posteriorum*.

This work was attributed to Albert of Saxony and published in 1497 wit the title: *Quaestiones subtilissimi Alberti de Saxonia super libros Posteriorum* Milan, Venise (modern anastatic reprint: Hildesheim, Olms, 1986.

13. Buridanus, Johannes. *Expositio in Topica*.

    The attribution of this work to Buridan is doubtful.

    Unpublished manuscript: Munich, Bayerische Staatsbibliothek, signature: Clm 12707, ff. 66ra - 99vb.

14. ———. 1994. *Quaestiones Elencorum*. Nijmegen: Ingenium Publishers.

    Artistarium Supplementa Vol. 9.

    Edited with an Introduction, notes and indices by Ria van der Lecq and H. A. G. Braakhuis.

15. ———. 2008. *Quaestiones Topicorum*. Turnhout: Brepols.

    Introduction, critical edition and indexes by Niels Jorgen Green-Pedersen.

16. Buridan, John. 1976. "Quaestiones Super *Sophisticos Elenchos* [Index]." In *The Logic of John Buridan*, edited by Jan, Pinborg, 159-160.

17. Buridanus, Johannes. *Perutile Compendium Totius Logicae Joannis Buridani Cum Praeclarissima Solertissimi Viri Joannis Dorp Expositione*.

    This work, also known as *Summulae de dialectica* or *Lectura de summa logicae* (the title of Hubert Hubien unpublished transcription) is composed by eight treatises: I. *De propositionibus*; II. *De praedicabilibus*; III. *De praedicamentis*; IV. *De suppositionibus*; V. *De syllogismis*; VI. *De locis dialecticis*; VII. *De sophisticis elenchis*; VIII. *De demonstrationibus*.

    A ninth treatise, *Sophismata,* is printed separately in the ancient editions.

    The first edition of the *Summulae* was edited by Thomas Bricot (? - 1516) at Paris in 1487.

An anastatic reprint of the edition of Venice 1499, with the commentary by John Dorp (late 14th century) was published at Frankfurt am Main, Minerva, 1965.

For critical editions of treatises I, II, III, IV, V, VI, VIII and IX see below; treatise VII is not yet available in a modern edition.

18. Buridan, John. 1976. " *Summulae,* Tractatus I." In *The Logic of John Buridan*, edited by Jan, Pinborg, 82-88.

    Edition of: I.1.1; I.1.5; I.1.6; I.2.2; 1.3.2.

19. Buridanus, Johannes. 2005. *Summulae De Propositionibus*. Nijmegen: Ingenium Publishers.

    Summulae Vol. I.

    Artistarium Supplementa Vol. 10-1.

    Introduction, critical edition, and indexes by Ria van der Lecq.

    "The present fascicle contains the first treatise of the *Summulae*, called *De propositionibus*. In earlier fascicles we referred to this treatise as *De Introductionibus*, which is the name of the corresponding chapter of Peter of Spain's *Tractatus*. (19) Buridan himself, however, does not use the term *Introductiones*; in 1.1.1 he announces that the first treatise is going to deal with propositions and their parts and attributes. Therefore, ' *De propositionibus*' seems to be a more appropriate title.

    The treatise consists of eight chapters, which correspond with Peter of Spain's *Tractatus 1* (*De Introductionibus*) in the following way:

    chapter in Buridan chapter in Tractatus 1

    1 De quibusdam praemittendis 1-3

    2 De nomine, verbo et oratione 4-6

    3 De propositione 7-10

    4 De oppositionibus propositionum categoricarum 11-14

    5 De aequipollentiis 18

6 De conversionibus propositionum 15

7 De propositionibus hypotheticis 16-17

8 De propositionibus modalibus 19-25

A closer comparison between the two treatises (20) shows that Buridan elaborated more on the topics of chapters 6 and 7 (conversions and hypothetical propositions) than the author of his basic text and that he had an extraordinary interest in modal propositions. He even preferred to write a new text for this chapter, because he considered the auctor's account to be incomplete (1.8.1).

The present edition includes the preface (*Prooemium*) of the *Summulae*, in which Buridan says some remarkable things about logic as an art (see below n.3.3) and in which he warns the reader that he will not follow his author's text in every respect: "occasionally I am going to have to say and write things that differ from what he has said and written, whenever it appears to me suitable to do so"."

(19) See for an exposition of the term 'Introductiones' by John of Salisbury: Peter of Spain, *Tractatus* (...), ed. L.M. de Rijk, p. LXXXIX..

(20) See Jan Pinborg, 'Summulae, Tractatus 1 De Introductionibus,' in Jan Pinborg (ed.), *The Logic of John Buridan*, Kopenhagen 1976, pp. 74-75.

20. ———. 1995. *Summulae De Praedicabilibus*. Nijmegen: Ingenium Publishers.

Summulae Vol. II.

Artistarium Supplementa Vol. 10-2.

Introduction, critical edition and indexes by L. M. De Rijk.

"The present edition contains the second tract [of Buridan's *Summulae*], *De praedicabilibus,* which deals with the five 'predicables', introduced by the Neoplatonist commentator of Aristotle, Porphyry (c. 233-c. 304 A.D.) in his introductory book (*Isagoge*)to the Stagirite's *Categories, viz.* 'genus', 'species', 'differentia', 'proprium', and 'accidens'. From as early

as the eleventh century, medieval authors commented upon Boethius' (480-524) translation of, and commentary upon, this work.

Buridan's discussion of the predicables is mainly based on the corresponding tract of Peter of Spain's manual. His comments are preceded by the complete text of the lemma from Peter to be discussed. It should be no surprise that Buridan's quotations should go back to an adapted version of Peter's text. (...)

Buridan's work consists of elementary exegesis as well as extensive objections and *dubitationes* in which specific questions are dealt with, mostly in an original fashion." pp. XVII and XXI.

21. ———. 1994. *Summulae in Praedicamenta*. Nijmegen: Ingenium Publishers.

    Summulae Vol. III.

    Artistarium Supplementa Vol. 10-3.

    Introduction, critical edition and notes by Egbert P. Bos.

22. ———. 1998. *Summulae De Suppositionibus*. Nijmegen: Ingenium Publishers.

    Summulae Vol. IV.

    Artistarium Supplementa Vol. 10-4.

    Introduction, critical edition and indexes by Ria Van der Lecq.

23. Buridano, Giovanni. 1957. "Tractatus De Suppositionibus." *Rivista Critica di Storia della Filosofia* no. 12.

    First part pp. 180-208; Second part pp. 323-352.

24. Buridanus, Johannes. 2010. *Summulae De Syllogismis*. Turnhout: Brepols.

    Summulae Vol. V.

    Artistarium Supplementa Vol. 10-5.

    Introduction, critical edition and indexes by Joke Spruyt

" *De syllogismis* is the fifth treatise of John Buridan's *Summulae dialecticae*, a textbook he wrote for his logic course in the Faculty of Arts at the University of Paris. *De syllogismis* contains material related to Aristotle's *Analytica Priora* and Boethius's *De hypotheticis syllogismis*. The textbook discusses inferences involving not only propositions de *inesse*, but also propositions featuring oblique, reduplicative and infinite terms. Buridan displays a keen interest in modal inferences and inferences involving propositional attitudes. Buridan's *De syllogismis* continues along the lines of his nominalist conception of the relations between mind, language and reality."

25. ———. 2013. *Summulae De Locis Dialecticis*. Turnhout: Brepols.

    Summulae Vol. VI.

    Artistarium Supplementa Vol. 10-6.

    Edited by Niels Jorgen Green-Pedersen.

    " *De locis dialecticis* is the sixth treatise of John Buridan's *Summulae dialecticae,* a textbook he wrote for his logic course in the Faculty of Arts at the University of Paris. *De locis dialecticis* immediately builds upon Peter of Spain, but Buridan shows his awareness that the doctrine of the *loci* took its origin in Boethius' *De differentiis topicis*, and he frequently quotes from that work. Though not introducing any basically new ideas Buridan contributes a large number of precisions to the standard descriptions of the several *loci*, and he shows that the list of the *loci* and the traditional division of it into three sections is not something given by nature, but was established by earlier logicians, as they found convenient. Accordingly such things can be changed if something better is found. Buridan has here given us perhaps the most precise and most interesting exposition of the doctrine of the *loci* in the medieval logical literature."

26. Buridan, John. 1976. "The *Summulae* of John Buridan. Tractatus Vi *De Locis*." In *The Logic of John Buridan*, edited by Jan, Pinborg, 121-138.

Edited by Niels Jörgen Green-Pedersen.

27. ———. 1976. "Extracts from the *Summulae*." In *The Logic of John Buridan*, edited by Jan, Pinborg, 153-158.

    Edited by Sten Ebbesen: 7.3.2; 7.3.4; 7.3.10 (*de figura dictionis*).

28. Buridanus, Johannes. *Summulae De Fallaciis*.

    Summulae Vol. VII.

    Not yet published.

29. ———. 2001. *Summulae De Demonstrationibus*. Groningen-Haren: Ingenium Publishers.

    Summulae Vol. VIII.

    Artistarium Supplementa Vol. 10-8.

    Introduction, critical edition and indexes by L.M. de Rijk.

30. ———. 2004. *Summulae De Practica Sophismatum*. Turnhout: Brepols.

    Summulae Vol. IX.

    Artistarium Supplementa Vol. 10-9.

    Introduction, critical edition and indexes by Fabienne Pironet.

    "Treatise 9, *De practica sophismatum,* or *Sophismata* for short, has been edited once in full and once in part within the last few decades. The 1977 publication of the full text by Th.K. Scott contributed significantly to the scholarly community's awareness of the merits of Buridan's work, but the Latin text was only weakly anchored in the manuscript tradition; in fact it reproduced an incunabulum (our Z) emended by means of collation with usually one manuscript (our F). G.E. Hughes' partial edition of 1982 was based on six manuscripts (our A, E, F, I, 'I' and W) as well as on an incunabulum (our Z) and represented a considerable step forward on the road to a sound text. Our aim is to take one more step along on that road, by re editing the whole treatise on the basis of not only more but, we think, also better manuscripts." (p. XI, notes omitted).

31. Buridan, Jean. 1966. *Sophisms on Meaning and Truth*. New York: Appleton-Century-Crofts.

    Latin text and translation by Theodore Kermit Scott.

32. ———. 1977. *Sophismata*. Stuttgart - Bad Cannstatt: Frommann-Holzboog.

    Critical edition with an Introduction by Theodore Kermit Scott (now superseded by Pironet 2004).

33. ———. 1982. *John Buridan on Self-Reference. Chapter Eight of Buridan's Sophismata*. Cambridge: Cambridge University Press.

    Latin text, translated, with an Introduction and a philosophical commentary, by George E. Hughes.

34. Buridani, Johannis. 1976. *Tractatus De Consequentiis*. Louvain: Publications universitaires.

    Critical edition by Hubert Hubien.

Metaphysical Works:

1. Buridanus, Johannes. *Expositio in Duodecim Libros Metaphysicorum Aristotelis [First Redaction]*.

    Unpublished manuscript (1340): Paris, Bibliothèque Nationale, ms. latin 16 131, 124ra - 214vb.

2. ———. *Expositio in Duodecim Libros Metaphysicorum Aristotelis [Second Redaction]*.

    Unpublished manuscript (1392): Carpentras, Bibliothèque Inguimbertine, cod. 292 (L. 288), 1ra - 42va; other manuscripts at the Libraries of Darmstadt, München, Paris and Wien.

3. ———. 2008. *Lectura Erfordiensis in I-Vi Metaphysicam, Together with the 15th-Century Abbreviatio Caminensis*. Turnhout: Brepols.

    Introduction, critical edition and indexes by L. M. de Rijk.

    "The aim of the present edition is to make two texts available which can throw some more light on the role of Aristotle's *Metaphysics* in 14th-15th academic teaching. One of them

contains part of an early (hitherto unknown) version of John Buridan's *Questions on Metaphysics*, the other is a 15th century abbreviation of precisely this early version. Remarkably, both texts belong to the East European tradition of Buridan's works, which is the more interesting as they testify to the master's earlier activities as a Parisian teacher on the subject of metaphysics. In particular, they elucidate Buridan's ongoing semantic approach to matters of metaphysics and ontology as well as his attitude to Aristotle's authority."

4. ———. *Quaestiones in Duodecim Libros Metaphysicorum Aristotelis [First Redaction].*

   Unpublished manuscript: Paris, Bibliothèque Nationale, ms. latin 16 131, 2ra - 122vb.

5. ———. *Quaestiones in Duodecim Libros Metaphysicorum Aristotelis [Secundum Ultimam Lecturam].*

   Manuscript: Carpentrat, Bibliothèque Inguimbertine, cod. 292, 45ra - 118rb.

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    Unpublished Ph.D thesis by Ariane Economos, available at ProQuest Dissertations & Theses ref. AAT 3377044.

    Abstract: "Recent scholars have argued that the skeptical problem of induction was unknown until the 18 th century. They claim that a theory of knowledge such as the one embraced by medieval Aristotelians, which holds that an effect may be demonstratively proven to follow from its cause, must also hold that a necessary connection exists between a cause and its effect. What such scholars overlook is that medieval philosophers also argue that to claim that all knowledge of causal connections must be obtained demonstratively would lead to an infinite regress; the premises from which a demonstration proceeds cannot always themselves be demonstrated if a regress is to be avoided. Thus, medieval philosophers identify some indemonstrable premises which are causal in nature. They take propositions like, "scammony causes the purging of bile," and, "a certain herb results in the

reduction of fever," to be indemonstrable principles which may serve as the starting-points of demonstrations. Principles such as these, medieval Aristotelians claim, are known through induction. Thus, to truly understand whether or not a medieval "skeptical problem" could pre-date that of Hume, what we must examine is the medieval account of the acquisition of indemonstrable first principles.

An examination of such principles and an analysis of the medieval claim that they are acquired through induction is the theme of this dissertation. Over the course of the dissertation, I defend three theses. First, I argue that when medieval philosophers interpret Aristotle's claim that first principles are obtained through induction, they adapt this claim so as to apply to a kind of principle which we do not find in Aristotle, namely, a principle stating a causal connection. Second, I argue that three medieval commentators on Aristotle--Robert Grosseteste, Thomas Aquinas, and John Buridan--each interpret the role which induction plays in the acquisition of these principles in such diverse ways that we ought not look for one overarching "medieval view" of induction. Third and finally, I argue that Buridan's unique approach to induction and its relation to intellectus (the Latin equivalent of nous) is fueled almost entirely by his sensitivity to skeptical concerns."

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    Deux volumes.) Dans le premier volume, aux pages 33* - 75* on trouve la liste complète des œuvres authentiques de Buridan.

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History of Logic

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Buridan's Logic and Metaphysics: An Annotated Bibliography (First Part: A - K)

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   "Est-il possible de parler de ce qui n'est pas ou d'y penser sans présupposer une forme d'être pour cela même que nous pensons ne pas exister ? La vieille énigme parménidienne, qui hante toujours la philosophie contemporaine, est au coeur non seulement de la philosophie médiévale mais aussi des études médiévales, comme en témoigne le récent ouvrage d'Alain de Libera sur la *référence vide* (1). L'objet de cette étude est en comparaison beaucoup très limité, dans la mesure où nous nous concentrerons sur le traitement de ce problème du non-être par Jean Buridan. Dans la logique et la métaphysique médiévale, le non-être (*non ens*) est l'objet de discussions relevant aussi bien de la logique des termes que de celle des propositions. En employant une terminologie moderne, nous pourrions dire que le non-être apparaît dans la discussion

philosophique tant à propos de l'engagement au domaine de quantification des énoncés qu'à propos de ce qui rend vrai les énoncés eux mêmes (2)." p. 95

(1) Sous le titre *La référence vide*, A. de Libera (Paris, Vrin 2002) a abordé ces deux ensembles de questions, en mettant l'accent sur le second (comme l'indique le sous-titre : *Théories de la proposition*). Au long des chapitres de l'ouvrage, l'auteur n'est jamais loin de l'une des problématiques annoncée en Introduction (p.3-4) : la référence aux particuliers inexistants, la référence aux objets imaginaires et le signifié propositionnel. Cependant, conformément à sa propre méthode historiographique, il soutient que le pont explicite entre ces différentes problématiques n'apparaît qu'à la fin du XIVe siècle. Pierre de Venise serait le témoin privilégié de cette quasi-fusion des problèmes à travers une formule définissant disjonctivement le signifié de la proposition : *aliquid vel aliqua vel aliqualiter*. Davantage qu'une fusion, ce serait même plutôt une absorption des deux premières problématiques au sein de celle du signifié propositionnel. La page 338 expose remarquablement ce point de vue: "grâce à la formule disjonctive [absente avant la deuxième moitié du XIVe siècle], les problèmes de référence vide d'un terme sont traités ultimement dans le cadre unifié d'une véritable sémantique des propositions." Si nous devions exprimer un désaccord avec l'auteur, il porterait seulement sur cette hypothèse méthodologique, car nous pensons que les problématiques de la référence vide et du signifié propositionnel sont également abordées conjointement par un auteur antérieur tel que Jean Buridan. Quoi qu'il en soit, notre dette envers le travail d'A. de Libera est immense.

(2) Pour un partisan des vérifacteurs, adversaire du nominalisme comme David Armstrong, il y a par conséquent, outre l'engagement ontologique classique (au domaine de quantification) un engagement distinct aux vérifacteurs.

2. Ashworth, Earline Jennifer. 1991. "Equivocation and Analogy in Fourteenth-Century Logic: Ockham, Burley and Buridan." In *Historia Philosophiae Medii Aevi. Studien Zur Geschichte Der Philosophie Des Mittelalters. Festschrift Für Kurt Flasch Zu*

Seinem 60. Geburtstag. (Vol. I), edited by Mojsisch, Burkhard and Pluta, Olaf, 23-43. Amsterdam, Philadelphia: B. R. Grüner.

3. ———. 2004. "Singular Terms and Singular Concepts: From Buridan to the Early Sixteenth Century." In *John Buridan and Beyond. Topics in the Language Sciences 1300-1700*, edited by Ebbesen, Sten and Friedman, Russell L., 121-151. Copenhagen: C. A. Reitzel.

   "This article considers medieval treatments of proper names and demonstrative phrases in relation to the question of when and how we are able to form singular concepts. The logical and grammatical background provided by the authoritative texts of Porphyry and Priscian is examined, but the main focus is on John Buridan and his successors at Paris, from John Dorp to Domingo de Soto. Buridan is linked to contemporary philosophers of language through his suggestion that, although the name 'Aristotle' is a genuine proper name only for those who have the appropriate singular concept caused by acquaintance with Aristotle, it can be properly treated as a singular tem by subsequent users because of their beliefs about the original imposition of the name."

4. Berger, Harald. 2008. "Der Substanzbegriff Im Spätmittelalterlichen Nominalismus." In *Substantia - Sic Et Non. Eine Geschichte Des Substanzbegriffs Von Der Antike Bis Zur Gegenwart in Einzelbeiträgen*, edited by Gutschmidt, Holger, Lang-Balestra, Antonella and Segalerba, Gianluigi, 235-255. Frankfurt: Ontos Verlag.

   "Late medieval nominalism's ontological commitment is mainly to Aristotelian individual substances and individual qualities, the status of quantities is a matter of dispute (not in semantics, however, but in natural philosophy). In this paper the commentaries on pertinent Aristotelian texts by three main figures of Fourteenth century nominalism, William of Ockham, John Buridan, and Albert of Saxony, are presented and discussed. Regarding the relation between substance and accident the Christian Aristotelians had to conceive of it as a relation of dependence according to the natural laws and not as a relation of logical dependence; otherwise, the sacrament of

the Eucharist could not be explained in Aristotelian terms. Finally, two deviating views are mentioned: According to John of Mirecourt reality consists solely of substances (with modes of being such and such), whereas according to Nicholas of Autrecourt ("the Medieval Hume") physical reality consists solely of accidents in the sense of appearances, sensations, sense data."

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    "As a master of arts John Buridan commented on Aristotle's logic. The *quaestiones,* in which specific problems are discussed in the traditional medieval form, are more elaborate and detailed commentaries.

    One of Aristotle's text to *be* commented are the *Categories (Praedicamenta)*. The *Quaestiones in Praedicamenta* have been edited recently by J. Schneider (München, 1983); I have prepared a critical edition of Buridan's commentary *(summulae)* on the same work, which is due to appear soon. This edition is part of an intemational project, of which it is the intention to issue the first complete edition of Buridan's *Summulae,* which contains eight treatises, supplemented with a new edition of his *Sophismata*.

    In the present contribution I shall give an analysis of Buridan's commentary on the category of substance. Before entering this subject, I shall make some remarks on the general nature of the work. This contribution is practically the same as a part of the Introduction to my forthcoming edition." p. 85

    "4. A summary of the Contents

    Buridan starts with a discussion on *aequivocatio, univocatio* and *denominatio*. Sometimes, he says, *aequivocatio* is attributed to a *word* having signification, sometimes to *things*

signified. Here (3.1.1.) Buridan attributes *aequivocatio* to things as far as they are signified equivocally by one and the same word. This signification is not matched by one concept *(ratio,* 3.1.2), but by two, or more, one for each thing. E.g. a dog, a star and a fish are signified by the word *canis* ('dog') that may have supposition for them under different concepts.

There is univocation when the several things signified are united, not only by a common designation, but also by a common definition. Buridan emphasizes (3.1.2) that both *equivocatio* and *univocatio* are on the level of conventional terms and propositions, and are *not* properties of *mental* terms and propositions.

Equivocation and univocation are mutually opposed in an exhaustive division. The third item of the *Antepraedicamenta,* denomination *(denominatio),* is different. For a term to be denominative it must satisfy both a morphological-cum-semantical criterion and a purely semantical one. First, (1.a) it must be a concrete term (a term signifying concrete entities), and (1.b) it must be morphologically related to the corresponding abstract term; *album* ('white [thing]') satisfies (1.a-b), having *albedo* ('whiteness') as its abstract counterpart. Second, (2) the term must have appellation. This, Buridan explains, means that it must 'evoke' or 'connote' some disposition which is extrinsic to the nature of that for which the term supposits. *Album* ('white [thing]') satisfies this condition; it may supposit, say, for a man, but it also connotes something which is extrinsic (nonessential) to man, namely whiteness. By contrast, *homo* ('man') only satisfies criteria (1.a-b); it is a concrete noun with a morphologically related abstract counterpart, viz. *humanitas*. Criterion (2) remains unsatisfied because humanity is essential to all supposits of *homo* and thus cannot fulfil the role of an extrinsic disposition connoted by the term." p. 91 (notes omitted).

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Contents: J.A. Aertsen Introduction VII-XI; R. van der Lecq: Confused Individuals and Moving Trees - John Buridan on the Knowledge of Particulars 1; J. Spruyt: John Buridan on Negation and the Understanding of Non-Being 23; L.M. de Rijk: On Buridan's View of Accidental Being 41; T. Stuart: John Buridan on Being and Essence 53; H.A. Krop: Kunsttheorie und Physik in *via antiqua* und *moderna* - Der Naturbegriff des Johannes Buridan 69; M.J.F.M. Hoenen Die Intellektlehre des Johannes Buridan - Ihre Quellen und historisch-doktrinären Bezüge 89; O. Pluta: Einige Bemerkungen zur Deutung der Unsterblichkeitsdiskussion bei Johannes Buridan 107; O. Krieger: Bietet "Buridan's Esel" den Schlüfiel zum Verständnis der Philosophie des Johannes Buridanus? 121; A. Vos: Buridan on Contingency and Free Will 141; Bibliography. 1. Primary Sources (editions and translations) 157 1.1. John Buridan 157; 1.2. Other Primary Sources 158; 2. Secondary Sources 161; Indices. 1. Index of Ancient and Medieval Names 169; 2. Index of Modem Names 171; 3. Selective Index in English and Latin of Subjects and Terms 173-176.

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    Reprinted in: S. Ebbesen, *Topics in Latin Philosophy from the 12th-14th centuries. Collected Essays Volume 2*, Aldershot,

Ashgate, 2009, pp. 209-220.

"John Buridan was a remarkable and courageous man. Remarkably consistent. He almost invariably says the same about the same things, and what he says about one subject is usually consistent with what he says about any other somehow related subject. His works abound in cross-references, from one part of a work to another, and from one work to another. He obviously wanted his readers to think of his philosophical works as one coherent corpus presenting one coherent philosophy. Perhaps this ought to scare the historian away from an attempt to interpret Buridan on the basis of one work. But, on the other hand, the fact that he very rarely disagrees with himself and the fact that he repeats his basic tenets in every work make it possible to reconstruct the essentials of Buridanian philosophy without using all available sources, in particular because his pen was as sharp as his mind. His prose possesses to an eminent degree the virtue of clarity. This paper is based on treatise 8 of his *Summulae*, or Handbook of Logic. As subsidiary sources I have used the remaining part of the *Summulae* and his *quaestiones* on the *Prior* and *Posterior Analytics* and on the *Metaphysics*.

The very existence of treatise 8 of the Summulae demonstrates that Buridan was a man of courage. Treatises 1-7, which deal with 1) terms and propositions, 2) predicables, 3) categories, 4) supposition, 5) syllogistic, 6) topics and 7) fallacies, all have models in earlier literature which helped him structure his work. Treatise 8 has no known predecessor. The subject is 'Division, Definition and Demonstration'. Treatise 8 is the longest treatise of all, and demonstration is the subject that takes up most space by far.

It lakes a bold man to write a summulistic treatise on a subject not thus treated by this predecessors. It requires extra courage when one is Buridan, for the subject is that of Aristotle's *Posterior Analytics*. Is the universalism of the *Posterior Analytics* compatible with Buridanian mentalism and particularist ontology? II might seem not, but a professor from

the fourteenth century could not neglect or reject Aristotle's treatment of a broad and important philosophical topic.

(...)

Buridan proceeds like people who renovate old uninhabitable houses. He keeps an Aristotelian facade, but changes the interior so that it fits his purposes. The titles of the ten chapters on demonstration look old-fashioned and Aristotelian. They are: 8.3 "On the questions about which knowledge is obtainable and on knowledge preceding demonstration"; 8.4 "On the affinity and difference between demonstrations and dialectical arguments, and between knowledge and opinion; 8.5 "On the indemonstrable principles of demonstration"; 8.6 "On 'being said of all and in itself 'and on 'universal 'or 'qua itself ' "; 8.7 "On various classifications of demonstrations"; 8.8 "On 'demonstration because of ' "; 8.9 "On 'demonstration that' and whether demonstration may be circular"; 8.10 "On demonstration 'ad impossibile' "; 8.11 "On comparison of the different sorts of demonstration"; 8.12 "On how to settle each of the questions about which knowledge is obtainable". But this is just the facade behind which Buridan builds up his own doctrine of proof, applying a strongly biased interpretation to Aristotle's text." pp. 97-98.

20. Epstein, Richard. 1992. "A Theory of Truth Based on a Medieval Solution to the Liar Paradox." *History and Philosophy of Logic* no. 13:149-177.

    "In the early part of the 14th century Jean Buridan wrote a book called Sophismata. Chapter 8 of that deals with paradoxes of self-reference, particularly the liar paradox. Modern discussions of the liar paradox have been dominated by the formal analysis of truth of Tarski, and more recently of Kripke, and Gupta. Each of those either denies that the sentence 'What I am now saying is false' is a proposition, or denies that the usual laws of logic hold for such sentences. In Buridan's resolution of the liar paradox that sentence is a proposition, every proposition is true or false though not both, and the classical laws of logic hold.

In this paper I present a formal theory of truth based on Buridan's ideas as exposited by Hughes, contrasting it with the analyses of Tarski, Kripke, and Gupta. I believe that Buridan's ideas form the basis for the most convincing resolution of the liar paradox in a modern formal theory of truth.

I first survey the theories of Tarski, Kripke, and Gupta. Then I state the principles on which the Buridanian theory is based. After a brief description of how these principles are used in analyzing the truth-values of propositions, I set out the formal theory. Following that I discuss a number of examples in which the informal principles and the technical methods are explained and tested for their aptness; in those discussions I often draw on Buridan's explanations."

21. Fitzgerald, Michael J. 2006. "Problems with Temporality and Scientific Propositions in John Buridan and Albert of Saxony." *Vivarium* no. 44:305-337.

    "The essay develops two major arguments. First, if John Buridan's 'first argument' for the reIntroduction of *natural supposition* is only that the "eternal truth" of a scientific proposition is preserved because subject terms in scientific propositions supposit for all the term's past, present, and future significata indifferently; then Albert of Saxony thinks it is simply ineffective.

    Only the 'second argument', i.e., the argument for the existence of an '*atemporal copul*a', adequately performs this task; but is rejected by Albert. Second, later fourteenth-century criticisms of Buridan's *natural supposition*, given in certain *Notabilia* from the anonymous author in, Paris, BnF, lat. 14.716, ff. 40va-41rb, are nothing but an interpolated hodge-podge of criticisms given earlier in the century against various views of Buridan's by Albert of Saxony. It is this fact that makes Albert the real source of late fourteenth-century criticisms of Buridan's view of *natural supposition*.

    "

22. Flüeler, Christoph. 1999. "From Oral Lecture to Written Commentaries: John Buridan's Commentaries on Aristotle's

Metaphysics." In *Medieval Analyses in Language and Cognition. Acts of the Symposium: The Copenhagen School of Medieval Philosophy*, edited by Ebbesen, Sten and Friedman, Russell L., 497-521. Copenhagen: Royal Danish Academy of Sciences and Letters.

"*Summary*. This paper focuses on John Buridan's reported commentaries, especially on the oldest manuscripts, with the aim of finding new evidence regarding the process from oral lecture to written commentary. Six among the more than 250 manuscripts containing authentic works by Buridan were written in Paris during the philosopher's lifetime, and at least two of them show how the oral teaching of the Parisian master was converted into a written form. The *Expositions,* i.e. the literal commentaries, play an important role in these oldest manuscripts. These were understood as the foundation of the subsequently treated *Quaestiones,* and they had a fixed place in university teaching. The Parisian manuscript BN, lat. 16131 probably contains an original reportation (the original student's copy book) of both exposition of, and questions on, Aristotle's *Metaphysics*. The manuscript Darmstadt, Hessische LuHB, Hs. 561 contains a "compilated", i.e. revised, lecture on the same Aristotelian work, but not the final version as edited in 1518 by Josse Bade. The present study will examine the formal character of these different versions and their relation to one another."

23. Friedman, Russell L., and Ebbesen, Sten, eds. 2004. *John Buridan and Beyond. Topics in the Language Sciences, 1300-1700*. Copenhagen: Royal Danish Academy of Sciences and Letters.

    Contains papers of a symposium held by the Royal Danish Academy of Sciences and Letters in Copenhagen in September 2001.

    "Whereas the impressive contributions made by John Buridan (d. after 1358) to medieval logic and linguistics are widely recognized today, his influence in the later Middle Ages and Early Modern period remains largely uncharted, as indeed does the development of the language sciences more generally in

that period. The eight articles and the introductory essay collected in this volume explore topics in logico-linguistic theory from Buridan in the fourteenth century through Hobbes and Vico in the seventeenth and eighteenth. The focus of the articles range from grammar and logic to epistemology and philosophical psychology, and in nearly every case they demonstrate the impact of Buridan's ideas in the centuries following his death. Moreover, by investigating early modern thought against the backdrop of medieval ideas, the articles address the issue of the continuity or discontinuity of thought in this period on the border between medieval and modern, and indicate possible avenues of future research."

24. Geach, Peter. 1965. "A Medieval Discussion of Intentionality." In *Logic, Methodology and Philosophy of Science (Vol. 4)*, edited by Bar-Hillel, Yehoshua, 425-433. Amsterdam: North-Holland.

    "In this paper I shall critically examine the way a fourteenth-century logician, Jean Buridan, dealt with certain puzzles about intentional verbs. The class of verbs I shall be considering will all of them be expressions that can be completed into propositions by adding two proper names; the class will include, not only ordinary transitive verbs, but also phrases of the verb-preposition type like 'look for' or 'shoot at', and furthermore constructions like 'hopes-will be a better man than his father' or 'believes-to be a scoundrel', which turn into propositions as soon as we add mention of who hopes or believes this and about whom he does so. In modern grammar, the term 'a verbal' rather than 'a verb' is used for this wider class; following a suggestion of Professor Bar-Hillel, I adopt this term.

    In either or both of the proper-name places that go with such a verbal, it is possible, without destroying the, propositional structure (salva congruitate, as medieval logicians say), to substitute a phrase of some such form as 'some A' or 'every A' or 'the (one and only) A'; the letter 'A' here represents a simple or complex general term which is grammatically a noun or noun-phrase. The peculiarity of certain verbals that presently concern us comes out when such a phrase formed from a

general term stands in object position, in a construction 'b F'd an A' or the like. Consider for example the sentence 'Geach looked for a detective story'. This sentence is ambiguous : in ordinary conversation we might successfully resolve the ambiguity by asking the question 'Was what Geach was looking for a particular detective story, or was it just a detective story?' It is an odd psychological fact that this question would convey the intended distinction of meanings; for logically the words of the question leave it wholly obscure what is intended. After all, nothing in this world or in any possible world could be "just a detective story" without being "a particular detective story"; and even if such an individuum vagum could somehow have being, Geach could not read it, so it certainly is not what he looked for." p. 425

"In a way parallel to the Buridan convention we may distinguish between 'There is a poet whom both Smith and Brown admire' and 'Smith and Brown both admire the same poet'; the latter would cover the case where both Smith and Brown are victims of the same literary fraud as to the existence of a poet, as well as the more normal case where they both admire (say) Wordsworth's poetry. Let us use the expression 'AP' as short for 'admire as a poet someone conceived under the ratio evoked by'; then 'There is a poet whom both Smith and Brown admire' would come out as:

For some x, x is,a poet and, for some w, w is a description true just of x, and-both Smith and-Brown AP w

whereas 'Smith and Brown both admire the same poet', taken as conveying only intentional identity, would come out in the simpler form:

For some w, w is a definite description, and Smith and Brown both AP w.

Unfortunately, the line of solution we have been following leads us into difficulties. Suppose we use 'D'd' as short for the verbal 'dreamed of someone under the ratio expressed by'. Then in our present view we should have to paraphrase 'There is a red-head Harris dreamed of as:

For some x, x is a red-head and, for some w, w is a description true just of x, and Harris D'd w.

Now suppose we take w to be the description 'the fattest woman in the world': The paraphrase would be true if Harris dreamed of the fattest woman ili the 'world and the fattest woman in the world is in fact a redhead; but the propostion paraphrased might then quite well be false, because in Harris's dream there may have been no red-head, and the fattest woman he saw in his dream may have been as bald as an egg. (I owe this counter-example to my pupil Mr. David Bird) Similar difficulties arise for our account of intentional identify: for if c and d each worshipped something under the ratio expressed by 'the deity of the Sun', it does not follow that c and d both worshipped the same deity-c might be an ancient Egyptian worshipping the ancestor of Pharaoh, and d a Japanese worshipping the ancestress of the Mikado.

I hope this paper shows why modern logicians still need to take medieval logicians seriously. In great measure their problems are ours; while for some of them, like the problems of suppositio, modern logic provides adequate solutions, there are other problems, about modal and intentional contexts for example, that are still wide open; and the talent that was shown by medieval logicians in wrestling with their problems demands our deepest admiration." pp. 432-433

25. Ghisalberti, Alessandro. 1975. *Giovanni Buridano Dalla Metafisica Alla Fisica*. Milano: Vita e Pensiero.

26. ———. 2001. "The Categories of Temporality in William Ockham and John Buridan." In *The Medieval Concept of Time*, edited by Porro, Pasquale, 255-286. Leiden: Brill.

27. Grellard, Christophe. 2007. "Scepticism, Demonstration and the Infinite Regress Argument (Nicholas of Autrecourt and John Buridan)." *Vivarium*:328-342.

28. Habib, Nicholas. 1985. "A Medieval Perspective on the Meaningfulness of Fictitious Terms: A Study of John Buridan." *Franciscan Studies* no. 45:73-82.

29. Hall, Alexander W. 2008. "John Buridan: On Aristotle' *Categories*." In *Medieval Commentaries in Aristotle's Categories*, edited by Newton, Lloyd A., 295-316. Leiden: Brill.

30. Herzberger, Hans G. 1973. "Dimensions of Truth." *Journal of Philosophical Logic* no. 2:535-556.

    Reprinted in: Donald Hockney (ed.), *Contemporary Research in Philosophical Logic and Linguistic Semantics*, Dordrecht: Reidel, 1975, pp. 71-92.

31. Hubien, Hubert. 1975. "John Buridan on the Fourth Figure of the Syllogism." *Revue Internationale de Philosophie* no. 29:271-285.

32. ———. 1981. "Buridan and Lesniewski on the Copula." In *English Logic and Semantics: From the End of the Twelfth Century to the Time of Ockham and Burleigh*, edited by Braakhuis, Henk A.G., Kneepkens, Cornelis Henri and Rijk, Lambertus Marie de, 415-425. Nijmegen: Ingenium Publishers.

    "It has often been contended that Lesniewski's Ontology is the best system in which to formalize medieval logic. I submit that this is not the case and propose a new one, which, as I shall show, is both more faithful to one of the medieval logics (for there is more than one) and richer than Ontology, since it contains it but is not contained in it." p. 415

33. Hughes, George. 1989. "The Modal Logic of John Buridan." In *Atti Del Convegno Internazionale Di Storia Della Logica. Le Teorie Della Modalità*, edited by Corsi, Giovanna, Mangione, Corrado and Mugnai, Massimo, 93-112. Bologna: CLUEB.

    "This paper will be almost wholly expository. My aim in it is to give an outline, though I fear a very incomplete one, of the system of modal logic developed by one of the greatest of mediaeval logicians, the 14th century French philosopher John Buridan. I shall base my account on two of his logical works. One is his *Consequentiae,* a work on inferences in general, about a third of which is devoted to modal logic. There is an excellent modern edition of this work by Hubert Hubien, in the Introduction to which Hubien argues, to my mind convincingly,

that it was written about 1335. The other is his lengthy and comprehensive work on logic, the *Summulae de Dialectica,* which contains two substantial sections on modal logic. There are serious problems involved in dating this work, but I shall not try to discuss these here. Most of it, including all the modal material, still exists, unfortunately, only in manuscript form. The modal material is arranged differently in these two works, each is fuller than the other on certain topics, and there are a few discrepancies between them on points of detail; but substantially they present the same ideas, and for the most part I shall not try to distinguish between them here." p. 93

34. Jacquette, Dale. 1991. "Buridan's Bridge." *Philosophy* no. 66:455-471.

    On Sophism 17 of Chapter 8 of *Sophismata (Insolubilia)*.

35. Karger, Elizabeth. 1984. "Un Débat Médiéval Sur Le Concept De Sujet D'un Énoncé Catégorique. Étude D'un Texte De Jean Buridan." In *Preuve Et Raisons À L'université De Paris. Logique, Ontologie Et Théologie Au Xive Siècle*, edited by Kaluza, Zénon and Vignaux, Paul, 111-125. Paris: Vrin.

    "Le présent essai porte sur quelques pages du *Traité des suppositions* (1) de Jean Buridan. Dans ces pages, l'auteur présente un débat portant sur l'identification du sujet d'énoncés catégoriques (2) dont le terme initial est à un cas dit "oblique", c'est-à-dire autre que le nominatif (3). Selon certains logiciens -- que Buridan ne nomme pas --, c'est ce terme à un cas oblique qui est le véritable sujet de l'énoncé; selon l'auteur, au contraire, le sujet ne peut être qu'un terme au nominatif.

    Un des exemples discutés est le suivant:

    (1) *Cuiuslibet hominis asinus currit*.

    Selon l'analyse récusée par Buridan, 'hominis ' est le sujet de cet énoncé, alors que, selon l'auteur, le sujet de (1) est 'hominis asinus' et "principalement" (4) 'asinus'.

    D'aucuns jugeront peut-être que l'intérêt de ce débat réside dans l'occasion qu'il fournit de mettre en évidence la difficulté de la tâche à laquelle s'est épuisée la logique scolastique -- tâche

qui aurait consisté à remédier aux insuffisances de la logique aristotélicienne.

Tel cependant n'est pas notre propos principal. Notre objectif dans l'étude de ce texte, fut de découvrir plutôt les divergences doctrinales en raison desquelles les théoriciens en présence proposent, pour les énoncés concernés, des analyses aussi différentes, et en particulier de dégager ce qui rend incompatibles *les deux concepts de sujet* présupposés par l'une et l'autre des positions adverses.

Nous présentons donc ici les résultats de cette étude. Nous commencerons par exposer l'essentiel de l'argumentation par laquelle, d'après Buridan, ces logiciens anonymes défendent leur thèse ; nous serons ainsi en mesure de dégager les éléments principaux d'une certaine doctrine logico-grammaticale. Nous passerons en second lieu à l'examen des objections que Buridan oppose aux raisons de ses adversaires, découvrant à travers elles ainsi que dans la défense qu'il apporte à sa thèse propre, les caractéristiques d'une doctrine profondément différente de la première. Nous terminerons par une évaluation, du point de vue de leur mérite logique, des deux positions en présence." pp. 111-112.

36. ———. 1992. "Syllogistique Buridanienne." *Dialogue.Canadian Philosophical Review* no. 31:445-458.

37. ———. 1993. "A Theory of Immediate Inferences Contained in Buridan's Logic." In *Argumentationstheorie. Scholastische Forschungen Zu Den Logischen Und Semantischen Regeln Korrekten Folgerns*, edited by Jacobi, Klaus, 407-429. Leiden: Brill.

38. ———. 2007. "John Buridan's Theory of the Logical Relations between General Modal Formulae." In *Aristotle's Peri Hermeneias in the Latin Middle Ages. Essays on the Commentary Tradition*, edited by Braakhuis, Henk A.G. and Kneepkens, Cornelis Henri, 429-444. Nijmegen: Ingenium Publishers.

39. ———. 2010. "A Buridanian Response to a Fourteenth Century Skeptical Argument and Its Rebuttal by a New Argument in the

Early Sixteenth Cenury." In *Rethinking the History of Skepticism. The Missing Medieval Background*, edited by Lagerlund, Henrik, 215-232. Leiden: Brill.

40. Kärkkäinen, Pekka. 2004. "On the Semantics of 'Human Being' and 'Animal' in Early 16th-Century Erfurt." *Vivarium* no. 42:237-256.

    "John Buridan discussed the problem, whether it follows from the definition of the term 'animal' that all quantitative parts of an animal are to be called animals. His solution was that parts of the animal are to be called animals, though in a extraordinary, non-connotative, sense of the term. The problem was variously discussed by some later Buridanian authors from Erfurt. Bartholomaeus Arnoldi de Usingen ends up to deny the use of such terms as 'animal' and 'human being' as connotative terms. Jodocus Trutfetter, however, uses the distinction between the absolute and connotative senses of these terms without reservation."

41. King, Peter. 1985. "Introduction to Jean Buridan's Logic." In *Jean Buridan's Logic. The Treatise on Supposition. The Treatise on Consequences*, 3-82. Dordrecht: Reidel.

42. ———. 2001. "Consequence as Inference: Mediaeval Proof Theory 1300-1350." In *Medieval Formal Logic. Obligations, Insolubles and Consequences*, edited by Yrjönsuuri, Mikko, 117-145. Dordrecht: Kluwer.

43. Klima, Gyula. 1991. "Latin as a Formal Language. Outlines of a Buridanian Semantics." *Cahiers de l'Institut du Moyen-Âge Grec et Latin* no. 61:78-106.

44. ———. 1999. "Buridan's Logic and the Ontology of Modes." In *Medieval Analyses in Language and Cognition. Acts of the Symposium the Copenhagen School of Medieval Philosophy January 10-13 1996*, edited by Ebbesen, Sten and Friedman, Russell L., 473-495. Copenhagen: Royal Danish Academy of Sciences and Letters.

    "*Summary:* The aim of this paper is to explore the relationships between Buridan's logic and the ontology of modes *(modi)*. Modes, not considered to be really distinct from

absolute entities, could serve to reduce the ontological commitment of the theory of the categories, and thus they were to become ubiquitous in this role in late medieval and early modern philosophy. After a brief analysis of the most basic argument for the real distinction between entities of several categories ("the argument from separability"), I point out that despite nominalist charges to the contrary, "older realists" - that is, authors working before and around Ockham's time - were not committed to such real distinctions, and thus to an overpopulated ontology, by their *semantic* principles. However, what *did* entail such a commitment on their part, along with the argument from separability, was treating abstract terms in several accidental categories as "rigid designators", that is, essential predicates (species and genera) of their *supposita*. Therefore, although in the form of "extra-categorial" *modi essendi* modes were well established in earlier medieval thought, their appearance *within* the theory of categories was conditioned on analyzing several abstract terms in the accidental categories as non-essential predicates of their particulars, something that "older realists" would in general not endorse. (This does not mean that even "older realists" were universally committed to really distinct entities in all ten categories. See on this e.g. notes 13 and 18.) Next, I show how this type of analysis is achieved "automatically" by Buridan's theory of "eliminative" nominal definitions (in contrast to the older "non-eliminative" theory). However, since "realist" semantic principles in themselves did not yield a commitment to really distinct entities in all categories, it was also open for later "realists" to operate with not-really-distinct modes in several categories, although using different, "non-nominalist" tactics to treat the abstract accidental terms signifying them as non-rigid designators. The conclusion of the paper is that, as a consequence, both nominalist and later "realist" thinkers were able to achieve the same degree of ontological reductions in their respective logical frameworks, and so it was not so much their ontologies as their different logical "tactics" that set them apart."

45. ———. 2003. "John Buridan." In *A Companion to Philosophy in the Middle Ages*, edited by Gracia, Joerge J.E. and Noone,

Timothy B., 340-348. Oxford: Blackwell.

46. ———. 2004. "John Buridan on the Acquisition of Simple Substantial Concepts." In *John Buridan and Beyond. Topics in the Language Sciences 1300-1700*, edited by Ebbesen, Sten and Friedman, Russell L., 17-32. Copenhagen: C. A. Reitzel.

47. ———. 2004. "Consequences of a Closed, Token-Based Semantics: The Case of John Buridan." *History and Philosophy of Logic* no. 25:95-110.

    "This paper argues for two principal conclusions about natural language semantics based on John Buridan's considerations concerning the notion of formal consequence, that is, formally valid inference. (1) Natural languages are essentially semantically closed, yet they do not have to be on that account inconsistent. (2) Natural language semantics has to be token based, as a matter of principle. The paper investigates the Buridanian considerations leading to these conclusions, and considers some obviously emerging objections to the Buridanian approach."

48. ———. 2004. "John Buridan and the Force-Content Distinction." In *Medieval Theories on Assertive and Non-Assertive Language*, edited by Maierù, Alfonso and Valente, Luisa, 415-427. Firenze: Leo S. Olschki.

49. ———. 2004. "The Demonic Temptations of Medieval Nominalism: Mental Representation and "Demon Skepticism"." *Proceedings of the Society for Medieval Logic and Metaphysics* no. 4:37-44.

50. ———. 2005. "The Essentialist Nominalism of John Buridan." *Review of Metaphysics* no. 58:301-315.

    "To many contemporary philosophers, the phrase "essentialist nominalism" may appear to be an oxymoron. After all, essentialism is the doctrine that things come in natural kinds characterized by their essential properties, on account of some common nature or essence they share. But nominalism is precisely the denial of the existence, indeed, the very possibility of such shared essences. Nevertheless, despite the intuitions of such contemporary philosophers, John Buridan was not only a

thoroughgoing nominalist, as is well-known, but also a staunch defender of a strong essentialist doctrine against certain skeptics of his time. But then the question inevitably arises: could he consistently maintain such a doctrine?

In the following discussion I will first examine Buridan's essentialism to show why he could reasonably think that he can both adhere to his nominalist metaphysics and endorse a version of essentialism that can serve as the foundation of genuine scientific knowledge in the strong Aristotelian sense.

In the subsequent section I will argue that on the basis of his logical theory of essential predication Buridan is definitely able to maintain a version of essentialism that is sufficient to provide the required foundation of valid scientific generalizations, and to refute skeptical doubts against the possibility of such a foundation.

Next, I will examine the question whether Buridan's solution is consistent with the broader context of his logic and epistemology. In this section I will argue that although Buridan's logical theory is consistent with his nominalist essentialist position, his cognitive psychology is not. In particular, I will argue that Buridan's abstractionist account of how we acquire our simple substantial concepts is incompatible with his account of the semantic function of absolute terms subordinated to these concepts.

Finally, I will draw some general conclusions from this discussion concerning the relationships between metaphysical essentialism and the philosophy of mind and language." (notes omitted)

51. ———. 2005. "Quine, Wyman, and Buridan: Three Approaches to Ontological Commitment." *Korean Journal of Logic* no. 8:1-22.

52. ———. 2006. "The Universality of Logic and the Primacy of Mental Language in the Nominalist Philosophy of Logic of John Buridan." *Mediaevalia Philosophica Polonorum* no. 35:167-177.

53. ———. 2007. "Aquinas Vs. Buridan on Essence and Existence." *Proceedings of the Society for Medieval Logic and Metaphysics* no. 7:66-73.

54. ———. 2008. "The Nominalist Semantic of Ockham and Buridan: A 'Rational Reconstruction'." In *Mediaeval and Renaissance Logic*, edited by Gabbay, Dov and Woods, John, 389-431. Amsterdam: Elsevier.

    Handbook of the history of logic: Vol. 2.

55. ———. 2008. "Logic without Truth. Buridan on the Liar." In *Unity, Truth and the Liar. The Modern Relevance of Medieval Solutions to the Liar Paradox*, edited by Rahman, Shahid, Tulenheimo, Tero and Genot, Emmanuel, 86-112. New York: Springer.

56. ———. 2009. *John Buridan*. New York: Oxford University Press.

57. ———. 2010. "The Anti-Skepticism of John Buridan and Thomas Aquinas: Putting Skeptics in Their Place Versus Stopping Them in Their Tracks." In *Rethinking the History of Skepticism. The Missing Medieval Background*, edited by Lagerlund, Henrik, 145-170. Leiden: Brill.

58. ———. 2011. "Two *Summulae*, Two Ways of Doing Logic: Peter of Spain's 'Realism' and John Buridan's 'Nominalism'." In *Methods and Methodologies. Aristotelian Logic East and West, 500-1500*, edited by Cameron, Margaret and Marenbon, John, 109-126. Leiden: Brill.

59. Knuuttila, Simo. 1991. "Buridan and Aristotle's Modal Syllogistic." In *Historia Philosophiae Medii Aevi. Studien Zur Geschichte Der Philosophie Des Mittelalters. Festschrift Für Kurt Flasch Zu Seinem 60. Geburtstag. (Vol. I)*, edited by Mojsisch, Burkhard and Pluta, Olaf, 477-488. Amsterdam: B. R. Grüner.

    "In the first section of this paper some remarks are made on Aristotle's modal syllogistic. In the second part it is shown at a general level how Aristotle's theory is related to what Buridan says about modal syllogisms. The purpose of the paper is to

elucidate late medieval attitudes towards Aristotle's modal logic." (p. 477)

60. Krieger, Gerhard. 2003. *Subjekt Und Metaphysik. Die Metaphysik Des Johannes Buridan*. Münster: Aschendorff.

61. ———. 2005. "Menschliche Vernunft Als Terminus Der Reflexion: Zu Einer Übereinstimmung Zwischen Mittelatlerlicher Philosophie Und Kant." *Kant-Studien* no. 96:187-207.

    "The article deals with the metaphysical thought of the Magister Artium John Buridan, who was active in Paris in the first half of the fourteenth century, in the context of the discussion of the

    relationship of medieval to modern philosophy. Systematically, the justification of this investigation is that Buridan is in agreement with Kant as to the primacy of practical reason. To this extent, this consideration of the metaphysics of John Buridan in comparison to that of Kant deals with the question of the meaning of the primacy of practical reason for the transcendental justification of knowledge and science and, with this question, also with the transformation of metaphysics.""

62. ———. 2006. "*Conceptus Absolutu*s: Zu Einer Parallele Zwischen Wilhelm Von Ockham, Johannes Buridan Und Nicolaus Cusanus." In *Intellectus Und Imaginatio. Aspekte Geistiger Und Sinnlicher Erkenntnis Bei Nicolaus Cusanus*, edited by, André, João Maria, Krieger, Gerhard and Schwaetzer, Harald, 3-18. Amsterdam: B.R. Grüner.

63. Kukkonen, Taneli. 2005. ""The Impossible, Insofar as It Is Possible": Ibn Rushd and Jean Buridan on Logic and Natural Theology." In *Logik Und Theologie. Das Organon Im Arabischen Und Im Lateinischen Mittelalter*, edited by Perler, Dominik and Rudolf, Ulrich, 447-467. Leiden: Brill.

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Buridan's Logic and Metaphysics: An Annotated Bibliography (Second Part: L - Z)

Bibliography

I give an updated list of the published and unpublished logical and metaphysical works of Buridan, and a Bibliography of the editions and translations appeared after 2000.

For Buridan's contributions to the theories of supposition and mental language see: Medieval Theories of Supposition (Reference)

1. Lagerlund, Henrik. 2000. *Modal Syllogistics in the Middle Ages*. Leiden: Brill.

   See Chapter 5. *The systemtization of modal syllogistic* pp. 130-164.

   "It is unfortunate that of Buridan's logical works dealing with modal logic and modal syllogistic only the *Consequentiae* has been edited (*). This is probably the reason why so few studies of Buridan's modal logic have been done. The most important of the studies that do exist is G.E. Hughes' paper, 'The Modal Logic of John Buridan' from 1989. My present study will mainly extend and clarify what has been said by Hughes." p. 36

   (*) [This was written before the publication of G. Klima's translation of the *Summulae de Dialectica* in 2001].

2. ———. 2004. "Vague Concepts and Singular Terms in a Buridanian Language of Thought Tradition." *Proceedings of the Society for Medieval Logic and Metaphysics* no. 4:25-36.

3. ———. 2006. "What Is Singular Thought? Ockham and Buridan on Singular Terms in the Language of Thought." In *Mind and Modality. Studies in the History of Philosophy in Honour of Simo Knuuttila*, edited by Hirvonen, Vesa, Holopainen, Toivo J. and Tuominen, Miira, 217-237. Leiden: Brill.
4. ———. 2010. "Skeptical Issues in Commentaries on Aristotle's *Posteror Analytics*: John Buridan and Albert of Saxony." In *Rethinking the History of Skepticism. The Missing Medieval Background*, edited by Lagerlund, Henrik, 193-214. Leiden: Brill.
5. Lecq, Ria van der. 1981. "Buridan on Modal Propositions." In *English Logic and Semantics: From the End of the Twelfth Century to the Time of Ockham and Burleigh*, edited by Braakhuis, Henk A.G., Kneepkens, Cornelis Henri and Rijk, Lambertus Marie de, 427-439. Nijmegen: Ingenium Publishers.
6. ———. 2004. Mental Language: A Key to the Understanding of Buridan's Semantics.
7. Miller, Richard H. 1985. "Buridan on Singular Concepts." *Franciscan Studies* no. 45:57-72.
8. Moody, Ernest. 1965. "Buridan and a Dilemma of Nominalism." In *Harry Austryn Wolfson Jubilee Volume on the Occasion of His Seventy-Fifth Birthday*, edited by Lieberman, Saul, 578-596. Jerusalem: American Academy for Jewish Research.

   Reprinted in: E. A. Moody - *Studies in medieval philosophy, science, and logic. Collected papers 1933-1969* - Berkeley, University of California Press, 1975, pp. 353-370.
9. ———. 1969. "Jean Buridan." In *Dictionary of Scientific Biography. Vol. Ii*, edited by Gillispie, Charles C, 603-608. New York: Charles Scribner's Sons.

   Reprinted in: E. A. Moody - *Studies in medieval philosophy, science, and logic. Collected papers 1933-1969* - Berkeley, University of California Press, 1975, pp. 441-453.
10. Normore, Calvin. 1963. "Buridan's Ontology." In *Essays in Ontology*, edited by B., Allaire Edwin, 189-203. The Hague:

Martinus Nijhoff.

"Here is a recipe for ontology. First divide the expressions of one's language into those which purport to pick things out and those which don't. Then see whether some of those which purport to pick things out can be defined in terms of others. Finally admit into your ontology whatever an undefinable term purports to pick out. This scheme expresses (though vaguely and incompletely) one of the central intuitions behind many ontological programmes. What is admitted by an ontologist operating within this framework will depend, of course, upon how he or she divides expressions, on what resources of definition are available, and, perhaps, on pressures from other theories. What I hope to do in this paper is to show the influence of the intuition behind this sketch on the work of the fourteenth century Parisian master Jean Buridan.

To some extent, I shall compare Buridan's views with those of his contemporary, William Ockham. In doing so, I hope both to present Buridan's own very striking contributions to ontology and to shed a little light on the inner life of 14th century nominalism." (p. 189).

11. Novaes, Catarina Dutilh. 2004. "The Buridanian Account of Inferential Relations between Doubly Quantified Propositions: A Proof of Soundness." *History and Philosophy of Logic* no. 25:225-243.

"On the basis of passages from John Buridan's *Summula Suppositionibus* and *Sophismata*, E. Karger has reconstructed what could be called the 'Buridanian theory of inferential relations between doubly quantified propositions', presented in her 1993 article 'A theory of immediate inference contained in Buridan's logic'. In the reconstruction, she focused on the syntactical elements of Buridan's theory of modes of personal supposition to extract patterns of formally valid inferences between members of a certain class of basic categorical propositions. The present study aims at offering semantic corroboration -- a proof of soundness -- to the inferential relations syntactically identified by E. Karger, by means of the analysis of Buridan's semantic definitions of the modes of

personal supposition. The semantic analysis is done with the help of some modern logical concepts, in particular that of the model. In effect, the relations of inference syntactically established are shown to hold also from a semantic point of view, which means thus that this fragment of Buridan's logic can be said to be sound."

12. ———. 2005. "Buridan's *Consequentia*: Consequence and Inference within a Token-Based Semantics." *History and Philosophy of Logic* no. 26:277-297.

    "I examine the theory of *consequentia* of the medieval logician, John Buridan. Buridan advocates a strict commitment to what we now call proposition-tokens as the bearers of truth-value. The analysis of Buridan's theory shows that, within a token-based semantics, amendments to the usual notions of inference and consequence are made necessary, since pragmatic elements disrupt the semantic behavior of propositions. In my reconstruction of Buridan's theory, I use some of the apparatus of modern two-dimensional semantics, such as two-dimensional matrices and the distinction between the context of formation and the context of evaluation of utterances."

13. ———. 2005. "In Search of the Intuitive Notion of Logical Consequence." In *The Logica Yearbook 2004*, edited by Behounek, Libor, 109-123. Prague: Filosofia.

    "After decades of predominant focus on the notion of logical truth, the debate on the concept of logical consequence among philosophers and logicians was re-ignited by J. Etchemendy's book *The Concept of Logical Consequence* (1990). His main tenet was that the model-theoretic notion of logical consequence did not capture adequately the corresponding intuitive notion. One of Etchemendy's central claims was that the intuitive notion could be understood essentially from two different perspectives, one representational and one interpretational - and that the model-theoretic notion failed to match either.

    Some years ago, S. Shapiro (1998) sought to vindicate the model-theoretic notion of logical consequence; one of his arguments was that the dichotomy

representational/interpretational notion of logical consequence was in a certain way infelicitous, since, according to him, a faithful rendering of the intuitive concept would have to have elements of both notions. Clearly, the resolution of issue as to whether the model-theoretic notion correctly captures the intuitive notion presupposes an at least minimally adequate characterization of this intuitive notion. Shapiro claimed that

Etchemendy hadn't really provided such a characterization (1), and attempted to formulate one himself. He further claimed that, thus characterized, the intuitive notion was indeed correctly captured by the model-theoretic notion (albeit with some adjustements). (2)

In this paper, I do not discuss Shapiro's defense of the model-theoretic notion; rather I examine his contention that the best rendering of the intuitive notion of logical consequence is what he called the 'conglomeration' notion, that is, the hybrid notion that combines both the representational and the interpretational view on consequence. More specifically, I claim that such a hybrid view was held by the medieval logician John Buridan (Cf. Hubien, *Iohannis Buridani tractatus de consequentiis,* 1976), and that this fact offers significant historical support to Shapiro's version of the intuitive concept of (logical) consequence."

(1) Cf. Stewart Shapiro 'Logical consequence: models and modality'. In Matthias Schirn (ed.), *Philosophy of Mathematics Today*. Oxford, Oxford University Press, 1988, pp. 131-156. p.143.

(2) 'My claim is that model-theoretic consequence can be made into a good model of this notion [the 'hybrid' intuitive notion of logical consequence] and that both the intuitive notion so characterized and its mathematical model are useful tools for shedding light on the normative/modal/semantic notion of correct reasoning in natural language, the target of logic.' (Shapiro 1998, 148)

14. ———. 2009. "Lessons on Sentential Meaning from Mediaeval Solutions to the Liar Paradox." *Philosophical Quarterly* no. 59:682-704.

"Fourteenth-century treatises on paradoxes of the liar family, especially Bradwardine's and Buridan's, raise issues concerning the meaning of sentences, in particular about closure of sentential meaning under implication, semantic pluralism and the ontological status of 'meanings', which are still topical for current theories of meaning. I outline ways in which they tend to be overlooked, raising issues that must be addressed by any respectable theory of meaning as well as pointing in the direction of possible answers. I analyse a Bradwardinian theory of sentential meaning as it emerges from his treatment of liar sentences, exploring where it requires more thorough elaboration if it is to be a fully developed theory of sentential meaning. "

15. Nuchelmans, Gabriel. 1988. "*Appellatio Rationis* in Buridan, *Sophismata* Iv, 9-15." In *Die Philosophie Im 14. Und 15. Jahrhundert. In Memoriam Konstanty Michalsky (1879-1947)*, edited by Pluta, Olaf, 67-84. Amsterdam: B.R. Grüner.

    Reprinted as Chapter VIII in: G. Nuchelmans - *Studies in the History of Logic and Semantics, 12th-17th Centuries* - Edited by E. P. Bos - Aldershot, Variorum, 1996.

16. Pérez-Ilzarbe, Paloma. 2004. "John Buridan and Jerónimo Pardo on the Notion of Propositio." In *John Buridan and Beyond. Topics in the Language Sciences 1300-1700*, edited by Ebbesen, Sten and Friedman, Russell L., 153-182. Copenhagen: C. A. Reitzel.

17. ———. 2004. ""Complexio, Enunciatio, Assensus": The Role of Propositions in Knowledge According to John Buridan." In *Medieval Theories on Assertive and Non-Assertive Language*, edited by Maierù, Alfonso and Valente, Luisa, 401-414. Firenze: Leo S. Olschki.

18. Perini-Santos, Ernesto. 2008. "John Buridan on the Bearer of Logical Relations." *Logica Universalis*:59-70.

    "According to John Buridan, the time for which a statement is true is underdetermined by the grammatical form of the sentence - the intention of the speaker is required. As a consequence, truth-bearers are not sentence types, nor

sentence tokens plus facts of the context of utterance, but statements. Statements are also the bearers of logical relations, since the latter can only be established among entities having determined truth-conditions. This role of the intention of the speaker in the determination of what is said by an utterance is not isolated in medieval semantics."

19. ———. 2011. "John Buridan's Theory of Truth and the Paradox of the Liar." *Vivarium* no. 49:184-213.

    "The solution John Buridan offers for the Paradox of the Liar has not been correctly placed within the framework of his philosophy of language. More precisely, there are two important points of the Buridanian philosophy of language that are crucial to the correct understanding of his solution to the Liar paradox that are either misrepresented or ignored in some important accounts of his theory. The first point is that the Aristotelian formula, 'propositio est vera quia qualitercumque significat in rebus significatis ita est', once amended, is a correct way to talk about the truth of a sentence. The second one is that he has a double indexing theory of truth: a sentence is true in a time about a time, and such times should be distinguished in the account of the truth-conditions of sentences. These two claims are connected in an important way: the Aristotelian formula indicates the time about which a sentence is true. Some interpreters of the Buridanian solution to the paradox, following the lead of Herzberger, have missed these points and have been led to postulate truth-values gaps, or surrogates of truth-value gaps, when there is nothing of this sort in his theory. I argue against this tradition of interpretation of Buridan and propose an interpretation of his solution to the Liar."

20. Perreiah, Alan R. 1972. "Buridan and the Definite Description." *Journal of the History of Philosophy* no. 10:153-160.

    "Previously unpublished commentaries by Buridan on Aristotle's *Physics* (Book I, Question X) and *Metaphysics* (Book VII, Question XX) are examined in order to determine whether the 14th-century philosopher and logician anticipated a theory of descriptions. The writings show that Buridan's distinctions

between singular and common concepts parallels Russell's between knowledge by acquaintance and by description. Basic features of determinate concepts are studied, particularly those of existence and identity. Buridan's treatment of these matters shows that: (a) he had all of the concepts needed to analyze the iota-operator (b) he was sensitive to the restriction that predication involving unquoted descriptive phrases presuppose that existence and identity requirements are met and (c) he appreciated the peculiar behavior of determinate concepts in logical inference. Buridan's theory of concepts is applied to some problematic expressions in direct discourse."

21. Pinborg, Jan, ed. 1976. *The Logic of John Buridan*. Copenhagen: Museum Tusculanum Press.

    Acts of the 3rd European Symposium on medieval logic and semantics, Copenhagen 16-21 November 1975.

22. Pironet, Fabienne. 1993. "John Buridan on Ther Liar Paaradox: Studfiy of an Opinion and Chronology of the Texts." In *Argumentationstheorie. Scholastische Forschungen Zu Den Logischen Und Semantischen Regeln Korrekten Folgerns*, edited by Jacobi, Klaus, 293-300. Leiden: Brill.

23. Pluta, Olaf. 2002. "John Buridan on Universal Knowledge." *Bochumer philosophisches Jahrbuch für Antike und Mittelalter* no. 7:25-46.

24. Priest, Graham, and Read, Stephen. 2004. "Intentionality: Meinongianism and the Medievals." *Australasian Journal of Philosophy* no. 82:421-442.

    "Intentional verbs create three different problems: problems of nonexistence, of indeterminacy, and of failure of substitutivity.

    Meinongians tackle the first problem by recognizing nonexistent objects; so too did many medieval logicians. Meinongians and the medievals approach the problem of indeterminacy differently, the former diagnosing an ellipsis for a propositional complement, the latter applying their theory directly to non-propositional complements.

The evidence seems to favor the Meinongian approach. Faced with the third problem, Ockham argued bluntly for substitutivity when the intentional complement is non-propositional; Buridan developed a novel way of resisting substitutivity. Ockham's approach is closer to the Meinongian analysis of these cases; Buridan's seems to raise difficulties for a referential semantics. The comparison between the Meinongian and medieval approaches helps to bring out merits and potential pitfalls of each."

25. Read, Stephen. 2002. "The Liar Paradox from John Buridan Back to Thomas Bradwardine." *Vivarium* no. 40:189-218.

    "My aim is to counter recent infatuation with John Buridan's analysis in his *Sophismata* (circa 1356-7) of the liar paradox and other insolubles, and show not only how he derived his solution from Thomas Bradwardine's *Insolulibilia* (circa 1324), but how he altered it for the worse. Buridan was a great logician and philosopher. He was careful, methodical and had a great influence on succeeding generations. But his analysis of the liar paradox was flawed. It introduced an ad hoc supplement to the truth-conditions of just those propositions which induce paradox to prevent the contradiction from arising. What was really clever in his analysis, and attracted the attention of, among others in recent decades, Moody, Prior and Hughes, was in fact derived from Bradwardine, in whose hands it was dealt with both consistently and successfully. By all the historical evidence, Bradwardine's proposal was an original insight. On analysis, it is seen to be a great and instructive one, too."

26. ———. 2012. "John Buridans's Theory of Consequence and His Octagon of Opposition." In *Around and Beyond the Square of Opposition*, edited by Béziau, Jean-Yves and Jacquette, Dale, 93-110. Baserl: Birkhäuser.

    "One of the manuscripts of Buridan’s *Summulae* contains three figures, each in the form of an octagon. At each node of each octagon there are nine propositions. Buridan uses the figures to illustrate his doctrine of the syllogism, revising Aristotle’s theory of the modal syllogism and adding theories of syllogisms with propositions containing oblique terms (such as ‘man’s

donkey') and with propositions of "non-normal construction" (where the predicate precedes the copula). O-propositions of non-normal construction (i.e., 'Some S (some) P is not') allow Buridan to extend and systematize the theory of the assertoric (i.e., non-modal) syllogism. Buridan points to a revealing analogy between the three octagons. To understand their importance we need to rehearse the medieval theories of signification, supposition, truth and consequence."

27. Reina, Maria Elena. 2002. *Hoc Hic Et Nunc. Buridano, Marsilio Di Inghen E La Conoscenza Del Singolare*. Firenze: Leo S. Olschki.

28. Rijk, Lambertus Marie de. 1976. "On Buridan's Doctrine of Connotation." In *The Logic of John Buridan. Acts of the Third European Symposium on Medieval Logic and Semantics, Copenhagen 16-21 November 1975*, edited by Pinborg, Jan, 91-100. Copenhagen: Museum Tusculanum.

    Reprinted as chapter XI in: Through language to reality: studies in medieval semantics and metaphysics.

    "Mediaeval Terminist logic was concerned with the so-called properties of terms (proprietates terminorum), to the extent that it not only studied the formal structures of Latin language, its logical syntax, and all kinds of specifications within this scope, but also interpreted the linguistic elements and structures. This interpretation mainly focussed on what the moderns would call semantics rather than on formal logic as such. The properties of terms (significatio, appellatio, suppositio and its various forms: ampliatio, restrictio, distributio) were investigated in their relation to the so-called res extra animam (extra-mental reality).

    Two statements can be made. First: Who wants to detect a Mediaeval thinker's implicit ontological points of view, finds a wealth of firm evidence in his doctrine of the properties of terms. Secondly: Within the domain of these properties it is Buridan's appellatio that has a very interesting role because of its affinity with the modern concept of connotation. So Buridan's appellatio is entitled to have the attention of both the historians of Mediaeval thought and learning as of those

modern logicians who do not want to seclude themselves from the historical background of modern doctrines.

My approach to the matter concerned now is to compare Buridan's appellatio with modern connotation, more specifically to put the translation 'connotation' for Buridan's appellatio to the test." p. 91

29. ———. 1992. "John Buridan on Universals." *Revue de Métaphysique et de Morale* no. 97:35-59.

"It is common knowledge that Plato strongly believed that, in order to explain the nature of whatever is (either things or states of affairs, including Man and his environment), the assumption of Transcendent Universal Forms is indispensable. In his view, these universal Forms are the ontic causes of each and every sublunary entity, which all owe their being to their sharing in these Forms. Consequently, everyone who is in want of firm knowledge *(episteme)* about, the things of the outside world is bound to direct his attention to the transcendent domain of the universal Forms'.

However, Plato was the first to recognise, and seriously deal with, the objections that can be raised to this doctrine. These objections mainly concern the status (and the dignity, however modest) of our transient world and, above all, the possibility to obtain, true knowledge of this world as *it stands,* in its ever-changing nature, that is." p. 35

(...)

"To be sure, the Medievals all rejected the Platonic Ideas taken as separate substances and they adhered to the Aristotelian common sense principle that only individuals have independent existence. Nevertheless, they were still under the spell of the status of «universal being» as the indispensable basis of true knowledge.

Marylin McCord Adams has analysed some early fourteenth century solutions to the problem of universals (Scotus, Ockham, Burley and Harclay) (*). In McCord's article Buridan's view of the matter is left out of consideration. Quite understandably so, since Buridan's solution to the problem

differs considerably from the sophisticated arguments given by his contemporaries. Buridan seeks.for a solution in analysing the several ways of human understanding. In directing his attention to the propositional attitude involved in the cognitive procedure Buridan is remarkably close to the ingenious solution Peter Abelard had come up with two centuries earlier. In the next *sections* I shall give an outline of Abelard's treatment of the question of universals followed by an analysis of Buridan's discussion of the matter (as found in his commentary on the *Metaphysics* and elsewhere)." p. 37

(...)

"We may conclude, then, that two bright logicians of the Parisian tradition have come up with quite an ingenious solution to the problem of universals. Both of them started out from the firm conviction that nothing exists but particulars. Nevertheless, they apparently were not satisfied with purely extensional solutions as brought forward by Oxford logicians such as Heytesbury and Ockham. Maybe extensionalists are out to show how people *ought* to think. Abelard and Buridan, however, were especially interested in the various ways of conceiving we *actually* use in daily life, in our attempts to conceptually deal with the outside world." p. 59

(*) "Universals in the early Fourteenth century" in *Cambridge History of Later Medieval Philosophy, from the rediscovery of Aristotle to the desintegration of Scholasticism 1100-1600* pp. 411-439.

30. ———. 1993. "On Buridan's View of Accidental Being." In *John Buridan: A Master of Arts. Some Aspects of His Philosophy. Acts of the Second Symposium Organized by the Dutch Society for Medieval Philosophy Medium Aevum on the Occasion of Its 15th Anniversary*.

Leiden-Amsterdam (Vrije Universiteit), 20-21 June, 1991., edited by Bos, Egbert Peter and Krop, Henri A., 41-51. Nijmegen: Ingenium Publishers.

"One of the most striking characteristics of late medieval metaphysics is the upgrading of 'accidental being'. The strict

opposition between *'esse per se'* and *'esse per accidens',* which had been of paramount importance ever since Aristotle, has lost its relevance in the ontological discussions of the fourteenth century. The status of 'accidental being' came rather close to that of 'substantial being'. In the views of philosophers such as Ockham and Buridan (not to mention thinkers like Crathorn) the nature of 'accidental being' (or rather 'quantitative and qualitative being') can no longer be properly defined in terms of ontological dependency upon substance. In other words, '*per se* subsistence' is assigned not only to substance but to 'accidental being' as well.

In the present contribution I will illustrate this development by discussing some of Buridan's expositions in his *Questiones* commentary on Aristotle's *Metaphysics (IV,* q. 6 and VII, q. 3-4)." p. 41

31. ———. 1994. "John Buridan on Man's Capability of Grasping the Truth." In *Scientia Et Ars Im Hoch- Und Spätmmittelalter*, edited by Craemer-Rügenberg, Ingrid and Speer, Andreas, 282-303. Berlin, New York: Walter de Gruyter.

    Miscellanea Mediaevalia, vol. 22/1.

    "As is well-known, two subjects are distinctive of the fourteenth century theory of cognition, namely *'certitudo'* and *'evidentia'*. It is true, thirteenth century philosophers, such as Thomas Aquinas, were also concerned with certitude and evidentness as indispensable requisites for 'true knowledge' *('scientia').* However, until the end of the thirteenth century certitude and evidentness were not prominent in the discussions about the cognitive procedure nor were they treated as separate matters, requiring separate attention. In Thomas Aquinas for example, the conviction that man is really capable of grasping the truth with certainty is really constitutive of his philosophical (and theological) thought and praxis (*)', or to speak with J. A. Aertsen, of 'Thomas' way of thought'.(**) This, however, does not alter the fact that in Aquinas' philosophy 'certitudo' is not highlighted as such, and the specific role of 'evidentia' is even virtually ignored.

Buridan's theory of cognition, on the contrary, clearly focusses on the ingredients *'certitudo'* and *'evidentia',* and, within this framework, on the notion of *'assensus'*. In the present paper I aim to elucidate the role of this key notion of John Buridan's theory of cognition."

(*) See the excellent paper by Gerard Verbeke, "Certitude et incertitude de la recherche philosophique selon saint Thomas d'Aquin", in: Rivista di Filosofia neo-scolastica 66 (1974), 740-57.

(**) Jan Aertsen, Nature and Creature. Thomas Aquinas' Way of Thought. Studien und Texte zur Geistesgeschichte des Mittelalters herausgegeben von Albert Zimmermann, Band XXI, Leiden etc. 1988, passim.

32. Roberts, Louise Nisbet. 1952. "Formalism of Terminist Logic in the Fourteenth Century." *Tulane Studies in Philosophy* no. 1:107-112.

33. ———. 1952. *An Introduction to the Terminist Logic of John Buridan*.

    Unpublished Ph.D Thesis, available at Proquest Dissertation Express.

34. ———. 1953. "Every Proposition Is False. A Medieval Paradox." *Tulane Studies in Philosophy* no. 2:95-102.

    "Paradoxes similar to that of Epimenides the Cretan are present in the highly developed logic of the Late Medieval period. These "sophisms" were known as the "impossibilia" or "insolubilia." an interpretation is given of the analysis of "every proposition is false" which is to be found in the *Sophismata* of John Buridan."

35. ———. 1960. "A Chimera Is a Chimera: A Medieval Tautology." *Journal of the History of Ideas* no. 21:273-278.

    "Rejection of the truth of a tautology containing a fiction reveals something of the complexity of the Terminist logic of the late Middle Ages. The analysis of "a chimera is a chimera," to be found in the *Sophismata* of the Fourteenth century logician John Buridan, involves a theory of signs and an interpretation of logical truth."

36. Schönberger, Rolf. 1994. *Relation Als Vergleich. Die Relationstheorie Des Johannes Buridan Im Kontext Seines Denkens Und Der Scholastik*. Leiden: Brill.

    "All central concepts in philosophy contain a relational aspect. The type of reality to be accorded to relations is for this reason one of the core questions of philosophical thought. This is particularly so in the case of nominalism.

    This book is devoted to John Buridan. While his towering importance in the late Middle Ages and for the development of early modern science has been recognised, his works are still not really well known. How does his theory of relations relate to those of his contemporaries, for example William of Ockham or Gregory of Rimini? The question of the reality of relations is not only of interest as an "experimentum crucis of nominalism, but also because Buridan in his ethics frequently falls back upon older traditions.

    The first part of the book contains a discussion of theories of relation from Thomas Aquinas to Gregory of Rimini. The author then offers an exhaustive presentation of the basic lines of Buridan's philosophy and its relation to theology, before turning attention to his theory of relation. Finally he addresses particular forms of relation (identity, analogy, causality, etc.)."

37. ———. 2003. "*Quod Omnia Appetunt?* Der Begriff Des Guten in Der Nominalistischen Metaphysik Des Johannes Buridan." In *Die Logik Des Transzendentalen. Festschrift Für Jan A. Aerstsen Zum 65. Geburtstag*, edited by Pickavé, Martin, 395-417. Berlin: Gruyter.

38. Sylla, Edith Dudley. 2009. "John Buridan and Critical Realism." *Early Science and Medicine* no. 14:211-247.

    "In this paper I examine what John Buridan has to say in his *Quaestiones in Analytica Posteriora* relevant to the subalternate mathematical sciences, particularly astronomy. Much previous work on the scholastic background to the Scientific Revolution relies on texts that were written in the late sixteenth or seventeenth centuries. Here I am interested in texts that might reflect the context of Copernicus, and, in

particular those before 1500. John Buridan and Albert of Saxony were fourteenth century authors influential in Cracow in the fifteenth century, whose conception of science may be characterized as "critical realism." Their view would support the autonomy of astronomy, as well as the idea that sciences may progress over time."

39. Tabarroni, Andrea. 2010. "John Buridan and Marsilius of Inghen on the Meaning of Accidental Terms (*Quaestiones Super Metaphysicam*, Viii, 3-5)." *Documenti e Studi sulla Tradizione Filosofica Medievale* no. 14:389-407.

40. Thijssen, Johannes M.M.H. 1987. "Buridan on the Unity of a Science. Another Chapter in Ockhamism?" In *Ockham and Ockhamists. Acts of the Symposium Organized by the Dutch Society for Medieval Philosophy Medium Aevum on the Occasion of Its 10th Anniversary (Leiden, 10-12 September 1986)*, edited by Bos, Egbert Peter and Krop, Henri A., 93-105. Nijmegen: Ingenium Publishers.

    "In an article that appeared in 1974, A.A. Maurer traced the contemporary notion of science as a body of knowledge to the 13th and 14th centuries. One may doubt Maurer's suggestion that the development of the notion of science as a body of knowledge is another chapter in the eclipse of Thomism during the Late Middle Ages. Nevertheless he has certainly pointed out an important change in the notion of the unity of a science which took place in the Later Middle Ages (2).

    Within the spectrum of medieval opinions on the unity of a science, Maurer was of the opinion that the extreme positions were represented by Thomas Aquinas and William of Ockham. The purpose of this paper is to determine the position of John Buridan in the debate on the unity of a science. Because Buridan is generally pictured as an 'Ockhamist', a comparison will be made between the essentials of Buridan's and Ockham's theory of science. Apart from their views on the unity of a science, these essentials also include their views on the immediate object of scientific knowledge in general. In this comparison, priority will be given to Buridan's theory of science, for in contradistinction to Ockham's texts, his texts on

this subject are not yet available in a modern edition. Besides, some aspects of Ockham's theory of science which will be touched upon here, have already been studied (3). So, Ockham's philosophy of science will more serve as general background for the presentation of Buridan's opinions (4).

This presentation will be rounded off with some brief remarks on the vexed question as to whether it really makes sense to designate Buridan as an Ockhamist."

(2) A.A. Maurer, 'The Unity of a Science. St. Thomas and the Nominalists' in: *St. Thomas Aquinas 1274-1974*, p. 275 and already in 'Ockham's Conception of the Unity of Science' in: *Mediaeval Studies* 20 (1958), pp. 100-101 and p. 104. A. Zimmermann, *Ontologie oder Metaphysik?* Leiden - Kean 1965, p. 353 has arrived at the same conclusions with regards to the change that took place in the notion of the unity of a science. This change is also documented in Spade, 'The Unity of Science according to Peter Auriol' in: Franciscan Studies 32 (1972).

(3) Especially in Maurer, 'Ockham's Conception of the Unity of Science', and 'The Unity of a Science. St. Thomas and the Nominalists'. See further Goddu, The Physics of William of Ockham, Leiden - KOln 1984, pp. 23-27.

(4) Some aspects of Buridan's theory of the unity of a science are discussed in Zimmermann, *Ontologie oder Metaphysik*, pp. 339-348, but he confines himself exclusively to a presentation of some passages taken from Buridan's *Commentary on the Metaphysics*. He does not provide a real analysis of Buridan's position, and besides, he does not draw attention to the differences that exist between Buridan's and Ockham's theories.

41. ———. 2004. "The Buridan School Reassessed. John Buridan and Albert of Saxony." *Vivarium* no. 42:18-42.

42. Thijssen, Johannes M.M.H., and Zupko, Jack, eds. 2001. *The Metaphysics and Natural Philosophy of John Buridan*. Leiden: Brill.

43. Thom, Paul. 2003. *Medieval Modal Systems. Problems and Concepts*. Aldershot: Ashgate.

    See Chapter 9 *Buridan* pp. 169-192.

    "With Buridan (c.1300 - c.1358), modal syllogistic reaches its highest point in the Middle Ages, both in terms of completeness and elegance. Lagerlund observes that it was Buridan who gave modal syllogistic the form it would retain for the rest of the Middle Ages, and that his achievement in this field 'surpassed most things done in the history of logic since Aristotle completed the *Prior Analytics*'.(1)In this chapter we will look at his modal logic as expounded in Buridan's *Tractatus de Consequentiis* and his *Summulae de Dialectica."* p. 169

    (1) H. Lagerlund, *Modal Syllogistics in the Middle Ages*, Leiden, Brill, 2000, p. 30.

44. Uckelman, Sara L., and Johnston, Spencer. 2010. "John Buridan's *Sophismata* and Interval Temporal Semantics." *Logical Analysis and History of Philosophy* no. 13:133-147.

    "In this paper we look at the suitability of modern interval-based temporal logic for modeling John Buridan's treatment of tensed sentences in his Sophismata. Building on the paper [Øhrstrøm, P., Buridan on interval semantics for temporal logic. *Logique et Analyse* 106: 211-215, 1984], we develop Buridan's analysis of temporal logic, paying particular attention to his notions of negation and the absolute/relative nature of the future and the past.

    We introduce a number of standard modern propositional interval temporal logics (ITLs) to illustrate where Buridan's interval-based temporal analysis differs from the standard modern approaches. We give formal proofs of some claims in [Øhrstrøm 1984], and sketch how the standard modern systems could be defined in terms of Buridan's proposals, showing that his logic can be taken as more basic."

45. Willing, Anthony. 1991. "Buridan's Divided Modal Syllogistic." *Notre Dame Journal of Formal Logic* no. 32:276-289.

46. ———. 1998. "Unheard of Objects of Knowledge: A Controversial Principle of Buridan's Epistemic Logic." *Franciscan Studies* no. 56:203-224.

47. Yrjönsuuri, Mikko. 2008. "Treatments of the Paradoxes of Self-Reference." In *Mediaeval and Renaissance Logic*, edited by Gabbay, Dov and Woods, John, 579-606. Amsterdam: Elsevier.

    Handbook of the history of logic: Vol. 2.

    On Buridan see pp. 600-606.

    "John Buridan's massive textbook of logic *Summulae de Dialectica* ends with a collection of sophisms, seemingly as a section containing exercises. The last set in this collection deals with self-referential propositions and thus also with insolubles.

    This is not the only location where Buridan discusses paradoxes of self-reference, but it is perhaps the most accessible one. The textbook as a whole was widely used for several centuries, but no other section in it is directly dedicated to self-reference." p. 600 (note omitted)

    "If compared to Bradwardine's work, Buridan's discussion of the insolubles does not appear very ingenious and original. He wavers and leaves room for doubt, allowing the reader to get the feeling that his solution is sketchy. The work is, however, clearly on a very advanced logical level and the problems obviously result from difficulties in the subject matter. Given the extremely wide circulation of Buridan's *Summulae*, it is very understandable that his solution achieved a very high reputation and a wide influence in the coming centuries." pp. 605-606

48. Zupko, Jack. 1990. "John Buridan on Abstraction and Universal Cognition." In *Knowledge and the Sciences in Medieval Philosophy. Proceedings of the Eight International Congress of Medieval Philosophy (Siepm), Helsinki, 24-29 August 1987*, edited by Asztalos, Monika, Murdoch, John Emery and Niiniluoto, Ilkka, 393-403. Helsinki: Acta Philosophica Fennica.

    Vol. II.

"For the nominalist, the claim that the mind can cognize universally, or that its thoughts can range over non-individual objects such as 'human being', or 'whiteness', requires further explanation. What is it that happens, psychologically speaking, when I cognize universally? Given the standard assumption of nominalist ontologies that the world contains no non-individual entities, what status do the objects of universal thought have, and how do they come to be entertained?

There are two distinct questions here: one semantic, asking how a mental act can mean something universal, and the other psychological, asking about the genesis of universal thoughts. Aristotle's answer to the second can be found in De memoria, where he says, "... someone who is thinking, even if he is not thinking of something with a size, places something with a size before his eyes, and thinks of it not as having a size;" (1) thus, the intellect thinks of what is common or universal, such as triangularity, by an effort of abstraction from what is determinate or particular - triangles having physical dimensions. (2) His answer to the first can be reconstructed from his famous remark in De anima that "in the case of objects which involve no matter, what thinks and what is thought are identical." (3)3 The identity in question is formal - thinking is, like perceiving, defined as the sort of change in which form is received without matter - and so what makes my thought of triangularity a thought of that universal is my intellect becoming triangularity formally. But does this mean that there is something universal in my mind whenever I think universally?" (p. 393)

"In conclusion, I think Buridan is for most part successful in reconciling his nominalistic world-view with the problem of how we think universally. The task for the nominalist is to explain our evident ability to cognize universally without postulating universals, either as products of abstraction or thought-objects. Buridan endeavours to steer clear of both these obstacles by on the one hand stipulating that the species by which we entertain a universal is itself singular, and on the other by treating the universality of thought as a function of the way in which concepts refer not to abstract concepts or entities,

but to individuals in the world. And although his account of concept-generation explains intellectual abstraction in such a way that its product still looks like a good candidate for a universal, we can tell a more suitable story without much difficulty. At least in this respcet, Buridan's psychology does not compromise his ontology." (p. 403).

(1) Arist. *De mem*. 1.450a4-6; tr. Sorabji, *Aristotle on Memory* (Providence: Brown U.P., 1972), 48-49.

(2) Arist., *De an*. I.1.403b15; cf. III.4.429b18; III.7,431b12, III.8.432a5.

(3) Arist., *De an*. III.4.430a3-5.

49. ———. 1993. "Buridan and Skepticism." *Journal of the History of Philosophy* no. 31:191-221.

50. ———. 2003. *John Buridan. Portrait of a Fourteenth-Century Arts Master*. Notre Dame: University of Notre Dame Press.

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History of Logic

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2. Andrews, Robert. 2003. "The Modistae and John Duns Scotus's Quaestiones super *Perihermeneias*." In *Aristotle's Peri hermeneias in the Latin Middle Ages. Essays on the Commentary Tradition*, edited by Braakhuis, Henk Antonius and Kneepkens, Corneille Henri, 67–83. Groningen: Ingenium Publishers.

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   Premessa

   Parte Prima: Carmela Baffioni, Lo šarḥ li-kitābi Arisṭūṭālīs fī'l-'ibāra: traduzione e interpretazione del cap. 9

   Parte seconda: Mauro Nasti De Vincentis: Interpretazione di al-Fārābī e interpretazione «farabiana». A proposito del commento di al-Fārābī a *De interpretatione* 9

   Appendice alla Parte seconda:: Emanuela Galanti: Necessità e onnitemporalità in alcuni testi aristotelici.

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5. Biard, Joël. 2003. "Le statut des énocés dans les commentaires du *Peri hermeneias* de Gautier Burley." In *Aristotle's Peri hermeneias in the Latin Middle Ages. Essays on the Commentary Tradition*, edited by Braakhuis, Henk Antonius and Kneepkens, Corneille Henri, 103–118. Groningen: Ingenium Publishers.

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   Supplementary volume 17 to Canadian Journal of Philosophy.

   "This paper compares the views of a number of Arabic and thirteenth-century Latin commentators on Aristotle's *Peri Hermeneias* on the status of logic as a linguistic art and its relation to grammar. The discussion considers the commentators' general positions on the logician's treatment of linguistic topics, and their attempts to reconcile the dual claim of logic to be both a linguistic and a rational art. These general principles are then traced through the treatment of a number of

particular themes in the *Peri Hermeneias's* linguistic sections: The definition of the noun,the cases of the noun, and the indefinite or infinite noun (i.e., of the form non-X). The article concludes that, although there are basic differences between the Latin and Arabic traditions stemming from the presence in the Latin world of a philosophical theory of grammar, authors in both traditions are adamant that a balance must be maintained between the linguistic and rational characterizations of logic."

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"The majority of the twenty essays of the present volume were originally delivered at the Xth European Symposium on Medieval Logic and Semantics held at Nijmegen, 22 - 26 June, 1992, that was devoted to the tradition of Aristotle's *Peri hermeneias* in the Latin Middle Ages. Circumstances made it impossible to publish the proceedings immediately after the symposium. Since the editors were, nevertheless, aware that the material presented was extremely important for further studies on the history of medieval logic, semantics and philosophy of language, they decided, some time ago, to ask the contributors to update, revise or rewrite their essays in preparation for the publication of this collection. Although some authors have partially drawn on material found in this collection for publications elsewhere, most of the information contained in these essays remains new, including the many detailed descriptions and editions of unedited works that will constitute a greatly appreciated resource in the study of medieval philosophy." (From the Preface)

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    "Ibn Sina's discussions of single expressions represent an expansion on Aristotle's brief treatment of the subject in his *De Interpretatione*.

    This expansion introduces ideas that have intrinsic logical interest, although, as we shall try to show, they are not secure against criticism.

    In Part I of what follows, a brief exposition of Ibn Sina's views on the nature of single expressions will be given. The exposition will include a discussion of the reasons why, according to Ibn Sina, the logician must first know single expressions, and the manner in which he must know them. Part 2 offers a closer look at the nature of single expressions, leading to a discussion of the signification of expressions. Some difficulties with Ibn

Sina's treatment of the signification of expressions are then pointed out and discussed." (p. 148)

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the disjunctive truth-value of future contingent propositions with the conception of all things being timelessly present to God's knowledge. The second approach was formulated by Peter Abelard who argued that in Aristotle's view future contingent propositions are true or false, not merely true-or-false, and that the antecedent truth of future propositions does not necessitate things in the world. After Duns Scotus, many late medieval thinkers thought like Abelard, particularly because of their new interpretation of contingency, but they did not believe, with the exception of John Buridan, that this was an Aristotelian view."

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    "Les propositions indéterminées du chapitre VII de *Peri Hermeneias* sont des particulières traduites par des universelles fausses. La cause de cette bizarrerie est dans le maître, et non dans les traducteurs. Aristote mutile un système naturel de propositions dont l'intégrité est restaurée par l'hexagone de Robert Blanché. Celui-ci ajoute deux postes au carré: Y (quantité partielle) et U (exclusion de la quantité partielle). Le carré représente A (totalité) et E (quantité zéro), mais pas avec la tierce quantité Y. Or, la quantité partielle (Y) est essentielle: c'est celle des particulières naturelles contenant notoirement plus d'information que les particulières logiques. U (exclusion de la quantité partielle) est le signifié commun aux deux phrases qu'Aristote élimine du système naturel."

35. ———. 2004. "La transmission d'Aristote par les Arabes à la chrétienté occidentale: une trouvaille relative au *De Interpretatione*." *Revista Española de Filosofia Medieval* no. 11:181–195.

    "*Some men are not white* and *Some men are white* versus *No man is white* are illegitimately identified to the two pairs of logical contradictories constituting the logical square: *A* versus *O* and *I* versus *E*, respectively. Thus, the level of natural language and that of logic are confused. The unfortunate Aristotelian alteration is concealed by the translation of propositions known as *indeterminates*. To translate these, which, semantically, are *particulars*, all scholars, except for Paul Gohlke, employ the two natural *universals* excluded by the

Master! The work of Isador Pollak, published in Leipzig in 1913, [*Die Hermeneutik des. Aristoteles in der Arabischen übersetzung des Ishiik Ibn Honain*] reveals the origin of this nearly universal translation mistake: the Arabic version upon which Al-Farabi unfortunately bases his comment. In adding the vertices *Y* and *U* to the four ones of the square, the logical hexagon of Robert Blanché (*) allows for the understanding of the manner in which the logical system and the natural system are linked."

(*) *Structures Intellectuelles. Essai sur l'organisation systématique des concepts*, Paris: Vrin, 1966; *Raison et Discours. Défense de la logique réflexive*, Paris: Vrin, 1967.

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    Résumé : "Dans le chapitre VII du *De interpretatione*, Aristote mutile un système naturel de trois couples de contradictions naturelles. Il évince le couple où deux universelles naturelles "Les hommes sont blancs", "Les hommes ne sont pas blancs" s'opposent contradictoirement. Conséquence grave: les deux couples de contradictoires naturelles, qu'Aristote considère exclusivement, sont identifiés illégitimement aux deux couples de contradictoires logiques constituant le carré logique. Cette mutilation est dissimulée par la traduction des propositions dites "indéterminées". L'ouvrage d'Isidor Pollak, publié à Leipzig en 1913 (*Die Hermeneutik des Aristoteles in der arabischen Übersetzung des Ishak Ibn Honain, Abhandlungen für die Kunde des Morgenlandes*, 13,1), révèle l'origine de cette faute de traduction quasi universelle: la version arabe sur laquelle al-Farabi fonde son commentaire."

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    Translated, with an introduction and notes by F. W. Zimmermann.

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History of Logic

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History of Logic

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History of Renaissance and Modern Logic from 1400 to 1850

Introduction: Logic in Continental Europe

"At the end of the fourteenth century there were roughly three categories of work available to those studying logic. The first category is that of commentaries on Aristotle's 'Organon'. The most comprehensive of these focussed either on the books of the *Logica Vetus*, which included Porphyry's *Isagoge* along with the *Categories* and *De Interpretatione*; or on the books of the *Logica Nova*, the remaining works of the 'Organon' which had become known to the West only during the twelfth century. In addition there were, of course, numerous commentaries on individual books of the 'Organon'. The second category is that of works on non-Aristotelian topics. These include the so-called *Parva logicalia*, or treatises on supposition, relative terms, ampliation, appellation, restriction and distribution. To these could be added tracts on *exponibles* and on syncategorematic terms. Peter of Spain is now the best-known author of *parva logicalia*, but such authors as Thomas Maulvelt and Marsilius of Inghen were almost as influential in the late fourteenth and fifteenth centuries. Another group of works belonging to the second category consists of the so-called 'tracts of the moderns', namely treatises on consequences, obligations and insolubles. A third group includes treatises on sophisms, on the composite and divided senses, and on proofs of terms, especially the well-known *Speculum puerorum* by Richard Billingham. The third and last category is that of comprehensive textbooks. The most famous example is the *Summulae logicales* of Peter of Spain, which gives a complete outline of Aristotelian logic, including categories,

syllogisms, topics and fallacies; but others must be mentioned. John Buridan's *Summulae*, which was printed several times with a commentary by John Dorp, was a reworking of Peter of Spain, but integrated the topic of supposition by placing it in Book IV. It also added a new tract on definition, division and demonstration. Paul of Venice's *Logica parva*, which was to be very popular in Italy, presented the material of the *summulae* (except for topics and fallacies) in tract one, and then added a series of tracts dealing with the *parva logicalia* and with consequences, obligations and insolubles. All three categories of works had a role in the curriculum of the late medieval university, though the authors and tracts chosen varied from place to place. It is a mistake to think that Peter of Spain provided the only supplement to Aristotle, for in some places he was not read at all, and in other places only a part of his work was read. Moreover, when studied he was studied through the medium of later commentators.

The medieval traditions of logical writing survived well into the sixteenth century particularly at Paris and at the Spanish universities, though with considerable internal changes. Treatises on sophisms and on proofs of terms ceased to be written; whereas there was a sudden flurry of activity concerned with the various divisions of terms and with the opposition of propositions, i.e. the logical relations between different kinds of categorical proposition. These internal changes were not, however, sufficient to keep the tradition alive, and after about 1530 not only did new writing on the specifically medieval contributions to logic cease, but the publication of medieval logicians virtually ceased. The main exceptions were the logical commentaries by (or attributed to) such authors as Thomas Aquinas and John Duns Scotus, which found a place in their *Opera Omnia,* and which benefited from a revived interest in the great medieval metaphysicians.

The main changes in the teaching and writing of logic during the sixteenth century were due to the impact of humanism. First, commentaries on Aristotle came to display a totally new style of writing. One reason for this was the influence of new translations of Aristotle, and new attitudes to the Greek text. Another reason was the publication of the Greek commentators on Aristotle's logic, Alexander, Themistius, Ammonius, Philoponus and Simplicius. A

third reason was the new emphasis on Averroes, which expressed itself in the great Aristotle-Averroes edition of 1550-1552. (30) The effects of these new factors can be seen in the commentaries on individual works of the 'Organon' by such Italians as Agostino Nifo (1473-1546) and Jacopo Zabarella (1533-1589), the latter of whom offered a particularly influential account of scientific method. They can also be seen in the 'Organon' edition of Giulio Pace (15501635), which was first published in 1584 and contained the Greek text side-by-side with a new translation which was designed not only to read well but also to capture the philosophical significance of Aristotle's words. The culmination of the new style of writing on Aristotle is found in the Conimbricenses, the great series of commentaries produced by the Jesuits of Coimbra, especially (for our purposes) the *Commentarii in universam dialecticam Aristotelis* which appeared in 1606. This has aptly been described as presenting a fusion of two late sixteenth century approaches to Aristotle, the philosophical one of Zabarella and the philological one of Pace. (31) In addition it contains a wealth of material about different interpretations of Aristotle found in the Greek and Arab commentators, the medieval writers such as Aquinas, and more recent Thomists such as Cardinal Cajetan and Capreolus. One finds the occasional reference to Ockham or Marsilius of Inghen, but the perception of who constituted the important logical writers of the middle ages had clearly changed radically since the beginning of the sixteenth century.

Humanism can also be held at least partially responsible for the virtual disappearance of works on the specifically medieval contributions to logic, including the *parva logicalia*, and for the replacement of medieval textbooks by textbooks in a completely new style. The disgust that humanists expressed at the barbarous language and twisted Latin of the scholastics was in itself a minor factor. More important were the philosophical ideals that lay behind the work of Lorenzo Valla (1407-1457) and his follower Rudolph Agricola (1444-1485). As Lisa Jardine has argued, both Valla and, to a lesser extent, Agricola were concerned to offer a logic which was linked with Cicero's Academic skepticism rather than with Aristotelian certainties.(32) They wished to present argumentative strategies for rendering plausible each of the two sides of an

undecidable question, or for supporting one of them as, perhaps only marginally, more plausible than the other. They were thus drawn to consider a variety of non-deductive strategies in lieu of the formal techniques which had dominated a large part of medieval logic, especially in the treatises on consequences, and in lieu of Aristotle's own syllogistic. Their attention was focussed on the Topics which, especially as presented by Cicero and Quintilian, seemed to offer a method of classifying these strategies by their key terms rather than by their form. At the same time, much of Agricola's concern was with the art of discourse as such, that is, with the problem of presenting and organizing complete arguments and narrations, whether written or spoken. Logic, or as he preferred to call it, dialectic, was to be applied to all types of discourse, and hence to all areas of teaching. As a result of this interest both in persuasive techniques and in discourse as such, logic came to embrace much of what had traditionally been regarded as belonging to rhetoric; and rhetoric came to be seen as concerned not with the invention of topics but with the ornamentation of discourse.

These doctrines as presented in Agricola's *De inventione dialectica libri tres*, first published in 1515, turned out to be seductive. One of those who was considerably influenced by Agricola was Philip Melanchthon (1497-1560) whose logic text, first published in 1520 as *Compendiaria dialectices ratio*, but replaced by two later versions, became very popular. In it we see how the insights of Valla and Agricola were transmuted to serve the textbook tradition. Melanchthon enjoyed the Agricolan emphasis on clarity of style and the use of literary allusions; he accepted the importance of the Topics and that part of logic called invention; and some remarks on order in the first version of his text grew into a full section on logical method as a way of ordering discourse.(33) At the same time, Melanchthon was a convinced Aristotelian. The formal techniques he used were those of syllogistic, and his work included a discussion of the other standard Aristotelian subjects including the categories and the square of opposition for propositions. Indeed, the last version of his logic, the *Erotemata dialectices* of 1547, seems considerably less Agricolan in tune than the earlier versions, though it retains references to Cicero and Quintilian. (34)

Another writer who was influenced by Agricola is Petrus Ramus or Pierre de la Ramée (1515-1572), the most notorious logician of the sixteenth century. He is known both for his attacks on Aristotle and for the simplified logic presented in his *Dialectique* of 1555 (published in Latin in 1556 as *Dialecticae libri duo*), a work which enjoyed a remarkable publishing history. Ong lists 262 editions, 151 of which appeared in Germany. (35) The *Dialectique* had two parts. The first, on invention, covered the Topics; and the second, on judgment, presented a deliberately simplified version of the syllogism followed by an account of method as a means of ordering in the arts and sciences. No reference was made to such standard material as the categories, the square of opposition, conversion, demonstration and fallacies. On the other hand, the work is rich with quotations from the poetry and prose of classical authors, which must have strengthened the impression among students that logic was both easy and fun. It is small wonder that (in Jardine's words), Ramus 'cornered the textbook market' despite the absence of genuine logical innovation.(36)

Whatever its attractions, the deficiencies of Ramus's book as a teaching tool became rapidly apparent to those seriously interested in logic at the university level. As a result, a new school of textbook writers known as the Philippo-Ramists appeared in Germany in the 1590s. These authors had the aim of combining what was best in Ramus with what was best in the more Aristotelian work of Philip Melanchthon. Thus they tended to restore all those parts of Aristotelian logic which Ramus had deliberately omitted. An important writer who can be seen as allied to the Philippo-Ramist school, though he is more frequently described as a Systematic, is Bartholomew Keckermann (c. 1572-1609). Keckermann was primarily concerned to defend Aristotle and such Aristotelians as Zabarella, but he paid careful attention to Ramist doctrines. He was particularly noteworthy for his theoretical discussion of the notion of a system, and the criteria for determining whether a body of doctrine, such as logic or ethics, could properly be called a system. (37) J. H. Alsted (1588-1638) was also an important Systematic, who displayed a good deal of sympathy toward Ramism.(38)

Another important group of textbooks from the latter half of the sixteenth century owed a smaller debt to the humanist logic of

Rudolph Agricola and Petrus Ramus, and is noteworthy for an attempt to integrate certain parts of the specifically medieval contribution to logic into a generally Aristotelian framework. I shall mention three such texts. The earliest, and most medieval in tone, is the *Compendium logicae* by Chrysostomo Javelli (d. c. 1538) which was first published posthumously in 1551. Javelli retained discussion of such topics as the proofs of terms, and he also retained a number of sophisms and puzzle- cases from the medieval literature. He can therefore be described as a transitional author, representing an intermediate stage between the old medieval textbooks and the Counter- Reformation texts of the Jesuits Francisco de Toledo (1533-1596) and Pedro de Fonseca (1528-1599). Toledo's *Introductio in dialecticam* was first published in 1561 in Rome; and Fonseca's *Institutionum dialecticarum* was first published in 1564 in Lisbon. The Jesuit *Ratio Studiorum* of 1586 had recommended the *Summula* of Fonseca for its breadth, clarity, relevance to Aristotle and lack of sophistry; (39) and in the *Ratio Studiorum* of 1599, Toledo was recommended in addition to Fonseca.(40) The two books share important features. Their main objective is to present standard Aristotelian logic. This material is supplemented with an account of certain medieval doctrines, specifically supposition theory, exponible propositions, and consequences, but the presentation of these doctrines is new. There is a complete absence of the sophisms which had formed a prominent feature of late medieval texts. There is also little discussion of problems caused for such operations as conversion by the presence of different linguistic structures. The highly technical language which struck the humanist as barbaric has gone and, in Fonseca at least, there is a conscious attempt to use classical terminology. All three texts were widely disseminated in Europe and, interestingly enough, all seem to have disappeared at much the same time. The last editions that I know of are as follows: Toledo: Milan, 1621; Fonseca: Lyon, 1625; Javelli: Cologne, 1629." (pp. XVI-XXII)

Notes

(30) See C. B. Schmitt, "Renaissance Averroism studied through the Venetian Editions of Aristotle-Averroes", Atti dei Convegni Lincei 40 (1979), pp. 131-140.

(31) C. B. Schmitt, "Towards a Reassessment of Renaissance Aristotelianism", History of Science 11 (1973), p. 170.

(32) Lisa Jardine, "Lorenzo Valla and the Intellectual Origins of Humanist Dialectic", Journal of the History of Philosophy 15 (1977), 143-164. For further discussion and references see the chapter by Jardine in The Cambridge History of Renaissance Philosophy (forthcoming) [Cambridge, Cambridge University Press, 1988, *Humanistic logic* pp. 173-198]

(33) See Philip Melanchthon, *Compendiaria Dialectices Ratio* in *Opera* (Corpus Reformatorum XX, Brunsvigae 1854: reprinted New York and Frankfurt am Main 1963) columns 724-726; and *Erotemata Dialectices* in *Opera* (Corpus Reformatorum XIII, Halis Saxonum, 1846: reprinted New York and Frankfurt am Main 1963) columns 573-578.

(34) Wilhelm Risse , *Die Logik der Neuzeit*. 1 Band. 1500-1640 (Stuttgart- Bad Cannstatt: Friedrich Frommann, 1964), p. 89, wrote of the *Erotemata Dialectices*: "Melanchthon proklamiert hier eine reine, unverdebt aristotelische Logik.... Cicero and Agricola sind nicht mehr als Autoritaten genannt." Risse's judgment is perhaps too strong.

(35) W. J. Ong, *Ramus and Talon Inventory* (Cambridge, Mass., Harvard University Press, 1958). For a full discussion of Ramus, see W.J. Ong, *Ramus, Method and the Decay of Dialogue* (Cambridge, Mass., Harvard University Press, 1958).

(36) Jardine, *The Cambridge History of Renaissance Philosophy*.

(37) For some discussion of Keckermann, see Risse, *Die Logik der Neuzeit*, pp. 440-450; and N.W. Gilbert, *Renaissance Concepts of Method* (New York, Columbia University Press, 1960), pp. 214-220.

(38) For discussion, see Risse, *Die Logik der Neuzeit*, pp. 477-485.

(39) Karl Kehrbach, *Monumenta Germaniae Paedagogica* Band V. (Berlin, 1887) p. 131.

(40) Kehrbach, ibid., p. 332.

From: Earline Jennifer Ashworth, "Editor's Introduction" to: Robert Sanderson, *Logicae Artis Compendium* [1618], Bologna: Clueb 1985.

The teaching of logic in university curriculum

“The period 1500 - 1650 is a distinctive one in the history of logic. It begins when the great works of fourteenth-century logic, embedded in university curricula all over Europe (1), are replaced by new and different texts; it ends when the 'new philosophies', first of Descartes and later of Locke, infiltrate the study of logic and lead logicians to embrace an '[e]xplicit consideration of the cognitive faculties and their operations' (2) at the expense of more formal concerns. Eyed within the 150 year period thus demarcated, there is an enormous variety of change and development to be taken into consideration. At the expense of over-generalization, four different streams can be isolated. First, there is the continuity of the medieval tradition, particularly exemplified by the publications of those working at Paris in the first three decades of the sixteenth century (3). Second, there is the new rhetorical humanism of such men as Rudolph Agricola, whose influential *De inventione dialectica libri tres* was first published posthumously in 1515 (4). Third, there is the Aristotelian humanism of those who, especially in Italy, were involved with the publication of the Greek Aristotle (5), with the publication and translation of the Greek commentators on Aristotle (6), and with the production of new commentaries on Aristotle (7). Finally, there is the investigation of demonstration and scientific method, culminating in the logical work of Jacopo Zabarella, the well-known Paduan Aristotelian (8).

So far as textbook production was concerned, all these four streams were to intermingle. Writings purely in the medieval tradition ceased abruptly after 1530, at least outside Spain; but some parts of the medieval contribution to logic continued to be included in at least some textbooks. The new interests of rhetorical humanism, the emphasis on the topics, on strategies for plausible argumentation, on methods of organizing discourse, on the use of literary examples, had a great impact on the classroom. However, teachers soon found that the works of Agricola himself or of the later Pierre de la Ramée contained insufficient formal material, and their writings were soon supplemented by Aristotelian syllogistic. Thus in Germany from 1520 on, Philip Melanchthon produced a series of textbooks

combining humanist insights with Aristotelian logics; and in the 1590s, Germany gave rise to Philippo-Ramism, a school of textbook writers whose aim was to combine what was best in Pierre de la Ramée with what was best in the works of Philip Melanchthon (10). The study of the Greek Aristotle and the Greek commentators had a strong impact on the textbook writers of the second half of the sixteenth century; and, after Zabarella, sections on scientific method were also to find their way into logic textbooks." pp. 75-76

I shall begin my investigation by considering the types of logic text that would have been used at a fifteenth-century university. There are three groups. First, there is the 'Organon' of Aristotle, together with the commentaries so exhaustively enumerated by Charles Lohr (21). I shall not be concerned with this type of literature, except to note that it underwent considerable changes during the sixteenth century owing to the influence of humanism and to the recovery of the Greek commentators. Second, there is the textbook proper, such as the *Summulae logicales* of Peter of Spain, itself typically presented with a commentary by some later author. Third, there is the group of independent texts, each devoted to some aspect of the specifically medieval contribution to logic. If one is to understand later developments, this group must be investigated in some detail, and I shall start by analyzing its subdivisions (22).

The core of the first subdivision is provided by the so-called parva logicalia, or treatises dealing with the properties of terms, including their reference in various contexts. Here we find tracts on supposition, on relative terms, on ampliation, appellation, restriction and distribution. These core treatises were supplemented in three ways. Logicians wrote about syncategorematic terms, those logical particles such as 'all', 'some', and 'not', which determine the logical structure of a proposition; they wrote about exponible terms, those logical particles such as 'except' and 'only' whose presence requires the analysis of an apparently simple categorical proposition into several conjoined propositions; and they wrote about the proof of terms, or the way in which the truth-conditions of propositions are affected by the presence of exponible terms, of modal terms such as 'necessary' and 'possible' or of epistemic terms such as 'knows' and 'believes'. Obviously there was a good deal of overlap between writings on syncategorematic terms, on exponibles and on the proof

of terms, since one and the same logical particle could be treated in all three types of treatise.

The second subdivision contains the 'three tracts of the moderns', the treatises on consequences, obligations and insolubles. Treatises on consequences covered all types of argumentation, beginning with a good deal of what is now called propositional logic, and they often included the syllogism as a special example of one kind of argumentation. They were also noteworthy for lengthy discussions of the notion of consequence itself, and of the difference between formally valid and materially valid inferences. Treatises on obligations dealt with the rules to be followed in a certain kind of disputation which was specifically designed to test the logical skills of undergraduates, and which therefore deliberately confined itself to exploring the logical consequences of accepting an often bizarre falsehood. Treatises on insolubles dealt with semantic paradoxes, such as the standard liar: 'What I am now saying to you is false', and they explored in some depth the semantic presuppositions of language, including the truth-conditions for contradictory and synonymous propositions.

The third subdivision is formed by the treatises on sophisms in which problematic or puzzling statements were analyzed and tested against various logical rules. Since these rules were drawn from the areas of investigation already mentioned, including supposition theory and its ramifications, there was considerable overlap between the contents of these treatises and those belonging to the first and second subdivisions. Indeed, the latter treatises, as well as the commentaries on Aristotle and on Peter of Spain, themselves made heavy use of sophisms in order to test the rules they enunciated against possible counter-examples. Thus we get a two-way movement. A treatise on sophisms begins with the sophisms and proceeds to the rules; a treatise on, for instance, consequences begins with the rules and proceeds to the sophisms. Paul of Venice's *Logica magna* (written 1397 - 98) is a particularly noteworthy example of the use of sophisms as a testing device (23)". (pp. 78-79)

Notes

(1) For fuller details and references, see E. J. Ashworth, 'Traditional Logic' in The Cambridge History of Renaissance Philosophy, edited

by C. B. Schmitt (Cambridge: Cambridge University Press, 1988), pp. 150 - 151.

(2 J. G. Buickerood, The Natural History of the Understanding: Locke and the Rise of Facultative Logic in the Eighteenth Century', History and Philosophy of Logic 6 (1985), p. 161.

(3) Ashworth, 'Traditional Logic', pp. 151 - 152.

(4) For discussion, see L. Jardine, 'Humanist Logic' in The Cambridge History of Renaissance Philosophy.

(5) The first printed edition of the Greek text of Aristotle was produced in Venice by Aldus Manutius from 1495 to 1498.

(6) See C. B. Schmitt, 'Alberto Pio and the Aristotelian Studies of his Time', Study VI in C. B. Schmitt, The Aristotelian Tradition and Renaissance Universities (London: Variorum Reprints, 1984), pp. 55 -

(7) For a complete listing of Renaissance Aristotle commentaries, see C. H. Lohr, 'Renaissance Latin Aristotle Commentaries: Authors A-B', Studies in the Renaissance 21 (1974), pp. 228 - 289; 'Authors C', Renaissance Quarterly, 28 (1975), pp. 689 - 741; 'Authors D-F', ibid., 29 (1976), pp. 714 - 745; 'Authors G-K', ibid., 30 (1977), pp. 681 - 741; 'Authors L-M; ibid., 31 (1978), pp. 532 - 603; 'Authors N-Ph', ibid., 32 (1979), pp. 529 - 580; 'Authors Pi-Sm', ibid., 33 (1980), pp. 623 - 734; 'Authors So-Z', ibid., 35 (1982), pp. 164 -256.

(8) See N. W. Gilbert, Renaissance Concepts of Method (New York: Columbia University Press, 1960).

(9) See E. J. Ashworth, Language and Logic in the Post-Medieval Period (Dordrecht, Boston: D. Reidel, 1974), pp. 13 - 14. His logic text was first published in 1520 as Compendiaria dialectices ratio, though in the place cited I mention only the first of the later versions, the Dialectices libri IX of 1527.

(10) Ashworth, Language and Logic, pp. 16 – 17.

(21) For a listing of medieval Aristotle commentaries, see C. H. Lohr, 'Medieval Latin Aristotle Commentaries: Authors A-F', Traditio 23 (1967), pp. 313 - 413; 'Authors G-I', ibid., 24 (1968), pp. 149 - 245; 'Authors Jacobus-Johannes Juff', ibid., 26 (1970), pp. 135 - 216;

'Authors Johannes de Kanthi-Myngodus' ibid., 27 (1971), pp. 251 - 351; 'Authors Narcissus-Richardus', ibid., 28 (1972), pp. 281 - 396; 'Authors Robertus-Wilgelmus', ibid., 29 (1973), pp. 93 - 197; 'Supplementary Authors', ibid., 30 (1974), pp. 119 - 144.

(22) For more details and references, see Ashworth, 'Traditional Logic', pp. 146 - 149.

(23) See Paul of Venice, Logica magna (Venice, 1499). An edition and translation of this work is being published under the auspices of the British Academy. The first volume to appear was: Paul of Venice, Logica Magna. Part II Fascicule 6, edited and translated by F. del Punta and M. M. Adams (published for the British Academy by the Oxford University Press, 1978). For the date of the work, see F. Bottin, 'Logica e filosofia naturale nelle opere di Paolo Veneto' in Scienza e filosofia all'Universita' di Padova nel Quattrocento, edited by A. Poppi (Contributi alla Storia dell'Universita. di Padova 15. Trieste: Lint, 1983), p. 88, pp. 91 - 92.

From: E. J. Ashworth, "Changes in Logic Textbooks from 1500 to 1650: The New Aristotelianism", in: Eckhard Kessler, Charles Lohr, Walter Sparn (eds.), *Aristotelismus und Renaissance. In Memoriam Charles B. Schmitt*, Wiesbaden: Otto Harrassowitz 1988, pp. 75-87.

Logicians of the Fifteenth Century

George of Trebizond (1395 - 1472/3)

Lorenzo Valla (1406 - 1457)

Rodolphus Agricola (1443 - 1485)

Logic in the Modern Age. First Part: 1500 - 1640

Jean Luis Vivés (1493 - 1540)

Domingo de Soto (1494 - 1560)

Philipp Melanchthon (1497 – 1560)

Petrus Ramus (1515 - 1572)

Pedro da Fonseca (1528 - 1599)

Franciscus Toletus (1532 - 1596)

Giacomo (Jacopo) Zabarella (1533 - 1589)

Bartholomäus Keckermann (1572 - 1609)

Joachim Jungius (1587 - 1657)

Robert Sanderson (1587 - 1663)

Thomas Hobbes (1588 - 1679)

Franco Burgersdijk (1590 - 1635)

The Conimbricenses (*In universam dialectica Aristotelis*, 1606)

Logic in the Modern Age. Second Part: 1640 - 1780

Athanasius Kircher (1601/2 - 1680)

Sebastián Izquierdo (1601 - 1681)

Juan Caramuel y Lobkowtiz (1606 - 1682)

Georges Dalgarno (1616 - 1687)

Antoine Arnauld (1612 - 1694)

John Wallis (1616 - 1703)

Johannes Clauberg (1622 - 1665)

Arnold Geulincx (1624 - 1669)

John Locke (1632 – 1704)

Nicolas Malebranche (1638 – 1715)

Gottfried Wilhelm Leibniz (1646 - 1716)

Ehrenfried Walther von Tschirnhaus (1651 – 1708)

Christian Thomasius (1655 - 1728)

Johann Franz Budde (1667 - 1729)

Giovanni Girolamo Saccheri (1667 - 1733)

Andreas Rüdiger (1673 - 1731)

Johann Peter Reusch (1691 - 1758)

Johann Georg Walch (1693 – 1775)

Joahann Andreas Segner (1704 - 1777)

Leonhard Euler (1707 - 1783)

Étienne Bonnot de Condillac (1714 - 1780)

Joachim Georg Darjes (1714 - 1791)

Gottfried Ploucquet (1716 - 1790)

Georg Friedrich Meier (1718 – 1777)

Immanuel Kant (1724 - 1804)

Johann Heinrich Lambert (1728 - 1777)

Logicians of the First Half of the Nineteenth Century

Jeremy Bentham (1748 - 1832)

Georg Wilhelm Friedrich Hegel (1770 - 1831)

Joseph Diaz Gergonne (1771 - 1859)

Samuel Taylor Coleridge (1772 - 1834)

Bernard Bolzano (1781 - 1848)

Richard Whateley (1787 - 1863)

William Hamilton (1788 - 1856)

William Whewell (1794 - 1866)

Friedrich Adolf Trendelenburg (1802 - 1872)

Augustus De Morgan (1806 - 1871)

John Stuart Mill (1806 - 1873)

Digital Quadrivium Project



History of Logic

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Selected Bibliography on the History of Renaissance and Modern Logic

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   "The aim of this paper is to outline tentatively some aspects of the techniques of disputation in their history, on the basis of some texts. Modern logic ("mathematical" logic) was conceived *more geometrico* by Frege, who intended to improve upon Euclid essentially by adding an explicit list of rules of inference (*Grundgesetze* I, p. VI). Thus, the notion of *dialectica* in the sense of "speech between two," so important in the past, could

hardly be found relevant by modern historians of logic, who were guided by the new model. These, in fact, have so far neglected to investigate this portion of the logical heritage.(1) Only recently there has been an increasing interest in the *Topica*, not extended, however, to the medieval and post-medieval developments. Good old Prantl seems to be still the best source in this respect. Historical works of a more general nature are of very little help even when they abundantly refer to disputation, because the formal aspects are usually overlooked. For example, a direct examination of the sources mentioned by Thurot would be very rewarding, but what Thurot himself says on disputation is simply useless from a technical point of view. (2)

The dialogical logic developed in the last ten years by Paul Lorenzen and his school provides the needed "modern" motivation to go back to the *ars disputandi*.(3) Sources for antiquity and for medieval *obligationes* (a form of disputation) are known. Before 1800 disputation was considered by a very large number of books on logic; after 1800 at least by most neoscholastic treatises. Fortunately, in recent years bibliographical research in the history of logic has increased so much (4) that now we also know of a small, yet interesting list of postmedieval (second-scholastic) works especially devoted to the theory of disputation."

(1) There are hardly any references in the most distinguished works on the history of logic. In E. Moody's *The Logic of William of Ockham* (London: Sheed & Ward, 1935), the topic of obligations is considered "not very relevant to logic" 294.

(2) Charles Thurot, *De l'Organisation de l'enseignement dans l'Universiteé de Paris au Moyen Age* (Paris: E. Magdeleine, 1850); pp. 87-90 for the *disputes*.

(3) Paul Lorenzen, *Normative Logic and Ethics* (Mannheim: Bibliographisches Institut, 1967); Kuno Lorenz. "Dialogspiele als Semantische Grundlage von Logik-kalkulen," *Archiv fur mathematische Logik und Grundlagenforschung* (1966).

(4) Above all W. Risse, *Bibliographia logica* (Hildesheim: olms, 1965). Additions in W. Redmond, *Bibliography of Philosophy in the Spanish-Portuguese Colonies* (The Hague: Nijhoff, forthcoming) [publlished in 1972 wit the title: *Bibliography of the philosophy in the Iberian colonies of America*]; L. Hickman, *Late Scholastic Logic: Another Look;* to appear in *Journal of the History of Philosophy* [1971, 9 pp. 226-234].

6. ———. 1998. "Aristotelian-Scholastic Ontology and Predication in the Port-Royal Logic." *Medioevo: Rivista di Storia della Filosofia Medievale* no. 24:283-310.

7. ———. 2004. "Predication Theory: Classical Vs Modern." In *Relations and Predicates*, edited by Hochberg, Herbert and Mulligan, Kevin, 55-80. Frankfurt: Ontos Verlag.

   "This essay aims, first, at describing the conflict between the theory of predication (classical, Aristotelian) prevailing in philosophy until the end of the 19th century, and the theory arisen with the new logic (modern, Fregean). Three features characterize the pre- Fregean period: 1) conflation of predication and subordination (extensionally: membership and class-inclusion), 2) conflation of identity and predication, 3) the view of quantificational phrases (e.g. "some men") as denoting phrases. A possible fourth feature is suggested by the consideration of the so-called Locke's "general triangle". Most of the paper is devoted to the first feature, also called the "principal" one, stated by Aristotle. Frege seems to be the first, in 1884, to reject the first feature; he E ISO rejected, not less vehemently, the second and the third features. Fregean predication theory became standard, and just taken for granted in the subsequent developments of logic as well as in the mainstream of philosophy. The second aim of this paper is to evaluate- relative to the notion of predication submitted in section I - the conflict between the two traditions, and to determine if both are somehow right, or one is right and the other wrong. The main result is that the Fregean revolution in predication theory is, at least with regard to the first and second features of the classical view, a clarification that would

probably be welcomed by the classical authors themselves (*pace* Hintikka's "logic of being")."

8. Ariew, Roger. 2006. "Descartes, the First Cartesians, and Logic." *Oxford Studies in Early Modern Philosophy* no. 3:241-260.

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   This book is the first attempt to provide a general Introduction to the type of logical inquiry pursued in Europe after 1429 by means of a systematic presentation of the doctrines which were actually written about and taught. It radically alters traditional views of the period by demonstrating that not only were medieval doctrines still of overriding importance at the beginning of the sixteenth century, but that they continued to be discussed in many European universities at least until the mid-seventeenth century.

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    Reprint of 12 essays already published.

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    IX The Doctrine of Exponibilia in the Fifteenth and Sixteenth Centuries - Vivarium XI. 1973; X Multiple Quantification and the Use of Special Quantifiers in Early Sixteenth Century Logic - Notre Dame Journal of Formal Logic XIX. 1978;

XI Thomas Bricot (d. 1516) and the Liar Paradox - Journal of the History of Philosophy XV. 1977; XII Will Socrates Cross the Bridge? A Problem in Medieval Logic - Franciscan Studies 46. 1976 (1977);

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    "I outline the developments and changes in logic and logic teaching between 1350 and 1600, paying attention to the survival of medieval doctrines and to the renewed Aristotelianism of the sixteenth century. I also discuss the philosophy of language in the same period, paying attention to speculative grammar, to the doctrines of signs and signification, and to the clash between medieval doctrines of conventional signification and the new renaissance interest in the idea of a naturally significant spoken language."

12. ———. 2008. "Developments in the Fifteenth and Sixteenth Centuries." In *Mediaeval and Renaissance Logic*, edited by Gabbay, Dov and Woods, John, 609-644. Amsterdam: Elsevier.

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    "To understand the significance of these developments for the logician, we have to consider three questions. First, how much of the medieval logic described in the previous chapters survived? Second, insofar as medieval logic survived, were there any interesting new development in tit? Third, does humanist logic offer an interesting alternative to medieval logic?

    In Part One of this chapter I shall consider the first two questions in the context of a historical overview in which I trace developments in logic from the later middle ages thorough to 1606, the year in which the Jesuits of Coimbra published their great commentary on Aristotle's logical works, the

Commentarii Conimbricenses in Dialecticam Aristotelis. I shall begin by considering the Aristotelian logical corpus, the six books of the *Organon*, and the production of commentaries on this work. I shall the examine the fate of the specifically medieval contributions to logic. Finally, I shall discuss the textbook tradition, and the ways in which textbooks changes and developed during the sixteenth century. I shall argue that the medieval tradition in logic co-existed for some time with the new humanism, that sixteenth century is dominated by Aristotelianism, and that what emerged at the end of the sixteenth century was not so much a humanist logic as a simplified Aristotelian logic.

In Part Two of this chapter, I shall ask whether the claims made about humanist logic and its novel contributions to probabilistic and informal logic have nay foundation. I shall argue that insofar as there is any principled discussion of such matters, it is to be found among writers in the Aristotelian tradition." p. 610

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    "The first Scot to have a book of his printed while he was yet alive was James Liddell (Jacobus Ledelh) from Aberdeen. The book came out in 1495, and was sufficiently well received to go through several further editions during the author's lifetime. In view of the chief historical thesis I am concerned to defend here, Liddell's book is a fitting place at which to start the defence, for Liddell, though in his latter days a physician of note, was first and foremost a philosopher and logician, and the book itself was a work of epistemology entitled *Treatise on Concepts and Signs*. Liddell matriculated at the University of Paris, a very common choice of university for young Scots of that period. He took his master's degree there in 1483 and in the following year began teaching in Paris. Two years later he was appointed examiner of Scottish students working for their bachelor's degree.

    In 1491 or 1492 that substantial contingent of Scottish students at Paris was joined by John Mair from the village of Gleghornie near Haddington in East Lothian. Mair rose quickly up the academic ladder. He took his master's degree in 1494 and the following year became a lecturer in arts, while also beginning his studies in theology in the College of Montaigu. He published his first book in 1499, a work on exponible propositions, and by 1506, when he received his doctorate of theology and began teaching theology at the College of Sorbonne, he had already published numerous volumes on logic. In 1517 Mair returned to Scotland to take up the post of principal of the University of Glasgow, though while there he also taught in the Faculties of

Arts and Theology. His very full timetable at Glasgow did not however prevent him returning to Paris in 1521 to see through the presses his enormous *History of Greater Britain,* a book motivated at least in part by a desire to further the cause of the union of England and Scotland in a single country, a 'Greater Britain'. In 1523 Mair transferred to the University of St Andrews where he continued his teaching in arts and theological subjects though also actively involved in important administrative roles in that university. Three years later he returned to Paris where he remained teaching theology till 1531 when, for reasons which remain obscure, he again took up a post at the University of St Andrews, and this time he stayed in Scotland. In 1530 he published a critical edition, with extensive commentary, of Aristotle's *Nicomachean Ethics*. It proved to be his last book, though he lived for a further twenty years, dying an octogenarian in 1550.

Among the pupils of Mair at Paris were several Scots whose writings I shall be examining in the succeeding chapters. They were David Cranston, George Lokert, Robert Caubraith, and William Manderston. David Cranston, a priest of the Glasgow Diocese, arrived in Paris in 1495, studied under Mair at the College of Montaigu, and himself began to teach in that college in 1499. Within thirteen years, having completed a number of books of his own and also edited works by Mair and Martin le Maitre, Cranston had died. We shall be studying his *Terminorum* in some detail." pp. 2-3

"Chapter 8. Conclusion.

The discussion of rules of valid syllogistic inference completes our survey of the formal logic presented in the textbooks of John Mair and his circle. The survey has not dealt with all the main areas of concern represented in those textbooks. We have not, for example, discussed insoluble propositions, that is, paradoxical propositions where typically the paradoxicality is generated by a self-referential element in the proposition. The Liar Paradox 'I now speak falsely' is the most famous, though numerous other paradoxes were investigated. And the problem of the analysis of future contingent propositions, an important

subject in which present-day philosophers are taking a lively interest, has not been discussed in the foregoing pages, though both Lokert and Manderston wrote treatises on the subject.

However a great deal of ground has been covered, enough to show that the poor opinion many have of medieval logic is unjustified. There are many philosophers and logicians who believe that medieval logic constituted not so much an advance on the Aristotelian system from which it emerged, as an inflation of that system by endless definitions and divisions all made in a hopeless attempt to provide, from within the resources of natural language, rules for making valid inferences from propositions expressed in natural language to other propositions likewise expressed.

But the reputation of medieval logic as Aristotle's logic become obese is based on a travesty. And the negative purpose of this book has been to show up that travesty. The first point that has to be made is that the logic we have been examining marks an immense advance on Aristotle's system with respect to the area of *proprietates logicales,* the logical properties of terms. The single most distinctive contribution of medieval logic was the doctrine of supposition, with the attendant notions of descent to and ascent from singulars, and the consequent ability to give a detailed account of the way quantifier expressions signify. It was in virtue of the doctrine of supposition and its associated rules of order of descent under terms with different sorts of supposition, that the late-scholastic logicians were able to give a detailed exposition of such fallacies as that of the quantifier shift. And it enabled them also to give an account of the validity of inferences involving propositions in which crucially one term stands in genitival relation to another.

The doctrines of ampliation, restriction, and alienation are also characteristically medieval doctrines, not investigated by Aristotle, but clearly of the greatest logical importance in view of the need to be able to state, for example, the truth conditions of past- and future-tensed propositions, an area which has been within the fold of modern formal logic since the late Arthur Prior's seminal work on tense logic. Certainly his employment

of tense operators operating on (temporally or timelessly) present-tense propositions accords with the scholastic technique of expressing the tensed element of a non-present-tensed proposition in a predicate whose argument place is to be filled by a present-tense proposition.

The examination of exponible propositions is also a distinctively medieval contribution to logic. It should not be forgotten that the medieval logicians at all times stayed close to natural language and sought to formulate rules of valid inference for propositions in natural language. And given that propositions expressing, say, something's being the only member of a given class, or being an exception to a rule, or being different from something else, or coming to be or ceasing to be, can imply other propositions, the late-scholastic logicians considered there to be a real problem concerning the identification of the associated rules of inference. And if it was not within the remit of the logicians themselves to identify and formulate those rules then whose job was it? The recent interest in this field shown by E. J. Ashworth, Norman Kretzmann, and others, is not merely antiquarian; it reflects a concern with concepts which are of current philosophical interest.

In the field of syllogistic itself the late-scholastics made important advances. Two areas that we considered in which advances were made were, first, the validity conditions of syllogisms in which the middle term does not constitute the whole extreme in each premiss, and secondly the validity

conditions of syllogisms whose premisses and conclusion are non all present-tensed. Once again it has to be noted that the medieval logicians were concerned to formulate rules of inference applicable to the kinds of argument that ordinary people using ordinary language commonly formulate.

In the late fifteenth and early sixteenth centuries there was a glorious flowering of logic. It was the last major achievement of the terminist tradition, and the circle of John Mair was especially prominent in that final flourish. Why the fortunes of logic suddenly foundered is a matter for speculation, but there is no good reason to suppose that the explanation is that there

was suddenly nothing interesting left to say in that tradition. It would itself be even more in need of explanation why a tradition, which until the third decade of the sixteenth century had been finding so many interesting things in what had proved such a rich seam, should suddenly strike clay. But it should be said that whatever the reason for a dead hand falling on logic at the time of the Reformation, and whether or not logic itself was a casualty of the Reformation, it remains true that many matters dealt with in the terminist textbooks of the late-scholastics have an immediate bearing on matters of current concern to logicians working within the tradition created by Frege, the man who prised off that dead hand. The logical writings of John Mair and his circle bore little fruit, and gradually slipped away into nearly total oblivion. Perhaps after five centuries those writings will at last come into their own."

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21. Ceñal, Ramón. 1972. "La Historia De La Lógica En España Y Portugal De 1500 a 1800." *Pensamiento* no. 28:277-319.

22. Cifoletti, Giovanna. 2006. "From Valla to Viète: The Rhetorical Reform of Logic and Its Use in Early Modern Algebra." *Early Science and Medicine* no. 11:390-423.

    "Lorenzo Valla's rhetorical reform of logic resulted in important changes in sixteenth-century mathematical sciences, and not only in mathematical education and in the use of mathematics in other sciences, but also in mathematical theory itself. Logic came to be identified with dialectic, syllogisms with enthymemes and necessary truth with the limit case of probable truth. Two main ancient authorities mediated between logical and mathematical concerns: Cicero and Proclus. Cicero's 'common notions' were identified with

Euclid's axioms, so that mathematics could be viewed as core knowledge shared by all human kind. Proclus' interpretation of Euclid's axioms gave rise to the idea of a universal human natural light of reasoning and of a *mathesis universalis* as a basic mathematics common to both arithmetic and geometry and as an art of thinking interpretable as algebra. "

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"The papers collected in this volume address two closely related themes: the faculty psychology and the logic of the early modern period. The themes are related because, firstly, early modern logic-especially the early modern "logic of ideas" was explicitly psychologistic. It dealt with "concepts" rather than terms, "judgments" rather than propositions, and "reasoning" rather than arguments, and it saw all of these fundamental explanatory categories as grounded in contents or operations of the mind. And secondly, the lines of influence ran in the other direction as well. The higher cognitive faculties identified by early modern (and, indeed, by medieval and ancient) psychology were determined by logical and even grammatical considerations. Each cognitive faculty was understood relative to the notion that reasoning consists of arguments and that judgments assert relations between concepts. The intellect was understood as the faculty for abstracting universal concepts from the deliverances of sense; judgment, as the faculty for compounding and dividing concepts or as the faculty for inventing the middle term for a syllogism; and finally, reasoning was understood as the faculty for drawing inferences from previously made judgments. Faculty psychology cannot, therefore, be completely understood independently of traditional logic, and early modern logic certainly cannot be understood independently of faculty psychology.

For most of this century both of these themes have been neglected by philosophers and historians of logic, philosophy, and psychology. The explanatory categories of traditional faculty psychology now seem naive and ill-founded. And the notion that a normative discipline like logic might be grounded

on purely descriptive facts of our psychology, or on the arbitrary and conventional features of the grammar of a particular natural language, is rejected as an instance of the naturalistic fallacy. The early modern period has accordingly been judged to be the dark age of logic-a time when the advances of the Middle Ages were forgotten and the entire discipline was turned down the wrong path.

But, as Fred Michael observes in one of the introductory essays to this volume, although early modern logic made virtually no contribution to the history of logic, it was a central part of early modern epistemology and metaphysics. One does not have to look far into the standard early modern logic textbook, with its four-part treatment of ideas or concepts, judgments, reasoning, and method, to find themes of crucial importance to early modern philosophy. It was obligatory that a textbook of early modern logic discuss the notions of conceptual clarity, distinctness and adequacy-notions that played a key role in the epistemology of Descartes, Locke, Leibniz, and Wolff, to name but a few. And in early modern logic, a discussion of general terms could no more be separated from the issues of abstraction and abstract ideas-issues that were to become of central importance for later British empiricism-than a medieval treatment of the same topic could be separated from the issue of the nature of universals. Similarly, the early modern logic of propositions, because it could not be separated from the operation of judgment, dealt not just with the concept of relation, but with the act of relating, and referred crucially to the basis of that act in the (rationalist) analysis of concepts and the (empiricist) evidence of experience. Again, syllogistic reasoning, based as it is on categorical propositions (out of which the paradigmatic syllogistic forms are constructed), carried with it an implicit ontology of substance and property (the subject and the predicate of the categorical proposition)-an ontology that continued to dominate early modern metaphysics and epistemology long after substantial forms and real qualities had been banished from early modern philosophy of nature. Furthermore, such popular principles of early modern ontology as the notion that whatever is conceivable is a possible object of

experience, are obviously parasitic on notions of logical and real possibility. And the analytic and synthetic methods discussed in the fourth part of most early logic textbooks have an obvious relation to the opposed Cartesian and Newtonian paradigms for scientific research." pp. I-II.

27. Friedman, Russell L., and Nielsen, Luge O., eds. 2003. *The Medieval Heritage in Early Modern Metaphysics and Modal Theory, 1400-1700*. Dordrecht: Kluwer.

28. Frisch, Joseph C. 1969. *Extension and Comprehension in Logic*. New York: Philosophical Library.

    Contents: Foreword by John R. Gallup VII; Introduction XV-XVI; Part I. Historical survey. Chapter I. Modern logicians (1662-1966) 1; Chapter II. Medieval and ancient logicians (1658-530 B.C.) 78; General summary of Chapter I and II 124; Part II: A doctrinal survey. Chapter III. An essay in doctrine 129; 1. Non-logical meanings of 'extension' 129; 2. Non-logical meanings of 'comprehension' 135; 3. Extension and comprehension with reference to the theory of knowledge 142; 4. Extension and comprehension in logic 149; 5. General summary of Chapter III 172; Epilogue 177; Appendix I. Grammatical sources 179; Appendix II: Different terminology and meanings 183; Bibliography 215; Footnotes 243-293.

    "The purpose of this work is to analyze what has been frequently described by logicians as the extension and comprehension of concepts. Even if there is a justification for extension and comprehension in logic, it may be questioned whether there are any concomitant dangers since one historian of logic claims that this distinction has done more harm than good. Can it be said that the importance of extension and comprehension has been magnified out of proportion to the other parts of logic? Would it be more advantageous to correlate extension and comprehension with the predicables, or would it be better to try to eliminate the distinction altogether?

    It is the aim of this study to explore the distinction existing between extension and comprehension, to ascertain whether such distinction is justifiable, where it should be placed in a treatise on logic, and how it should be presented. These are

questions which should be answered if one intends to have a thorough grasp of logic.

This treatise will be divided into two parts. The first part will be subdivided into two chapters. Chapter I will examine the writings of modern logicians starting from 1662. Chapter II will treat of the works of classical and ancient authors in a reverse order of time starting from 1658. The second part will present an evaluation of extension and comprehension as a doctrine of logic.

It might be stated briefly here that the conclusion of this treatise hopes to present as probable the following declarations: (1) Extension and comprehension are basically an Aristotelian distinction. (2) Extension and comprehension are closely allied with the predicables. A logician cannot have a proper understanding of the former without a thorough understanding of the latter. (3) Any well-organized treatise on logic should begin with a study of the predicables.

The method of the first part which will be employed in this research is the empirical, or *a posteriori*, method. This particular mode is characteristic of all historical research. On the other hand,

the deductive, or a priori, method is unsound because it would oblige one to posit a principle according to which all subsequent facts ought to correspond. There is a constant danger associated with such procedure, namely, the tendency to misstate or distort historical facts for the sake of preserving a methodic balance. However, inasmuch as the second part involves an evaluation, both the a posteriori and a priori methods will be utilized.

Perhaps it will seem strange to the reader to discover that in the initial historical research, the philosophical works of modern logicians will be examined in a chronological order, whereas, when attention is turned to the classical and ancient authors, the order of time will be reversed for this historical research. This mode of procedure was not adopted in any haphazard manner, nor was it introduced merely for the sake of adding

variety to the presentation of the study. Inasmuch as the historical evidence on the distinction of extension and comprehension is limited and oftentimes confusing, it was not deemed feasible to begin the investigation at the very moment when the reality underlying the distinction was first discovered and introduced into logic so as to trace its development in one chronological direction. Instead it seemed more reasonable to select one source of information to which many modern authors had recourse and by which they were greatly influenced. It was not difficult to make such a choice. The text which was cited most frequently and which influenced modern logicians was none other than the *Port Royal Logic* (1662)." (pp. XV-XVI).

29. Gabbay, Dov, and Woods, John, eds. 2004. *The Rise of Modern Logic: From Leibniz to Frege*. Amsterdam: Elsevier.

    Handbook of the History of Logic: vol. 3.

    Contents: Dov M. Gabbay and John Woods: Preface VII; List of Contributors IX-X; Wolfgang Lenzen: Leibniz's logic 1; Mary Tiles: Kant: From General to Transcendental Logic 85; John W. Burbidge: Hegel's logic 131; Paul Rusnock and Rolf George; Bolzano as logician 177; Richard Tieszen: Husserl's logic 207; Theodore Hailperin: Algebraical logic 1685-1900 323; Victor Sanchez Valencia: The algebra of logic 389; Ivor Grattan-Guinness: The mathematical turn in logic 545; Volker Peckhaus: Schröder's logic 557; Risto Hilpinen: Peirce's logic 611; Peter M. Sullivan: Frege's Logic 659; Index 751-770.

30. ———, eds. 2008. *Mediaeval and Renaissance Logic*. Amsterdam: Elsevier.

    Handbook of the History of Logic: vol. 2.

    Contents: Dov M. Gabbay and John Woods: Preface VII; List of Contributors IX; John Marenbon: Logic before 1100: the Latin tradition 65; Ian Wilks: Peter Abelard and his contemporaries 83; Terence Parsons: The development of Supposition Theory in the later 12th through 14th centuries 157; Henrik Lagerlund: The assimilation of Aristotelian and Arabic logic up to the later thirteenth century 281; Ria van der Lecq: Logic and theories of

meaning in the late 13th and early 14th century including the Modistae 347; Gyula Klima: The nominalist semantic of Ockham and Buridan: a 'rational reconstruction' 389; Catarina Dutilh Novaes: Logic in the 14th century after Ockham 433; Simo Knuuttila: Medieval modal theories and modal logic 505; Mikko Yrjönsuuri: Treatments of the paradoxes of self-reference 579; E. Jennifer Ashworth: Developments in the fifteenth and sixteenth centuries 609; Peter Dvorák: Relational logic of Juan Caramuel 645; Russell Wahl: Port-Royal: the stirrings of modernity 667; index 701.

31. ———, eds. 2008. *British Logic in the Nineteenth Century*. Amsterdam: Elsevier.

    Handbook of the History of Logic: vol. 4.

    Contents: Dov M. Gabbay and John Woods: Preface VII; List of Contributors XIII-XIV; Gordon R. McOuat and Charissa S. Varma: Bentham's logic 1; Tim Manes: Coleridge's logic 33; James Van Evra: Richard Whately and logical lheory 75; Ralph Jessop: The logic of Sir William Hamilton: tunnelling through sand to place the keystone in the Aristotelic arch 93; Laurta J. Snyder:

    "The whole box of tools": William Whewell and the logic of induction 163; Fred Wilson: The logic of John Stuart Mill 229; Michael E. Hobart and Joan L. Richards: De Morgan's logic 283; Dale Jacquette: Boole's logic 331; Maria Panteki: French 'Logique' and British 'Logic': on the origins of Augustus de Morgan's early logical enquiries, 1805-1835 381; Amirouche Moktefi: Lewis Carroll's logic 457; James Van Evra: John Venn and logical theory 507; Bert Mosselmans and Ard van Moer: William Stanley Jevons and the substitution of similars 515; Shahid Rahman and Juan Redmond: Hugh McColl and the birth of logical pluralism 533; David Sullivan: The Idealists 605; William J. Mander: Bradley's logic 663; Index 719-735.

32. Gens, Jean-Claude, ed. 2010. *La Logique Herméneutique Du Xviie Siècle. J. C. Dannhauer Et J. Clauberg*. Argenteuil: Le Cercle Herméneutique Éditeur.

33. Ghisalberti, Alessandro. 2005. "Étapes De La Logique. De La Voie Moderne À La Logique De Port-Royal." *Les Études Philosophiques*:521-536.

34. Giard, Luce. 1984. "Du Latin Médiéval Au Pluriel Des Langues, Le Tournant De La Renaissance in Logique Et Grammaire." *Histoire, Epistémologie, Langage* no. 6:35-55.

    "L'Auteur étudie la manière dont, dans l'Europe de la Renaissance, les relations entre langue, logique et grammaire se sont modifiées, passant de l'étude du latin et des modèles logiques d'analyse à la pluralité des approches des langues vernaculaires prônées par les Humanistes."

35. ———. 1985. "La Production Logique De L'angleterre Au Xvi Siècle in Bacon." *Études Philosophiques*:303-324.

    "La production logique éditée en Angleterre, majoritairement rédigée en latin, est analysée en quatre blocs: l'héritage médiéval de grammaire modiste et de logique, le renouveau aristotélicien progressif, la querelle ramiste, enfin les premiers traités en anglais."

36. Grandt, François de. 2001. "Response to Jonathan Barnes." In *Whose Aristotle? Whose Aristotelianism?*, edited by Sharples, Robert W., 133-134. Aldershot: Ashgate.

    Reply to J. Barnes - *Locke and syllogism* - in the same volume pp. 105-132

37. Hailperin, Theodore. 1988. "The Development of Probability Logic from Leibniz to Maccoll." *History and Philosophy of Logic* no. 9:131-191.

38. Heath, Terence. 1971. "Logical Grammar, Grammatical Logic, and Humanism in Three German Universities." *Studies in the Renaissance* no. 18:9-64.

39. Hickman, Larry. 1971. "Late Scholastics Logics: Another Look." *Journal of the History of Philosophy* no. 9:226-234.

40. ———. 1980. *Modern Theories of Higher Level Predicates. Second Intentions in the Neuzeit*. München: Philosophia Verlag.

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"The theory of higher predicates (predicates of predicates) contained in the traditional discussions on second intentions has been largely ignored, even by historians of logic, who as a rule have concentrated on nominalism, a scholastic trend so fruitful in formal logic yet so poor in this particular topic.

Larry Hickman's work makes available for modern readers many of the riches related to higher predication, that have been so far buried in rather unknown authors mainly from the post-medieval or "second" scholasticism.

Hickman not merely shows us selected "pictures" of the unfamiliar territories he has been exploring: his inquiry, although primarily historical, is analytical and systematically oriented.

Bochenski wrote about twenty years ago: "Logic shows no linear continuity of evolution. Its history resembles rather a broken line. From modest beginnings it usually raises itself to a notable height very quickly -- within about a century -- but then the decline follows as fast. Former gains are forgotten; the problems are no longer found interesting, or the very possibility of carrying on the study is destroyed by political and cultural events. Then, after centuries, the search begins anew. Nothing of the old wealth remains but a few fragments; building on those, logic rises again." (1)

Obviously during the cycle of so-called modern philosophy (Descartes to Kant, roughly) the problem of higher predication was not found interesting and this explains why Frege may have believed that the distinction of proper ties of the second

and first level *(zweiter and erster Stufe)* was *his* ("meine, Unterscheidung"). At any rate, one can hardly find a better example of the "broken line" character of the history of logic than in this issue of iterated predication and properties of properties.

Predication is perhaps one of the very few topics in which most if not all philosophical schools seem to have something in common. This should be sufficient as a hint at the significance of Hickman's historical investigations, not merely for the logical historiography but for philosophy in general." (from the Foreword).

(1) I. M. Bochenski: *A History of Formal Logic*, Notre Dame, 1961 Introduction § 3.

41. Howell, Wilbur Samuel. 1956. *Logic and Rhetoric in England, 1500-1700*. Princeton: Princeton University Press.

Contents: Prefgace V-VII;m 1. Introduction 3; 2. Scholastic logic 12; 3. Traditional rhetoric: the three patterns 64; 4. The English Ramists 146; 5. Counterreform: systematics an neo-Ciceronians 282; 6. New horizons in logic and rhetoric 342; Index 399-411.

"Logic, conceived today as the science of validity of thought, and as the term for the canons and criteria that explain trustworthy inferences, was in the English Renaissance a theory not so much of thought as of statement. For all practical purposes, the distinction between thoughts and statements is not a very real distinction, since the latter are merely the reflection of the former, and the former cannot be examined without recourse to the latter. But what distinction there is consists in a differentiation between mental phenomena and linguistic phenomena, the assumption being that the thing to which either set of phenomena refers is reality Itself. Logicians of the twentieth century are primarily interested in mental phenomena as an interpretation of the realities of man's environment, and in that part of mental phenomena which we call valid or invalid inference. Logicians of the English Renaissance were primarily interested in statements as a reflection of man's inferences, and in the problem of the valid

and invalid statement. Thus Renaissance logic concerned itself chiefly with the statements made by men in their efforts to achieve a valid verbalization of reality. Since such statements were the work of scholars and science, not of laymen, Renaissance logic founded itself upon scholarly and scientific discourse and was in fact the theory of communication in the world of learning. The data upon which this theory rested were all learned tractates of that and earlier times. The theory itself attempted on the one hand to explain the nature of these tractates, as to language, sentence structure, and organization, and on the other to offer assistance to the learner in his effort to master learned communication, as part of his entrance fee to the scientific and philosophical world." p. 3

42. ———. 1971. *Eighteenth-Century British Logic and Rhetoric.* Princeton: Princeton University Press.

    Contents: Preface VII-IX; 1. Introduction 5; 2. The Aristotelian inheritance in logic (1615-1825). I. Some Seventeenth-century Peripatetics 13; II. Bishop Sanderson and the attack on Ramus 16; III. Crakanthorp's *Logicae Libri Quinque* 22; IV. John Wallis's *Institutio Logicae* 29; V. Dean Aldrich's famous *Artis Logicae Compendium* 42; VI. Syllogisms and science: John Sergeant's view 61; 3 The Eighteenth-century Ciceronians (1700-1759). 1. Rhetoric as the counterpart of logic 75; II. John Ward's Lectures at Gresham College 83; III. John Holmes's *The Art of Rhetoric Made Easy* 125; IV. Separative tensions in rhetoric: a retrospect 142; 4 The British elocutionary movement (1702-1806). I. Rhetorical delivery adopts a new name 145; II. Some reflections on a semantic problem 147; III: Why delivery aroused urgent interest 152; IV. Continental backgrounds of British elocution 160; V. Le Faucheur's *Traitté* in England 164; VI. Betterton: Major actor as minor elocutionist 182; VII. Some rules for speaking and action 190; VIII. Orator Henley: preacher, elocutionist, merry-andrew 193; IX. Mason's *Essay on Elocution* 204; X. Action proper for the pulpit 209; XI. Sheridan: minor actor as major elocutionist 214; XII. Burgh, Herries, Walker, Austin 244; 5.The new logic (1690-1814). I. Seven points of friction 259; II. John Locke and the new logic 264; III. Other voices: Le Clerc, Crousaz, Watts, Duncan, Wolff

299; IV. The new accent: Reid, Kames, Campbell, Stewart 372; 6 The new rhetoric (1646-1800). I. Rhetoric versus rhetoric: a litigation in six issues 441; II. Voices of the Royal Society: Wilkins, Boyle, Sprat, Glanvill, Locke 448; III. Influences from abroad: Lamy, Fénelon, Rapin, Bouhours, Rollin 503; IV. The new rhetoric comes of age: Adam Smith's Lectures at Edinburgh and Glasgow 536; V. George Campbell and the philosophical rhetoric of the new learning 577; VI. Discordant consensus: Hume, Lawson, Priestley, Blair, Witherspoon 613; 7 Conclusion 695; Index 719-742

"This book undertakes to present an analysis of the major eighteenth-century British writings on logic and rhetoric and to place those writings in a chronological perspective, so that the reader may see them in relation to their antecedents in the seventeenth and their consequents in the nineteenth centuries and also in relation to their influences upon each other. Moreover, this book undertakes, as part of these two objectives, to introduce the reader to the authors of these writings and to make them and their works stand together as partners in an intellectual effort of appreciable size and duration. If history, as Carl Becker observed, is the memory of things said and done, then the present history is an attempt to tell our modern world what the chief British logicians and rhetoricians of the 1700's said when they wrote about their specialties, and what their works mean within the context of their particular time.

The main conclusion to be drawn from this history is that the changes which took place in logical and rhetorical doctrine between 1700 and i 800 are perhaps best interpreted as responses to the emergence of the new science.

The old science, as the disciples of Aristotle conceived of it at the end of the seventeenth century, had considered its function to be that of subjecting traditional truths to syllogistic examination, and of accepting as new truth only what could be proved to be consistent with the old. Under that kind of arrangement, traditional logic had taught the methods of deductive analysis, had perfected itself in the machinery of testing propositions for consistency, and had served at the

same time as the instrument by which truths could be arranged so as to become intelligible and convincing to other learned men. In short, traditional logic prided itself upon being a theory of learned enquiry and of learned communication. Meanwhile, traditional rhetoric also prided itself upon having a share in these same two offices, its special purpose being to communicate truths through a process which, on the one hand, blended scientific conclusions with popular opinions and manners, and, on the other hand, transmitted that blend to the general populace. For all practical purposes, the differences between logic and rhetoric, within the context of the old science, were derived from the differences between the learned and the popular audience. A good statement of the concepts which governed this view of the relations of these disciplines to each other is contained in the epigraph at the head of this chapter.

The new science, as envisioned by its founder, Francis Bacon, considered its function to be that of subjecting physical and human facts to observation and experiment, and of accepting as new truth only what could be shown to conform to the realities behind it. Bacon's vision became that of the Royal Society of London, and of similar organizations throughout Europe. The intoxicating novelty and enormous productivity of the new methods of investigation led young scientists and scholars to practice them with increasing sophistication; and logic, which had always claimed anyway to be the theory of enquiry, began to incorporate the new methods into its doctrines and ended by becoming so enamored of them that it allowed them to crowd out its waning interest in the methods of learned communication. Meanwhile, rhetoric began to see itself as the rightful claimant to the methods of learned communication and as the still unrivaled master of the arts of popular discourse; and by making these two activities its new concern, it came ultimately to think of itself as the art which governed all forms of verbal expression, whether popular or learned, persuasive or didactic, utilitarian or aesthetic. Thus in the context of eighteenth-century learning, rhetoric became the sole art of communication by means of language, and logic moved

towards the realization that it was destined to become the science of scientific enquiry. A good statement of the concept which controlled these emerging relations of logic and rhetoric to each other was made by John Stuart Mill in the first half of the nineteenth century, and I have quoted it as the epigraph of Chapter 7, although in a real sense it also belongs to this Introduction." pp. 5-6

43. Jardine, Lisa. 1974. "The Place of Dialectic Teaching in Sixteenth Century Cambridge." *Studies in the Renaissance* no. 21:31-62.

44. ———. 1976. "Humanism and Dialectic in Sixteenth Century Cambridge: A Preliminary Investigation." In *Classical Influences on European Culture, Ad 1500-1700*, edited by Bolgar, Robert Raplh, 141-154. Cambridge: Cambridge University Press.

45. ———. 1982. "Humanism and the Theaching of Logic." In *The Cambridge History of Later Medieval Philosophy*, edited by Kretzmann, Norman, Kenny, Anthony P. and Pinborg, Jan, 797-807. Cambridge: Cambridge University Press.

46. ———. 1988. "Humanistic Logic." In *The Cambridge History of Renaissance Philosophy*, edited by Schmitt, Charles B. and Skinner, Quentin, 173-198. Cambridge: Cambridge University Press.

"The history of medieval and Renaissance logic has traditionally been the history of the great medieval syllogistic logicians and the *fortuna* of their innovatory treatments down through the fifteenth and sixteenth centuries. When historians of logic characterise humanist dialectic as a misguided and non-rigorous intervention which disrupted the smooth development of medieval syllogistic logic, they confirm their own commitment to the interests and techniques pioneered by logicians like William of Sherwood. It is not surprising, then, if these scholars find the very different approach of the humanists trying. They hold up against the `non-rigorous' humanist treatment of ratiocination, the 'rigour' of a commitment to formal validity as the central focus for the study of logic - a commitment, that is to say, to those fixed patterns of

argumentation which guarantee that from any true premises whatsoever one can only infer a true conclusion Humanist treatments of logic, on the other hand, have a good deal in common with the interests of some recent, modern logicians, who have chosen to give a good deal of attention to non-deductive inference, and to 'good' arguments (arguments which can be counted on to win in debate), and the problematic nature of their validity. Like modern logicians they are interested, above all, in 'good' arguments.

A humanist treatment of logic is characterised by the fundamental assumption that *oratio* may be persuasive, even compelling, without its being formally valid (or without the formal validity of the argument being ascertainable). It takes the view, therefore, that any significant study of argument (the subject-matter of logic/dialectic) must concern itself equally with argument (strictly, argumentation) which is compelling but not amenable to analysis within traditional formal logic.' It is this fundamental difference of opinion over what is meant by 'compelling' argument which accounts for the dogmatic insistence (on ideological grounds) of the scholastic (and of the historian of scholasticism) that the humanist is a 'grammarian' or a 'rhetorician'. Either term announces that what the humanist is concerned with is not 'rigorous' in the restricted scholastic sense: all discourse not amenable to such 'rigorous' analysis is, for the scholastic, a matter for the grammarian (to parse and construe) or the rhetorician (to catalogue its persuasive devices). It is in the same spirit that humanists always refer to their study of ratiocination as 'dialectic' (reasoning conducted between two interlocutors), rather than as 'logic', to emphasise the active, pragmatic nature of the argumentation which captures their interest." (pp. 175-176, notes omitted)

47. Kessler, Eckhard. 2002. "*Logica Universalis* Und *Hermeneutica Universalis*." In *La Presenza Dell'aristotelismo Padovano Nella Filosofia Della Prima Modernità*, edited by Piaia, Gregorio, 133-171. Padova: Antenore.

48. Lolli, Gabriele. 1983. "Quasi Alphabetum. Logic and Encyclopedia in G. Peano." In *Atti Del Convegno*

Internazionale Di Storia Della Logica, edited by Abrusci, Michele, Casari, Ettore and Mugnai, Massimo, 133-155. Bologna: CLUEB.

49. Maat, Jaap. 2006. "The Status of Logic in the Seventeenth Century." In *Foundations of the Formal Sciences Iv. The History of the Concept of the Formal Sciences*, edited by Löwe, Benedikt, Peckhaus, Volker and Rasch, Thomas, 157-167. London: College Publications.

50. Mangione, Corrado, and Bozzi, Silvio. 1983. "About Some Problems in the History of Mathematical Logic." In *Atti Del Convegno Internazionale Di Storia Della Logica*, edited by Abrusci, Michele, Casari, Ettore and Mugnai, Massimo, 157-174. Bologna: CLUEB.

51. Michael, Frederick S. 1997. "Why Logic Become Epistemology: Gassendi, Port Royal and the Reformation in Logic." In *Logic and the Workings of the Mind. The Logic of Ideas and Faculty Psychology in Early Modern Philosophy*, edited by Easton, Patricia A., 1-20. Atascadero: Ridgeview.

"Introduction.

It is quite obvious that epistemology permeates most of the logic texts written from a period beginning in the late seventeenth century and continuing into the beginning of the contemporary era in logic at the end of the nineteenth century. The model of this kind of logic appears to be the *Port Royal Logic*. Since this is a work suffused throughout with Cartesian doctrine, it is natural to conclude that this kind of logic is of Cartesian inspiration. Even though Descartes himself did not think of logic in this way, indeed he appears to have viewed logic, and abstract thought generally, with suspicion, the epistemological approach to logic taken in the *Port Royal Logic* can be seen to be a natural outgrowth of Cartesian philosophy. The problem with this judgment is that there had been an earlier logic of this same type and its author, Pierre Gassendi, not only was not Cartesian, but was Descartes's principal rival among the moderns. His *Institutio Logica,* published not as a separate work, but as part of the *Syntagma Philosophica,* which itself is available only as the first two volumes of

Gassendi's posthumous *Opera Omnia,* was, as I will try to show, both conceptually and structurally, the *Port Royal Logic's* principal model.

Inasmuch as each of these logics has as its foundation a theory of ideas, it seems appropriate to call this kind of logic, the logic of ideas. Historians of logic do not look with much favour upon this kind of logic. In the Introduction to his English translation of Gassendi's *Institutio Logica,* Howard Jones states that this work is "not a revolutionary logic which rejects all that the logical tradition has to offer, but a logic which Gassendi renders contemporary by selecting from that tradition only what is appropriate to seventeenth century needs."(1) Wilhelm Risse's assessment of the *Port Royal Logic* is similar. He says of this work, that it is historically one of the high points of logic, comparable in influence to that of Aristotle, Peter of Spain, Ramus and Wolff. But he adds: "This logic is certainly not original. Its extraordinary success is due to its elegance and its pedagogically effective manner of presentation."(2) With respect to logic after the medieval period, which includes the humanist logics of the Renaissance period in addition to the logic of ideas, William and Martha Kneale in their *The Development of Logic* remark that "from the 400 years between the middle of the fifteenth and the middle of the nineteenth century we have...scores of textbooks but few works that contain anything at once new and good."(3) The logic of this same era is called by I.M. Bochenski, "classical logic" and is characterized by him as "something held the field in hundreds of books for nearly four hundred years"(4) but while he sees it as new, he certainly does not see it as good. This is his assessment: "Poor in content, devoid of all deep problems, permeated with a whole lot of non-logical philosophical ideas, psychologist in the worst sense-that is how we have to sum up the "classical" logics.(5)

While I don't think that this attitude is wholly wrong, I would contend that the logic of ideas *was* revolutionary. More specifically, it was the completion of a revolution that took two hundred years to accomplish, from the sixteenth to the eighteenth century. This was the era of the religious

reformation, and it would be as appropriate to speak of a philosophical and scientific reformation in this era as well. It was a period of intense intellectual ferment and upheaval, in which the medieval world view was abandoned and replaced by the modern world view. It began with an attack on medieval logic. This at first sight seems odd inasmuch as if there is one area of medieval philosophy which those involved with the history of philosophy do not think was in need of reformation, it is logic. That is no doubt at least part of the reason why the reformed logics are viewed today with so little enthusiasm

The reform of logic occurred in two phases. The first phase was largely reactive. Medieval logic was discredited by the humanists and largely abandoned. The humanists hoped to convert logic from the formal and theoretical discipline of the medieval period into a practical study, which they hoped would be an improved instrument for argumentation and disputation, and so for the discovery of truth. There was however no consensus about how this was to be accomplished. The second phase in the reformation of logic began in the early seventeenth century, with the abandonment of the view that the way to truth is via argumentation and disputation. Disputation does not lead to truth, it was held, rather the road to truth is by the way of ideas.

The logic of this era is, as Bochenski says, something new. It is an important development in the history of logic. But is it also something good? Were the humanists responsible for an advance in logic? Was the epistemological turn which the logic of ideas brought about, the right turn for logic? For the most part, I would have to answer no. These developments were on the whole not good for logic; certainly they were not good for formal logic. In the four hundred years from the end of the medieval era to the beginning of the era of contemporary logic, while there was some development in informal logic, formal logic was largely neglected. It was a reform of logic, a revolutionary change. But revolutions aren't always good and this one was not good for formal logic. Contemporary logicians and historians of logic have reason to be dismayed by its results.

On the other hand, the situation could hardly have been more favourable for the development of epistemology, and of the theory of ideas in particular. Logic was typically the first subject in a course of university studies, and in the logic of ideas, the theory of ideas was the subject matter to which the student was first exposed. The chief focus in the logic of ideas was not on form but on content, principally on epistemological content. Yet it really was a form of logic, as I hope to make clear and the conception of logic it embodies is legitimate.

My principal purpose in this paper is to examine the logic of ideas as it is found in Gassendi's *Institutio Logica* and in the *Port Royal Logic,* to compare these two works and to explain how this form of logic came about. But I do not think that this form of logic can be understood except in its broad intellectual context. Accordingly, it is with this that I begin." pp. 1-3

(1) Howard Jones, *Pierre Gassendi's Institutio Logica (1658)* (Assen, The Netherlands: Van Gorcum, 1981) p. LXVII. This work will henceforward be referred to as "Jones," followed by page number(s).

(2) Wilhelm Risse, *Die Logik der Neuzeit* (Stuttgart-Bad Carstatt: Friedrich Frommann Verlag, 1964) vol II, p. 79.

(3) William and Martha Kneale, *The Development of Logic* (Oxford, 1962) p. 298.

(4) I. M. Bochenski, *A History of Formal Logic,* translation by Ivo Thomas (Notre Dame, Indiana: Notre Dame University Press, 1961) p. 254.

(5) I. M. Bochenski, *A History of Formal Logic,* translation by Ivo Thomas (Notre Dame, Indiana: Notre Dame University Press, 1961) p. 258.

52. Mugnai, Massimo. 1983. "Alle Origini Dell'algebra Della Logica." In *Atti Del Convegno Internazionale Di Storia Della Logica*, edited by Abrusci, Michele, Casari, Ettore and Mugnai, Massimo, 117-132. Bologna: CLUEB.

53. ———. 2002. "Denken Und Rechnen: Über Die Beziehung Zwischen Logik Und Mathematik in Der Frühen Neuzeit." In

Neuzeitliches Denken. Festschrift Für Hans Poser Zum 65. Geburtstag, edited by Abel, Günter, Engfer, Hans-Jürgen and Hubig, Christoph, 85-100. Berlin: de Gruyter.

54. ———. 2005. "Logic and Mathematics in the 18th Century: Before and after Christian Wolff." In *Wolffiana 1: Macht Und Bescheidenheit Der Vernunft: Beiträge Zur Philosophie Christian Wolffs; Gedenkband Für Hans Werner Arndt*, edited by Cataldi Madonna, Luigi, 97-109. Hildesheim: Georg Olms.

55. ———. 2010. "Logic and Mathematics in the Seventeenth Century." *History and Philosophy of Logic* no. 31:297-314.

    "According to the received view (Bocheński, Kneale), from the end of the fourteenth to the second half of nineteenth century, logic enters a period of decadence. If one looks at this period, the richness of the topics and the complexity of the discussions that characterized medieval logic seem to belong to a completely different world: a simplified theory of the syllogism is the only surviving relic of a glorious past. Even though this negative appraisal is grounded on good reasons, it overlooks, however, a remarkable innovation that imposes itself at the beginning of the sixteenth century: the attempt to connect the two previously separated disciplines of logic and mathematics. This happens along two opposite directions: the one aiming to base mathematical proofs on traditional (Aristotelian) logic; the other attempting to reduce logic to a mathematical (algebraical) calculus. This second trend was reinforced by the claim, mainly propagated by Hobbes, that the activity of thinking was the same as that of performing an arithmetical calculus. Thus, in the period of what Bocheński characterizes as 'classical logic', one may find the seeds of a process which was completed by Boole and Frege and opened the door to the contemporary, mathematical form of logic."

56. Muñoz Delgado, Vicente. 1964. *La Lógica Nominalista En La Universidad De Salamanca, 1510-1530. Ambiente, Literatura, Doctrinas*. Madrid: Revista Estudios.

57. ———. 1972. "Logica Hispano-Portuguesa Hasta 1600 (Notas Bibliográfico-Doctrinales)." *Repertorio de Historia de las Ciencias Eclesiásticas en España* no. 4:9-122.

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62. Normore, Calvin G. 1993. "The Necessity in Deduction: Cartesian Inference and Its Medieval Background." *Synthese* no. 96:437-454.

    "Although we now dismiss Kant's suggestion that logic was already essentially a completed science, we ourselves embrace its ghost, the idea that the conception of logical inference with which we are most familiar is just the common conception of our illustrious philosophical ancestors. This ghost works mischief. It causes us to think whiggishly of the history of logic and so lends respectability to the thought that only since 1879 has there been great logic. More concretely, I shall argue here, the idea that were is and always has been a single dominant conception of valid inference (ours) blinds us to part of Descartes's project. By setting that project against its medieval background I hope to revive our sense of both its strangeness and its possibilities."

63. Nuchelmans, Gabriel. 1994. "Can a Mental Proposition Change Its Truth-Value? Some 17th-Century Views." *History and Philosophy of Logic* no. 15:69-84.

    " In the first half of the seventeenth century the Aristotelian view that the same statement or belief may be true at one time and false at another and, on the other hand, the conception of a mental proposition as a fully explicit thought that lends a definite meaning to a declarative sentence originated a lively debate concerning the question whether a mental proposition

can change its truth- value. In this article it is shown that the defenders of a negative answer and the advocates of a positive answer argued on the basis of different notions of what a mental proposition is: one side taking it as more or less equivalent to a specific utterance- meaning and the other side as more or less equivalent to a generic sentence-meaning."

64. ———. 1998. "Logic in the Seventeenth Century: Preliminary Remarks and the Constituents of the Proposition." In *The Cambridge History of Seventeenth-Century Philosophy*, edited by Garber, Daniel and Ayers, Michael, 103-117. Cambridge: Cambridge University Press.

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65. ———. 1998. "Proposition and Judgement." In *The Cambridge History of Seventeenth-Century Philosophy*, edited by Garber, Daniel and Ayers, Michael, 118-131. Cambridge: Cambridge University Press.

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66. ———. 1998. "Deductive Reasoning." In *The Cambridge History of Seventeenth-Century Philosophy*, edited by Garber, Daniel and Ayers, Michael, 132-146. Cambridge: Cambridge University Press.

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67. Peckhaus, Volker. 1999. "19th Century Logic between Philosophy and Mathematics." *Bulletin of Symbolic Logic* no. 5:433-450.

    "The history of modern logic is usually written as the history of mathematical or, more general, symbolic logic. As such it was created by mathematicians. Not regarding its anticipations in scholastic logic and in the rationalistic era, its continuous development began with George Boole's *The Mathematical Analysis of Logic* of 1847, and it became a mathematical subdiscipline in the early 20th century. This style of presentation cuts off one eminent line of development, the philosophical development of logic, although logic is evidently one of the basic disciplines of philosophy. One needs only to

recall some of the standard 19th century definitions of logic as, e.g., the art and science of reasoning (Whateley) or as giving the normative rules of correct reasoning (Herbart).

In the paper the relationship between the philosophical and themathematical development of logic will be discussed. Answers to the following questions will be provided:

1. What were the reasons for the philosophers' lack of interest in formal logic?

2. What were the reasons for the mathematicians' interest in logic?

3. What did "logic reform" mean in the 19th century? Were the systems of mathematical logic initially regarded as contributions to a reform of logic?

4. Was mathematical logic regarded as art, as science or as both?"

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71. Roncaglia, Gino. 1990. "Cum Deus Calculat -- God's Evaluation of Possible Worlds and Logical Calculus." *Topoi* no. 9:83-90.

72. ———. 1996. *Palestra Rationis. Discussioni Su Natura Della Copula E Modalità Nella Filosofia 'Scolastica' Tedesca Del Xvii*

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    Reprinted 2006 by Continuum.

    Original edition: *Clavis Universalis. Arti della memoria e logica combninatoria da Lullo a Leibniz* - Bologna, Il Mulino, 1983

74. Schuurman, Paul. 2004. *Ideas, Mental Faculties and Method. The Logic of Ideas of Descartes and Locke and Its Reception in the Dutch Republic, 1630-1750*. Leiden: Brill.

75. Sgarbi, Marco. 2012. "Towards a Reassessment of British Aristotelianism." *Vivarium* no. 50:85-109.

    "The aim of the paper is to reassess the role of British Aristotelianism within the history of early modern logic between the sixteenth and seventeenth centuries, as a crucial moment of cultural transition from the model of humanistic rhetoric and dialectic to that of facultative logic, that is, a logic which concerns the study of the cognitive powers of the mind. The paper shows that there is a special connection between Paduan Aristotelianism and British empiricism, through the mediation of British Aristotelianism. British Aristotelians took the ideas of the Paduan Aristotelian tradition and carried them to an extreme, gradually removing them from the original Aristotelian context in which they were grounded and developing what would later become the fundamental ideas of British empiricism."

76. ———. 2013. *The Aristotelian Tradition and the Rise of British Empiricism. Logic and the Rise of British Empiricism. Logic and Epistemology in the British Isles (1570-1689)*. New York: Springer.

77. Thiel, Christian. 1982. "From Leibniz to Frege: Mathematical Logic between 1679 and 1879." In *Logic, Methodology and Philosophy of Science, Vi.*, edited by Cohen, Jonathan L., 755-770. Amsterdam: North-Holland.

Proceedings of the Sixth International Congress of Logic. Methodology and Philosophy of Science, Hannover 1979.

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3. Abraham, William E. 1969. "Complete concepts and Leibniz's distinction between necessary and contingent propositions." *Studia Leibnitiana* no. 1:263–279

   "There is a widely held view that Leibniz is unable to draw a logical, as distinct from a psychological, an epistemological, or a theological, distinction between necessary and contingent truths.

   According to the psychological, view, contingent truths are necessary truths whose analysis is so complex that our minds are unable to complete or grasp the analysis. According to the epistemological distinction, certain facts appear differently to us from how they appear to God. God knows all things non-temporally or timelessly, while we can only know facts as appearing in time. Hence certain propositions must appear contingent to us. According to the theological distinction, contingent truths are necessary(1) truths which are made contingent by their presupposition of the free decree of God, while necessary truths only presuppose his understanding.

   I propose to show that Leibniz draws a consistent and distinctly logical contrast, and to show that the above gloomy opinion springs from an indefensible interpretation of the nature and purpose of the "complete concept", as well as an omission to

investigate properly what Leibniz means by a reduction, and by a "virtual identity"."

(1) 1 W. & M. Kneale: T*he Development of Logic*, pp. 333-335; also B. Russell: *A Critical Exposition of the Philosophy of Leibniz,* p. 25f.

4. ———. 1975. "Predication." *Studia Leibnitiana* no. 7:1–20

   Abstracvt: "Paralogisms concerning Leibniz's predicate doctrine are pointed out and refuted.

   Being included means the inverse of derivative; to the two kinds of derivation that Leibniz knows, correspond to two kinds of containment. The two types of entailment provide Leibniz with the possibility to make the logical and irreducible distinction between necessary and conditional truths. The distinction between an individual and a property is made with set-theoretic methods and also with the help of epistemological terms.

   The particular categorical form of the declarative sentence implies that there is only one deep grammar for all statements, which are essentially different forms of expression of categorical statements."

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   Abstract: "Our computational metaphysics group describes its use of automated reasoning tools to study Leibniz's theory of concepts. We start with a reconstruction of Leibniz's theory within the theory of abstract objects (henceforth `object theory'). Leibniz's theory of concepts, under this reconstruction, has a non-modal algebra of concepts, a concept-containment theory of truth, and a modal metaphysics of complete individual concepts. We show how the object-theoretic reconstruction of these components of Leibniz's theory can be represented for investigation by means of automated theorem provers and finite model builders. The

fundamental theorem of Leibniz's theory is derived using these tools."

6. Alcantara, Jean-Pascal. 2011. "On internal relations in Leibniz, British Neo-realism and Whitehead." *Logique et Analyse* no. 214:173–209

   Abstract: "The aim of this paper consists in asking whether Whitehead's philosophy of organism would be a reenactment of Leibniz's doctrine of internal relations. As this terminology depends on Russell's reading of Leibniz, it is first necessary to restore the so-called thesis of reducibility of relations through the opposition of the main commentaries. Secondly, we distinguish Russell's refusal of the axiom of internal relations from Moore's criticism, which is rather related to the exclusiveness of this axiom. Thirdly, we follow Whitehead on relations from 1905 to 1925, agreeing with Russell about the untenable supremacy of the judgement of predication, but getting closer to Moore about the axiom, for the very reason that if there were any internal relation, there could be no process in the nature."

7. ———. 2012. "Leibniz, Modal Logic and Possible World Semantics: The Apulean Square as a Procrustean Bed for His Modal Metaphysics." In *Around and Beyond the Square of Opposition*, edited by Béziau, Jean-Yves, 53–71. Basel: Birkhäuser

   Abstract: "Even if Leibniz didn’t have the opportunity to actually conceive an explicit modal logic system, remains the fact that he had worked out a modal metaphysics, of hich the inaugural act, in his *Elementa juris naturalis* (c. 1671) was an obvious reference to the Apulean square of opposition. Later, scholars acknowledged in this passage probably one of the first sketch of deontic logic of norms. His modal metaphysics rather deals with the so-called alethic modalities, sometimes expounded through a language such as R.M. Adams wondered whether Leibniz could be “a sort of grandfather of possible worlds semantics for modal logic”.[*] In the following study, the Apulean square is used as a hermeneutic tool: however, is the square really well-fitted to express some basic implications

of the modal metaphysics? The most remarkable point is that Leibniz was well aware of the K-distributive axiom (p ⊃ q) ⊃ (p ⊃ q) common to the main modal systems today. This awareness dissuaded him to trust the too easy solution of the necessitarianism issue grounded on the well-known distinction coming from Boethius between a "*necessitas consequentiae*" and a "*necessitas consequentis*".

Thus Leibniz must consider a proof-theory solution style (for a contingent proposition, the reducibility of the predicate to its subject cannot be achieved). A new square could be making up, however implying a difficulty: if the modal metaphysics cannot admit the logical convertibility of the contingent propositions of which the *dictum* of one is exactly the negation of the *dictum* of the other, known since Aristotle. This is the reason for what the Apulean square could represent a Procrustean bed for Leibniz' modal metaphysics.

At the end, a new modality square may be drawn, according to which each modality in the corner is expressed by quantifications on possible worlds. Whether possible worlds semantics could supersedes Leibniz' own explanation of contingency thanks to this new square of modalities, i.e. a possible worlds square of modalities, will be the topic of a second part of this study."

[*] R. M. Adams, *Leibniz: Determinist Theist, Idealist*, New York: Oxford University Press 1994, p. 9.

8. Andrews, F. E. 1983. "Leibniz's Logic Within His Philosophical System." *Dionysius* no. 7:73–128

   Abstract: "The work purports to provide a philosophical history of Leibniz's logical works. The principal conclusion is that Leibniz's work on logical calculi, the modifications in it coinciding with the three periods identified by Couturat, rest upon refinements in the expression of his philosophical system, and end when his philosophical thought reached that point at which it is manifest that a logical calculus such as he had envisaged is not competent to his philosophical standpoint."

9. Angelelli, Ignacio. 1965. "Leibniz's misunderstanding of Nisolius' notion of "multitudo"." *Notre Dame Journal of Formal Logic* no. 6:319–322

   "The Renaissance humanist Nizolius(1) is a remarkable exception in the history of philosophy, where the notion of class appears to be extremely rare. Nizolius substitutes traditional universals by what he calls *multitudines* and during more than four hundred pages he tries to convince his readers that in the real world there are only individuals and collections of individuals. It is not perhaps clear whether Nizolius' *multitudo* comes closer to *class* or to *heap*." (p. 319)

   (...)

   "Now, it is extremely puzzling that Leibniz seems to have completely missed such a point of Nizolius' theory, because he erroneously thinks that Nizolius' approach leads to such absurdities as {horno} ε {animal}

   or to such falsities as {homo}={animal}. How or why this could happen, is indeed quite enigmatic." (p. 319)

   (...)

   "Nizolius' pyrrhic fame, due to the fact of his having been edited by Leibniz, should be substituted by a more important one: his book is an excellent introduction - in Ciceronian style - to the problems of the notion

   of class." (p. 320, notes omitted)

   (1) ...Marius Nizolius was born in Brescello (Italy), 1498, and died in 1576. He was a disciple of Valla, and he taught at the University of Parma.

   [Leibniz reedited the book *Marii Nizolii de veris principiis et vera ratione philosophandi libri IV*, in 1670, with an important preface.]

10. ———. 1967. "On Identity and Interchangeability in Leibniz and Frege." *Notre Dame Journal of Formal Logic* no. 8:94–100

"The main purpose of this paper is to show that Leibniz did not accept what today is usually known as Leibniz's rule of substitutivity (or indiscernibility of identicals, etc.). This purpose is attained by quoting three texts, in Latin, one of them not yet published. Another aim of the paper is to show how Frege believed that the rule Leibniz had used only for restricted calculi, could be extended to the ordinary language. This is construed as the source of the axiomatic status enjoyed by the rule among philosophers in the last century."

11. Arthur, Richard T. W. 2019. "Leibniz in Cantor's Paradise: A Dialogue on the Actual Infinite." In *Leibniz and the Structure of Sciences: Modern Perspectives on the History of Logic, Mathematics, Epistemology*, edited by De Risi, Vincenzo, 71–109. Cham (Switzerland): Springer.

12. Baron, Margaret E. 1969. "A Note on the Historical Development of Logic Diagrams: Leibniz, Euler and Venn." *The Mathematical Gazette* no. 53:113–125

    "It was, however, Gottfried Wilhelm Leibniz (1646-1716), who first devoted serious study to the analysis of logical propositions by means of diagrams. He was also the first to conceive the idea of a calculus of logic as a piece of purely abstract mathematics, i.e., mathematics not concerned with space or number. Unfortunately much of the value of this work was lost as only a small proportion of it was published in his life-time.

    Leibniz professes always the greatest admiration for traditional logic." (p. 116)

    (...)

    "Nonetheless, he considered the logic of Aristotle imperfect and wanted to complete it. In so doing, he explored at some length the possibility of representing syllogistic arguments by means of geometric figures developing not only the now familiar circle diagrams attributed to Venn and Euler, but also an ingenious linear form which he considered clearer and easier to work with." (p. 117)

13. Bassler, Otto Bradley. 1998. "Leibniz on Intension, Extension, and the Representation of Syllogistic Inference." *Synthese* no. 116:117–139

    Abstract: "New light is shed on Leibniz's commitment to the metaphysical priority of the intensional interpretation of logic by considering the arithmetical and graphical representations of syllogistic inference that Leibniz studied. Crucial to understanding this connection is the idea that concepts can be intensionally represented in terms of properties of geometric extension, though significantly not the simple geometric property of part-whole inclusion. I go on to provide an explanation for how Leibniz could maintain the metaphysical priority of the intensional interpretation while holding that logically the intensional and the extensional stand in strictly inverse relation to each other."

14. Benis-Sinaceur, Hourya. 2023. ""Ars invenendi" today." *Acta Morphologica Generalis* no. 9:1–11

    From the original article: *"Ars inveniendi" aujourd'hui*, Les Études philosophiques, 1989, pp. 201-214. Translated from the French by Asunción Álvarez.

    "In his obituary of Abraham Robinson(1), Simon Kochen gave a portrait of Kurt Gödel (1906-1978) that will be of interest to Leibniz scholars. Gödel, who, it should be borne in mind, was particularly interested in Leibniz's philosophy, regarded Abraham Robinson's work as the best realisation of the Leibnizian ideal of logic serving as an ars inveniendi for mathematics. In this paper, I would like to examine which aspect of ars inveniendi is done justice by this claim, and which characteristic of contemporary logic it highlights. Given that we are dealing with Abraham Robinson's work, I will only discuss model theory, although there are other domains where logical results may facilitate mathematical discoveries.

    Leibniz's project of a "universal calculus"(2) has been widely discussed in the light of the findings of modern logic. By contrast, the idea, which is essential to Leibniz's mathematics and philosophy, that the establishment of calculus presupposes

a “concept analysis” has been hardly considered from the point of view of modern logic. Yet this was what Gödel, for whom conceptual analysis is a precious component of scientific research and logic a useful discipline for mathematicians(3), had in mind." (p. 1)

(1) On Abraham Robinson’s work in mathematical logic, *The bulletin of the London mathematical society*, vol. 8, part 3, November 1976, 312-315

(2) Cf. in particular, Hans Hermes, Ideen von Leibniz zur Grundlagenforschung: Die ars inveniendi und die ars judicandi, *Studia Leibnitiana, Supplementa*, III (1969), 92-102. And more recently M. Sanchez-Mazas, La caractéristique numérique de Leibniz comme méthode de décision, *Studia Leibnitiana, Supplementa*, XXI (1980), 168-182. I have also previously discussed the coincidence of the arithmetisation of logic at the start of this century with Leibniz’s “universal calculus” project (La logique comme ars inveniendi, in A. Robinet (ed.), *Doctrines et concepts. Cinquante ans de philosophie de langue française*. Paris, Vrin, 1988, 321).

(3) Cf. Hao Wang’s testimony in *Reflections on Kurt Gödel*, MIT Press, Cambridge (Mass.), London, 1987, 167.

15. Bergmann, Gustav. 1956. "Russell's Examination of Leibniz Examined." *Philosophy of Science* no. 23:175–203.

16. Bertran-San Millán, Joan. 2021. "Lingua characterica and calculus ratiocinator: The Leibnizian background of the Frege-Schröder polemic." *The Review of Symbolic Logic* no. 14:411–446

Abstract: "After the publication of *Begriffsschrift*, a conflict erupted between Frege and Schröder regarding their respective logical systems which emerged around the Leibnizian notions of *lingua characterica* and *calculus ratiocinator*. Both of them claimed their own logic to be a better realisation of Leibniz’s ideal language and considered the rival system a mere *calculus ratiocinator*. Inspired by this polemic, van Heijenoort (1967b) distinguished two conceptions of logic—logic as language and logic as calculus—and presented them as opposing views, but

did not explain Frege's and Schröder's conceptions of the fulfilment of Leibniz's scientific ideal.

In this paper I explain the reasons for Frege's and Schröder's mutual accusations of having created a mere *calculus ratiocinator*. On the one hand, Schröder's construction of the algebra of relatives fits with a project for the reduction of any mathematical concept to the notion of relative. From this stance I argue that he deemed the formal system of *Begriffsschrift* incapable of such a reduction. On the other hand, first I argue that Frege took Boolean logic to be an abstract logical theory inadequate for the rendering of specific content; then I claim that the language of *Begriffsschrift* did not constitute a complete *lingua characterica* by itself, more being seen by Frege as a tool that could be applied to scientific disciplines. Accordingly, I argue that Frege's project of constructing a *lingua characterica* was not tied to his later logicist programme."

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van Heijenoort, J. (1967b). Logic as Calculus and Logic as Language. *Synthese*, 17, 324–330.

17. Besler, Arman. 2018. "Syllogistic Expansion in the Leibnizian Reduction Scheme." *Cilicia Journa of Philosophy* no. 2:1–16

Abstract: "The standard inferential scheme of traditional assertoric syllogistic, based on the initial chapters of Aristotle's Prior Analytics, employs single-premissed deductions, i.e., principles of immediate inference, in the reduction of imperfect valid moods to perfect moods. G. W. Leibniz (among others) has attempted to replace this scheme with his own version of syllogistic reduction (the core of which is, again, based on Aristotle's observations on syllogistic transformation), in which the principles of immediate inference themselves are modelled as (and hence justified by means of) valid syllogisms. This paper examines the place of this modelling, i.e. syllogistic expansion, of immediate inferences in Leibniz's scheme of syllogistic reduction (which he describes in his Nouveaux Essais and presents in one of his papers on syllogistic), and shows through this examination that the tenability of the whole

scheme actually hinges on the interpretation to be given for the categorical propositional forms."

18. Blank, Andreas. 2008. "Ramus and Leibniz on analysis." In *Leibniz: What Kind of Rationalist?*, edited by Dascal, Marcelo, 155–166. Dordrecht: Springer

    "In the present chapter, I argue for two claims: (1) In the 1547 edition of the *Dialectical Institutions* – the first three volumes Latin edition that came out under his own name(4) – Ramus explicitly dissociates human discourse from truth in the Divine mind. Rather, he holds that dialectics is founded on innate, natural capacities of the human mind which function as a substitute for insight into Divine truth. According to his view, analysis has the task of disentangling the elements of common human discourse, thus providing us with examples, which subsequently, in the process of genesis, fulfill the function of models for forming new discourses. (2) Leibniz's attitude towards Ramus is not a matter of simply accepting or rejecting such an account of the role of analysis in the constitution of discourse. On the one hand, Leibniz does not accept Ramus' views about the connection between analysis and the function of examples as models for constructing new discourses. According to Leibniz, rather, analysis provides us with the concepts and truths that function as starting points for demonstrative arguments. On the other hand, he shares with Ramus the view that philosophical analysis can only explicate what implicitly already is known. As for Ramus, for Leibniz analysis has a purely descriptive starting point in the common usage of language." (pp. 155-156)

    (4) For the history of the three-book Latin editions of the *Dialectical Institutions*, see Ong 1958: 200–201. In what follows, I refer to the 1547 edition of the *Dialectical Institutions* as "DI".

    All references are to page numbers.

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19. Błaszczyk, Piotr, Kanovei, Vladimir, Katz, Karin U., Katz, Mikhail G., Kudryk, Taras, Mormann, Thomas, and Sherry, David. 2016. "Is Leibnizian Calculus Embeddable in First Order Logic?" *Foundations of Science* no. 22:717–731

    Abstract: "To explore the extent of embeddability of Leibnizian infinitesimal calculus in first-order logic (FOL) and modern frameworks, we propose to set aside ontological issues and focus on procedural questions. This would enable an account of Leibnizian procedures in a framework limited to FOL with a small number of additional ingredients such as the relation of infinite proximity. If, as we argue here, first order logic is indeed suitable for developing modern proxies for the inferential moves found in Leibnizian infinitesimal calculus, then modern infinitesimal frameworks are more appropriate to interpreting Leibnizian infinitesimal calculus than modern Weierstrassian ones."

20. Brancato, Mattia. 2017. "The Young Leibniz and the Principle of Contradiction: Adoption and Use between Philosophy and Mathematics." *Lumières* no. 29:101–118.

21. Brody, Baruch. 1977. "Leibniz's Metaphysical Logic." *The Rice University Studies* no. 63:43–55

    Reprinted in: Mark Kulstad (ed.), *Essays on the Philosophy of Leibniz*, Houston: William Marsh Rice University Press 1977, pp. 43-55 and in: R. S. Woolhouse (ed.), *Gottfried Wilhelm Leibniz. Metaphysics and Its Foundations, Gottfried Wilhelm Leibniz. Critical Assessments,* Vol. I, New York, Routledge, 1994, pp. 82-96.

    "At the beginning of this century, Russell and Couturat made the important discovery that some of Leibniz's most fundamental metaphysical views (his view that substances do not interact, his theory of pre-established harmony as a soIution to the mind-body problem, etc.) were based upon his intensional analysis of the truth of propositions, upon his logical principle that the predicate is contained in the subject in every true proposition.(1) Since their discovery, this principle has been the subject of much controversy.

Did Leibniz think that it applied to existential judgments? What is its relation to the principle of sufficient reason, another of Leibniz's fundamentalprinciples? Does it have the consequences that Leibniz thought it had?

Strangely enough, throughout all of this controversy, little attention has been directed to Leibniz's reasons for maintaining this principle. It is just this that I want to consider in this paper. I hope to show that (a) it is more or less original with Leibniz, and not something that he borrowed from his predecessors, (b) he had a variety of interesting and important arguments for it, and (c) these arguments reveal that this logicaI principle was based upon certain of Leibniz's fundamental metaphysical presuppositions. In light of this last result, I shall also argue for a reevaluation of the relation between Leibniz's logic and his metaphysics." (p. 43)

(1) Bertrand Russell, *The Philosophy of Leibniz* London: Allen and Unwln, 1900). Louis Couturat, "Sur la Metaphyslque de Leibniz," translated and reprinted In H. Frankfurt's *Leibniz* (New York, 1972): all page references are to this translation.

22. Burdick, Howard. 1991. "What was Leibniz's problem about relations?" *Synthese* no. 88:1–13

Abstract: "The main purpose of the article is to get clear what Leibniz's concerns about relations were. His:

I do not believe that you will admit an accident that is in two subjects at the same time. My judgement about relations is that paternity in David is one thing, sonship in Solomon another, but that the relation common to both is a merely mental thing whose basis is the modifications of the individuals

is best seen as akin to:

'Father' is true of David. 'Son' is true of Solomon. But 'Being a father of' is not true of any individual.

Leibniz, like modern nominalist Nelson Goodman, could not allow the ordered pair (David, Solomon). To establish this I must argue against Hidé Ishiguro's claim that Leibniz should have straightforwardly constructed a logic of relations, and

Jaakko Hintikka's claim that Leibniz could have allowed the use of relational predicates in such forms as '(Ex) Rax' and '(Ey) Ryb'. I must also argue that what they say about the windowlessness doctrine (especially the 'as if' formulation) is beside the point."

References

Frankfurt, H. (ed.): 1972, *Leibniz: A Collection of Critical Essays*, Doubleday, New York.

Hintikka, J.: 1972, 'Leibniz on Plenitude, Relations and the "Reign of Law"', in H. Frankfurt (ed.), pp. 155-90.

Ishiguro, H.: 1972a, 'Leibniz's Theory of the Ideality of Relations', in H. Frankfurt (ed.), pp. 191-214.

Ishiguro, H.: 1972b, *Leibniz's Philosophy of Logic and Language*, Duckworth, London.

23. Burkhardt, Hans, and Degen, Wolfgang. 1990. "Mereology in Leibniz's Logic and Philosophy." *Topoi* no. 9:3–13

"The subject of our paper is the history of whole and part, a topic much neglected in the more recent history of philosophy and theory of science. We shall deal in particular with the part-whole relation in Leibnlz's metaphysics.

The relation of part and whole was by no means always an object of neglect. For Aristotle and the tradition the part-whole relation is a relation fundamental to ontology and metaphysics, being treated as of equal standing with the substance-accident relation and with the four different kinds of cause (material, formal, efficient and final)." (p. 3)

(...)

"The logically basic relation of concept to part-concept is for Leibniz also a whole-part relation -- or at least it seems to be such. At the time of his *Dissertatio*, Leibniz had been convinced that there are minimal, simple concepts, that is concepts which cannot be divided further but which can be known by human beings, and which are the ultimate compository elements of all other concepts. His later view, on the other hand, is that, while

there are such simplest or atomic concepts (*notiones absolute primae*), we do not know what they are, so that we have to be content with composite or 'molecular' concepts *(notiones quoad nos primae*). Hence Leibniz does not at all renounce his earlier idea of a combination of concepts. It remains an ineluctable part of his philosophy and the very heart of his logic -- we must always remember that Leibniz is a logician of concepts or terms and not of propositions. For the purpose of his logic, he also reduces the relation of substance-accident to the more easily treatable relation of concept to part-concept, for example the inclusion of the concept animal in the concept man or even the inclusion of the concept married to Susan in the individual concept Peter. " (p. 6, a note omitted)

24. Busse, Ralf. 2020. "A Logical Reconstruction of Leibniz's Argument for His Complete Concept Conception of the Nature of Substance in *Discours* §8." *History of Philosophy & Logical Analysis* no. 23:447–473.

25. Cabrer, Leonardo, and Gil-Férez, José. 2014. "Leibniz interpolation properties." *Annals of Pure and Applied Logic* no. 165:933–962.

26. Camposampiero, Matteo Favaretti. 2022. "False Ideas: Leibniz and Aquinas." *Studia Leibnitiana* no. 54:205–224.

27. Capozzi, Mirella, and Roncaglia, Gino. 2009. "Logic and Philosophy of Logic from Humanism to Kant." In *The Development of Modern Logic*, edited by Haaparanta, Leila, 78–158. New York: Oxford University Press

    § 8. *Leibniz*, pp. 110-122.

    "The German logician and philosopher Gottfried Wilhelm Leibniz (1646–1716) has a foremost role in the history of formal logic. However, it is almost impossible (and probably misleading) to represent his contributions to logic as a single and coherent set of theories nicely inserted within a linear path of development. There are at least three reasons that rule out such a reassuring view. In the first place, Leibniz contributed ideas—often through scattered and incomplete fragments rather than through structured and polished writings—to a

plurality of logically relevant subjects: from the arithmetization of syllogistic to the theory of relations, from modal logic (and semantic of modal logic) to logical grammar—and the list could be easily extended. Moreover, relevant contributions are often found in works, fragments, or letters not explicitly devoted to the field of logic.

In the second place, most of Leibniz's writings testify to a work in progress in the deepest meaning of the expression: Different and sometimes incompatible strategies are explored in fragments dating back to the same years or even to the same months, corrections and additions may substantially modify the import of a passage, promising and detailed analysis remain uncompleted or are mingled with sketchy hints. Nevertheless, there is a method in Leibniz's passionate and uninterrupted research: a deeper unity that is given by a set of recurring problems and by the wider theoretical framework in which they are dealt with. Last but not least, it should always be kept in mind that Leibniz's works known by his contemporaries and immediate successors constitute a very limited subset of his actual production. It is only during the twentieth century that Leibniz's role in the history of logic came to be fully appreciated, and this appreciation is connected to at least two different moments: the publication by Louis Couturat, in 1903, of the *Opuscules et fragments inédits de Leibniz* (Leibniz 1966; see also Couturat 1901), many of which were devoted to logic, and the progress made during the second half of the century in the publication of the complete and critical edition of Leibniz's texts (*Leibniz* 1923–). Almost three centuries after his death, this edition (the so-called Akademie-Ausgabe) is, however, still to be completed." (pp. 110-111)

References

Couturat, Louis. 1901. *La Logique de Leibnitz d'après des documents inédits*. Paris: Alcan.

Leibniz, Gottfried Wilhelm. [1903] 1966. *Opuscules et fragments inédits de Leibniz*, ed. L. Couturat. Alcan: Paris. Reprint Hildesheim–New York: Olms.

Leibniz, Gottfried Wilhelm. 1923–. *Sämtliche Schriften und Briefen*. Herausgegeben von der Preussischen (Deutschen) Akademie der Wissenschaften zu Berlin. Darmstadt–Leipzig–Berlin: Akademie.

28. Castañeda, Hector-Neri. 1974. "Leibniz's Concepts and their Coincidence *Salva Veritate*." *Noûs* no. 8:381–398

    "My primary purpose here is to contribute to a better understanding of Leibniz's view of concepts and their coincidence salva veritate. I also want to advocate a certain Darwinian methodology for future studies in Leibniz's philosophy. These goals will be pursued through a critical examination of Hide Ishiguro's recent and valuable book *Leibniz's Philosophy of Logic and Language*.[1]

    (...)

    Here I dispute Ishiguro's five main theses about Leibniz's view of concepts. These are (A)-(E) below. In my opinion, these interesting theses run counter to crucial texts, but, more importantly, they destroy the significance of Leibniz's work in logic and distort his ontology without enhancing the value of his contribution to the philosophy of logic or the philosophy of language.

    I have something to say about Ishiguro's treatment of Leibniz's view of relations and of existence, but I cannot go into full details here.

    Fortunately, and unexpectedly in the course of working on the problems of referential opacity, I have developed a system of ontology in [2] that is thoroughly Leibnizian in its handling of relations and of existence.

    It shows how relations are beings of reason by being instances of the pre-established harmony. Thus, that system contains an indirect, partial reply to Ishiguro's discussion on pages 103ff." (p. 381, a note omitted)

    References

    [1] Hide Ishiguro, *Leibniz's Philosophy of Logic and Language* (Ithaca: Cornell University Press, 1972).

[2] Hector-Neri Castafeda, "Thinking and the Structure of the World," *Philosophia* 4 (1974).

29. ———. 1976. "Leibniz's Syllogistico-Propositional Calculus." *Notre Dame Journal of Formal Logic* no. 17:481–500

"In his research in logical theory after 1680 Gottfried Wilhelm Leibniz worked intensively at devising a formal calculus that would be interpreted as a general logic. He was convinced that the classical types of categorical propositions were the fundamental ones, so that the central core of his general calculus had to consist of the theory of the syllogism. He conceived the rest of the logical relationships between propositions as developments of syllogistics. Thus, the calculus he was aiming at was not to be merely a calculus that could have a double interpretation: as a syllogistic calculus and, alternatively, as a calculus of other types of implication. His general calculus was to have the principles of syllogistics and the other logical principles together at once. His calculus would be powerful enough to handle mixed inferences involving classical syllogisms and other reasonings.

Undoubtedly because of his algebraic researches and his view on the nature of truth, Leibniz took it for granted that a fully satisfactory logical calculus must be an equational one. Thus, his first efforts at treating the theory of syllogism were directed toward the construction of an equational syllogistic calculus. (And he anticipated some equations of Boolean algebra.) His *General Inquiries about the Analysis of Concepts and Truths* (1686), referred to here as [I],(1) contains a series of reflections on the syllogistic equations. He tries several approaches, and discovers some valid equations. But two things are of special interest to us now:

(i) Leibniz formulates there principles that allow the generalization of syllogistics to propositional logic; (ii) Leibniz moves toward a higher level of abstraction. In his [2], *The Primary Bases of a Logical Calculus* (August 1, 1690), he takes up the topic again, and this time he begins with general logical principles and discusses applications to syllogistics. He distills

the general system in [3], *The Bases of a Logical Calculus* (August 2, 1690).

My purpose here is to examine critically the system slowly developed by Leibniz in those three papers. " (p. 481)

References

C: Couturat, L., ed., *Opuscules et fragments inedits de Leibniz*, Presses Universitaires de France, Paris (1903).

P: Parkinson, G. H. R., ed. and trans., *Leibniz's Logical Papers,* Clarendon Press, Oxford (1966)

[1] *General Inquiries about the Analysis of Concepts and Truths* (1686) in C 356-399, and in P 47-89.

[2] *The Primary Bases of a Logical Calculus* (August 1, 1690), in C 235-237 and in P 90-92.

[3] *The Bases of a Logical Calculus* (August 2, 1960), in C 421-423, and in P 93-94.

30. ———. 1990. "Leibniz's Complete Propositional Logic." *Topoi* no. 9:15–27

"Here I argue that the concluding round of logical theorizing in Leibniz's *Generales Inquisitiones*, Sections 195-200, 6 is a brilliant short essay. It contains a significant logical accomplishment. With minor editing, it should have been published in 1686 or soon thereafter.

Our current standards of rigor would require more editing, but no revision of principles, except a clarification about the association of conjunction.

The *GI* is a manifold of philosophical reflections undergirded by a series of logical investigations. Leibniz's goal is to construct a general logical calculus that encompasses traditional syllogistics. He makes attempt after attempt at developing the envisaged calculus.

(...)

"I submit that Leibniz is completely justified in claiming that the principles he has given are fundamentals of logical form.

(Since Latin does not have articles, it is not clear that he meant the fundamentals, or simply some fundamentals.) At any rate, a set of principles for a certain logical domain may be complete; yet there are always equivalent alternative characterizations of the same domain of valid inferences. Hence, the issue of uniqueness is not so important as whether the principles under consideration are valid and of central value. The next important question is whether the set of such principles is in an appropriate sense complete.

Here I want to argue for two major theses. First, the principles Leibniz formulates in GI 195-200 are valid, important, and exciting. Second, with the adjunction of the principle of associativity of conjunction, which Leibniz does not mention, although he uses it all over, the set of principles he formulates explicitly includes a redundant complete formulation of the standard propositional calculus. Moreover, these principles also contain a full characterization of the truth-table semantics of propositional logic. Furthermore, that calculus includes a correct Boolean treatment of syllogistics." (p. 15)

(6) *Generales Inquisitiones de Analysi Notionum et Veritatum*, hereafter *GI*. I have consulted the Latin text in Couturat's *Opuscules* 356-399, to be referred to as *C* followed by page number, and also the Latin text and its German translation in Franz Schupp (ed.), G. W. Leibniz: *Allgemeine Untersuchungen über die Analyse der Begriffe und Wahrheiten* (Hamburg: Felix Meiner Verlag, transl. and long commentary by Schupp, 1982), to be cited as *S* followed by page number. I have made special use of Parkinson's translation in Leibniz: *Logical Papers* 47--87, referred to as *P* followed by page number. With several revisions it is the text I exegesize here. (...)

31. Castro-Manzano, J. Martín. 2017. "Re(dis)covering Leibniz's Diagrammatic Logic." *Tópicos, Revista de Filosofía* no. 52:89–116

Abstract:"In this paper I attempt to retrieve Leibniz's linear diagrammatic logic for his syllogistic and highlight its computational and logical features by providing a formal

approach to it in metalogical terms, which is something that, as far as we know, has not yet been accomplished. Thus, in this contribution I pursue two goals, one historical and the other logical: i) to bring more attention on the algorithmic aspects of Leibniz's linear diagrammatic system for his syllogistic, which I believe has been neglected because of a general bias against diagram-based reasoning; and ii) to prove the metalogical properties of the system in order to argue that such a system is a *bona fide* logical system."

32. Cobreros, Pablo, Egré, Paul, Ripley, David, and Rooij, Robert. 2013. "Identity, Leibniz's Law and Non-transitive Reasoning." *Metaphysica* no. 14:253–264.

33. Cook, Roy T. 2000. "Monads and Mathematics: the Logic of Leibniz's Mereology." *Studia Leibnitiana* no. 32:1–20

    Summary: "There are profound connections between Leibniz' mathematics and his metaphysics. This paper aims to increase understanding of both of these areas by examining Leibniz's mereology (the theory of parts and wholes). First, Leibniz' mereology will be reconstructed primarily on the basis of his work "Initia rerum mathematicarum metaphysica". This ambitious program begins with the simple notion of compresence, then moves on to more complex notions such as equality, similarity, and homogeneity, and culminates in Leibniz's definition of the notions of part, whole, and composition. In the course of the essay, further insights are gained in other areas, e.g. in relation to the identity of the indistinguishable. Finally, within the framework of the presented theory, I will try to dispel a misunderstanding regarding Leibniz's analogy between monads and mathematical points, which relates to the spatiality of monads."

34. Correia, Manuel. 2002. "Categorical Propositions and 'logica inventiva' in Leibniz's *Dissertatio de arte combinatoria* (1666)." *Studia Leibnitiana* no. 34:232–240

    Summary: "In his *Dissertatio de arte combinatoria,* G.W. Leibniz develops a method to find predicates from a subject and subjects to a predicate, and he sets up a formula to calculate their number. In what follows I would like to explain

how this method works and why it forms both a part of what Leibniz calls *logica inventiva* and a direct consequence of his theory of variations, which forms the central part of his *Dissertatio*. In the last section of this article I will go into some theoretical and historical connections between *logica inventiva* and Aristotelian logic. In particular, I will explain how Leibniz's method relates to some traditional attempts to determine the *tota minora* of a given term, and whether the Aristotelian theory of categorical propositions was able to support Leibniz's method of finding subjects and predicates to be justified within *logica inventiva*."

35. Cortes, Alberto. 1976. "Leibniz's principle of the identity of indiscernibles: A false principle." *Philosophy of Science* no. 43:491–505.

36. Costa, Emanuele. 2016. "Leibniz on Relations: From (Soft) Reductionism to the Expression of the Universe." *Journal of Early Modern Studies* no. 5:143–167.

37. Costantini, Filippo. 2025. "Leibniz's Mereology: A Logical Reconstruction." *Review of Symbolic Logic*:1–35.

38. Dalla Chiara, Maria Luisa, and Mugnai, Massimo. 1989. "A Formal Reconstruction of Leibniz' Intensionale Semantics." In *The Leibniz Renaissance. International Workshop, Firenze, 2-5 giugno 1986*, 55–70. Firenze: Olschki.

39. Daniel, Stephen H. 2009. "Ramist Dialectic in Leibniz's Early Thought." In *The Philosophy of the Young Leibniz*, edited by Kulstad, Mark, Lærke, Mogens and Snyder, David, 59–66. Stuttgart: Franz Steiner.

40. Dascal, Marcelo. 1988. "On Knowing Truths of Reason." In *Leibniz. Questions de logique*, edited by Heinekamp, Albert, 27–37. Stuttgart: Steiner Verlag.

41. ———. 2008. "Leibniz's Two-Pronged Dialectic." In *Leibniz: What Kind of Rationalist?*, edited by Dascal, Marcelo, 37–72. Dordrecht: Springer.

42. ———. 2011. "Leibniz vs. Locke on the role of logic in the workings of reason." In *Natur und Subjekt: Akten des IX.*

Internationalen Leibniz-Kongresses, Hannover, 26. September bis 1. Oktober 2011. Teil 1, edited by Breger, Herbert, 201–207. Hannover: Gottfried Wilhelm Leibniz Gesellschaft.

43. de Lorenzo, Javier, and Ibarra, Andoni. 2020. "The fanciful optimism of Miguel Sánchez-Mazas. Let us calculate... = Freedom and Justice." *Theoria: Revista de Teoría, Historia y Fundamentos de la Ciencia* no. 35 (3):255–265.

44. De Risi, Vincenzo. 2019. "Leibniz on the Continuity of Space." In *Leibniz and the Structure of Sciences: Modern Perspectives on the History of Logic, Mathematics, Epistemology*, edited by De Risi, Vincenzo, 111–169. Cham (Switzerland): Springer.

45. Debuiche, Valérie, and Rabouin, David. 2019. "On the Plurality of Spaces in Leibniz." In *Leibniz and the Structure of Sciences: Modern Perspectives on the History of Logic, Mathematics, Epistemology*, edited by De Risi, Vincenzo, 171–201. Cham (Switzerland): Springer.

46. Di Bella, Stefano. 2005. "Leibniz's Theory of Conditions: A Framework for Ontological Dependence." *The Leibniz Review* no. 15:67–93

    Abstract: "The aim of this paper is to trace in Leibniz' s drafts the sketched outline of a conceptual framework he organized around the key concept of 'requisite'. We are faced with the project of a semi-formal theory of conditions, whose logical skeleton can have a lot of different interpretations. In particular, it is well suited to capture some crucial relations of ontological dependence. Firstly the area of 'mediate requisites' is explored - where causal and temporal relations are dealt with on the basis of a general theory of 'consequence'.

    Then the study of 'immediate requisites' is taken into account - a true sample of mereological inquiry, where Leibniz strives for a unitary treatment of part-whole relation, conceptual inclusion and inherence. Far from simply conflating these relations one with another and with causality, therefore, Leibniz tried to spell them out, while at the same time understanding them within a single conceptual framework."

47. Doull, Floy Andrews. 1991. "Leibniz's Logical System of 1686-1690." *Theoria.Revista de Teoria, Historia y Fundamentos de la Ciencia* no. 6:9–28

    Abstract: "Logical works of this period, beginning with "Generales Inquisitiones" and ending with the two dated pieces of August 1, 1690 and August 2, 1690, are read as a sustained effort, finally successful, to develop a set of axioms and an appropriate schema for the expression of categorical propositions faithful to traditional syllogistic. This same set of axioms is shown to be comprehensive of the propositional calculus of "Principia Mathematica", providing that 'some A is A' is not a "thesis" in an unrestricted sense. There is no indication in the works of this period that Leibniz understood just how significant is this logical system he developed. But it is undeniable that he held tenaciously to this particular set of axioms throughout the period, a set of axioms of great power."

48. Drago, Antonino. 2008. "The square of opposition and the four fundamental choices." *Logica Universalis* no. 2:127–141

    Abstract: "Each predicate of the Aristotelian square of opposition includes the word “is”. Through a twofold interpretation of this word the square includes both classical logic and non-classical logic. All theses embodied by the square of opposition are preserved by the new interpretation, except for contradictories, which are substituted by incommensurabilities. Indeed, the new interpretation of the square of opposition concerns the relationships among entire theories, each represented by means of a characteristic predicate. A generalization of the square of opposition is achieved by not adjoining, according to two Leibniz’ suggestions about human mind, one more choice about the kind of infinity; i.e., a choice which was unknown by Greek’s culture, but which played a decisive role for the birth and then the development of modern science.

    This essential innovation of modern scientific culture explains why in modern times the Aristotelian square of opposition was disregarded."

49. ———. 2012. "Pluralism in Logic: The Square of Opposition, Leibniz'Principle of Sufficient Reason and Markov's Principle." In *Around and Beyond the Square of Opposition*, edited by Béziau, Jean-Yves and Jacquette, Dale, 175––189. Basel: Birkhäuser

Abstract: "According to the present pluralism in mathematical logic, I translate from classical logic to non-classical logic the predicates of the classical square of opposition.

A similar unique structure is obtained. In order to support this new logical structure, I investigate on the rich legacy of the non-classical arguments presented by ingenuity by several authors of scientific theories. A comparative analysis of their ways of arguing shows that each of these theories is severed in two parts; the former one proves a universal predicate by an ad absurdum proof. This conclusion of every theory results to be formalised by the A thesis of the new logical structure. Afterwards, this conclusion is changed in the corresponding affirmative predicate, which in the latter part plays the role of a new hypothesis for a deductive development. This kind of change is the same suggested by Leibniz' principle of sufficient reason. Instead, Markov's principle results to be a weaker logical change, from the intuitionist thesis I in the affirmative thesis I. The relevance of all the four theses of the new logical structure is obtained by studying all the conversion implications of intuitionist predicates. In the Appendix, I analyse as an example of the

above theories, Markov's presentation of his theory of real numbers."

50. Duffy, Simon. 2006. "The differential point of view of the infinitesimal calculus in Spinoza, Leibniz and Deleuze." *Journal of the British Society for Phenomenology* no. 37:286–307.

51. Dummett, Michael. 1956. "Leibniz's Interpretation of his Logical Calculi by Nicholas Rescher." *Journal of Symbolic Logic* no. 21:197–199.

52. Dyck, Corey W. 2021. "Before and Beyond Leibniz: Tschirnhaus and Wolff on Experience and Method." In *The Experiential Turn in Eighteenth-Century German Philosophy*, edited by de Boer, Karin and Prunea-Bretonnet, Tinca, 17–36. New York: Routledge.

53. Elgueta, Raimon, and Jansana, Ramon. 1999. "Definability of Leibniz Equality." *Studia Logica*:223–243

    "Given a structure for a first-order language *L*, two objects of its domain can be indiscernible relative to the properties expressible in *L*, without using the equality symbol, and without actually being the same. It is this relation that interests us in this paper.

    It is called Leibniz equality. In the paper we study systematically the problem of its definability mainly for classes of structures that are the models of some equality-free universal Horn class in an infinitary language *L* subscript kappa kappa, where kappa is an infinite regular cardinal."

54. Englebretsen, George. 1981. *Three Logicians: Aristotle, Leibniz, and Sommers and the Syllogistic*. Assen: Van Gorcum

    Preface VII; Introduction 1; *Three logicians*; Aristotle 9; Leibniz 28; Sommers 42; *The syllogistic*; Contemporary mathematical logic 67; Syllogistic logic 77; Concluding remarks 109; Bibliography 113; Index 116-118.

55. ———. 1982. "Leibniz on Logical Syntax." *Studia Leibnitiana* no. 14:119–126.

56. ———. 1986. "A Note on Truth and Existence in Leibniz." *Manuscrito.Revista Internacional de Filosofia* no. 9:7–9

    "Leibniz was able to connect the notion of truth for a sentence with the idea of existence for individuals. Words and sentences are taken to both denote individuals and signify concepts. iI a true sentence two conditions must hold. The concept signified by the subject and the word denoted by the sentence must be the actual word."

57. ———. 1987. "Subjects." *Studia Leibnitiana* no. 19:85–90.

58. ———. 1988. "A Note on Leibniz's Wild Quantity Thesis." *Studia Leibnitiana* no. 20:87–89.

59. Esquisabel, Oscar M. 2012. "Representing and Abstracting: An Analysis of Leibniz's Concept of Symbolic Knowledge." In *Symbolic Knowledge from Leibniz to Husserl*, edited by Lassalle Casanave, Abel, 1–49. London: College Publications.

60. ———. 2017. "Perspectivism, expression, and logic in Leibniz: a foundational essay." In *Für unser Glück oder das Glück andere. X. Internationaler Leibniz-Kongress Hannover, 18. – 23. Juli 2016*, edited by Li, Wenchao, 73–87. Hildesheim: Georg Olms.

61. Faller, Mark. 2012. "The Optimal and the Necessary in Leibniz' Mathematical Framing of the Compossible." In *Metaphysics: Aristotelian, Scholastic, Analytic*, edited by Novák, Lukás, Novotný, Daniel D., Sousedík, Prokop and Svoboda, David, 209–226. Frankfurt: Ontos Verlag.

62. Ferrari, Massimo. 2023. "Leibniz and the Vienna Circle." In *Logic, Epistemology, and Scientific Theories – From Peano to the Vienna Circle*, edited by Cantù, Paola and Schiemer, Georg, 89–113. Cham (Switzerland): Springer.

63. Festa, Rosanna. 2025. "The Reform of Logics and the Calculation Principles in G. W. Leibniz." *International Journal of Science, Engineering and Technology* no. 13:1–4

    Abstract: "The systems are mathematical; so on we have complex systems; convex-complex systems; notable systems; analytical systems; affines systems; hyperbolic systems and algebraic systems. So making a distinction of the mathematical entities G. W. Leibniz and its metaphysics evaluates the concept of a priori."

64. Finkelstein, David. 1977. "The Leibniz Project." *Journal of Philosophical Logic* no. 6:425–439.

65. Galvan, Sergio. 2012. "Logic of Existence, Ontological Frames, Leibniz's and Gödel's Ontological Proofs." In *Ontological Proofs Today*, edited by Szatkowski, Miroslaw, 215–242. Frankfurt: Ontos Verlag

"1. Intrduction

The aim of this article is twofold. First, I intend to present the fundamental outlines of two conceptions of ontological frame. The first one connected to Kant's concept of possible object and the second one related to Leibniz's.

Leibniz maintains that the source of possibility is the mere logical consistency of the notions involved, so that possibility coincides with analytical possibility. Kant, instead, argues that consistency is only a necessary component of possibility. According to Kant, something is possible if there is a cause capable of bringing it into existence; to this end consistency alone is not sufficient. Thus, while the Leibnizian notion of consistency is at the root of the concept of analytical possibility, the Kantian notion of possibility is the source of real possibility. This difference underlies the distinction between the ontological structure (which is characterized by Kant's interpretation) and the Leibnizian ontological structure. Both structures are presented as the semantic basis for two systems of logic of existence (**PE** and **PEL**), the second of which is the Leibnizian extension of the first. The distinction between the two different conceptions of ontological structure plays an important role in the discussion of Gödel's ontological proof, that can be formally interpreted on the ontological frame of the pure perfections.

While this proof, under some emendation condition, is conclusive in the context of Leibniz's ontological structure, it is not so within the Kantian one. Then, in the second part of this paper I'll say something about their relations to Leibniz's and Gödel's ontological argument." (pp. 215-216)

66. Garcia Rodrigues, Antonielly, and Dias, Eduardo Mario. 2023. "Proofs of valid categorical syllogisms in one diagrammatic and two symbolic axiomatic systems."1–66

    Preprint available on Academia.edu.

    Abstract: "Gottfried Leibniz embarked on a research program to prove all the Aristotelic categorical syllogisms by diagrammatic and algebraic methods. He succeeded in proving

them by means of Euler diagrams, but didn't produce a manuscript with their algebraic proofs. We demonstrate how key excerpts scattered across various Leibniz's drafts on logic contained sufficient ingredients to prove them by an algebraic method –which we call the Leibniz-Cayley (LC) system– without having to make use of the more expressive and complex machinery of first-order quantificational logic. In addition, we prove the classic categorical syllogisms again by a relational method –which we call the McColl-Ladd (ML) system– employing categorical relations studied by Hugh McColl and Christine Ladd. Finally, we show the connection of ML and LC with Boolean algebra, proving that ML is a consequence of LC, and that LC is a consequence of the Boolean lattice axioms, thus establishing Leibniz's historical priority over George Boole in characterizing and applying (a sufficient fragment of) Boolean algebra to effectively tackle categorical syllogistic."

67. Glashoff, Klaus. 2002. "On Leibniz's Characteristic Numbers." *Studia Leibnitiana* no. 34:161–184

    Abstract: "In 1679, Leibniz wrote nine manuscripts on three different arithmetical models of Aristotelian logic. This was a part of his project of a "calculus universalis". First we show the precise relations of these three models to each other by presenting three criteria which serve the purpose of classifying models of Aristotelian logic. This facilitates the understanding of Leibniz' constructions.

    Our method is of special value for the sophisticated third model, the domain of which consists of pairs of natural numbers. We present a simple approach to Leibniz' definitions which on first sight appear complicated. We show that it is possible to deduce, from the "universal positive" relation a (= "All ..."), the other three "Aristotelian relations" i, o, and e. – It has always been difficult to understand the exact nature of Leibniz' characteristic numbers because of his misleading nomenclature, since he utilized the signs + and – in order to designate the "positive" and "negative" part of a characteristic number pair. We present a new interpretation of Leibniz' symbolism, showing that the number pairs should be

interpreted as numerator and denominator of a rational number. Thus we can identify the last model as the natural extension of the first and second one, showing the continuity in Leibniz' different attempts towards an arithmetization of logic. – We close our paper by discussing two well known problematic aspects of Leibniz' characteristic numbers, formulating two open questions concerning the formal structure of the system."

68. ———. 2010. "An Intensional Leibniz Semantics for Aristotelian Logic." *The Review of Symbolic Logic* no. 3:1–11

    Abstract: "Since Frege's predicate logical transcription of Aristotelian categorical logic, the standard semantics of Aristotelian logic considers terms as standing for sets of individuals. From a philosophical standpoint, this extensional model poses problems: There exist serious doubts that Aristotle's terms were meant to refer always to sets, that is, entities composed of individuals. Classical philosophy up to Leibniz and Kant had a different view on this question—they looked at terms as standing for concepts ("Begriffe"). In 1972, Corcoran presented a formal system for Aristotelian logic containing a calculus of natural deduction, while, with respect to semantics, he still made use of an extensional interpretation. In this paper we deal with a simple intensional semantics for Corcoran's syntax—intensional in the sense that no individuals are needed for the construction of a complete Tarski model of Aristotelian syntax. Instead, we view concepts as containing or excluding other, "higher" concepts—corresponding to the idea which Leibniz used in the construction of his characteristic numbers. Thus, this paper is an addendum to Corcoran's work, furnishing his formal syntax with an adequate semantics which is free from presuppositions which have entered into modern interpretations of Aristotle's theory via predicate logic."

69. ———. 2012. "On Negation in Leibniz' System of Characteristic Numbers." In *Mathematik - Logik - Philosophie: Ideen und Ihre Historischen Wechselwirkungen*, edited by Löffladt, Günter, 175–183. Frankfurt am Main: Harri Deutsch.

70. Govindarajulu, Naveen, and Bringsjord, Selmer. 2016. "Leibniz's Art of Infallibility, Watson, and the Philosophy, Theory, and Future of AI." In *Fundamental Issues of Artificial Intelligence*, edited by Müller, Vincent C., 183–200. Cham (Switzerland): Springer

    Abstract: "When IBM's Deep Blue beat Kasparov in 1997, Bringsjord (Technol Rev 101(2):23–28, 1998) complained that despite the impressive engineering that made this victory possible, chess is simply too easy a challenge for AI, given the full range of what the rational side of the human mind can muster. However, arguably everything changed in 2011. For in that year, playing not a simple board game, but rather an open-ended game based in natural language, IBM's Watson trounced the best human *Jeopardy!* players on the planet. And what does Watson's prowess tell us about the philosophy, theory, and future of AI? We present and defend snyoptic answers to these questions, ones based upon Leibniz's seminal writings on a universal logic, on a Leibnizian "three-ray" space of computational formal logics that, inspired by those writings, we have invented, and on a "scorecard" approach to assessing real AI systems based in turn on that three-ray space."

71. Griffin, Nicholas. 2012. "Russell and Leibniz on the Classification of Propositions." In *New Essays on Leibniz Reception: In Science and Philosophy of Science, 1800-2000*, edited by Krömer, Ralf and Chin-Drian, Yannick, 85–127. Dordrecht: Birkhäuser

    "In this paper, however, I do not propose to assess Russell's interpretation of Leibniz, nor his contribution to Leibniz scholarship (12) - both of which would require more knowledge of Leibniz and Leibniz scholarship than I possess. Rather, I want to look at one aspect of the contribution that Russell's foray into Leibniz scholarship made to the development of his own philosophy, in particular his philosophy of logic. Russell's interpretation of Leibniz was famous for treating almost the whole of Leibniz's philosophy as the outcome of his logical doctrines. This was not a view that Russell had when he started his study of Leibniz, but an interpretation he arrived at in the

course of his work. It was a view that had a clear attraction to Russell and one which was consonant with Russell's own recently acquired position on how philosophy should be conducted; a view which placed logic at the beginning of philosophy, and the analysis of propositions at the beginning of logic. (13) This was a view that Russell thought he shared with Leibniz, though some prominent Leibniz scholars dissented (e.g., Duncan [1901]). After a summary of Leibniz's premisses, Russell begins his account with the following bold declaration: 'That all sound philosophy should begin with an analysis of propositions, is a truth too evident, perhaps, to demand a proof. That Leibniz's philosophy began with such an analysis, is less evident, but seems to be no less true' (POL, p. 8). Russell and Leibniz differed, however, on how propositions were to be analyzed. It is Russell's treatment of Leibniz's account of propositions, and its relation to Russell's own account, on which I want to concentrate in this paper. It will require a little background on where Russell stood philosophically in 1899." (p. 88)

(...)

Russell summed up Leibniz's position with admirable concision as follows:

Every proposition is ultimately reducible to one which attributes a predicate to a subject. In any such proposition, unless existence be the predicate in question, the predicate is somehow contained in the subject. The subject is defined by its predicates, and would be a different subject if these were different. Thus every true judgment of subject and predicate is analytic - i.e., the predicate forms part of the notion of the subject - unless actual existence is asserted. Existence, alone among predicates, is not contained in the notions of the subjects which exist. Thus existential propositions, except in the case of God's existence, are synthetic, i.e., there would be no contradiction if the subjects which actually do exist did not exist. Necessary propositions are such as are analytic, and synthetic propositions are always contingent. {POL, pp. 9-10)

I shall examine the various parts of this account in what follows. The view that the predicate is contained in the subject is dealt with in § 2. The thesis, which I shall call (SP) that all propositions are of subject-predicate form (SP-propositions, for short) is considered in §3. The vexed question of whether this means that all propositions are analytic occupies §4, and the question of whether any propositions arc synthetic is considered in §5. The remaining two sections deal with Russell: §6 with the relation between the containment thesis and Russell's conception of analysis and § 7 with what Russell might have learnt about relations from his study of Leibniz." (pp. 90-91)

(12) There is a mass of usefule information about the book, its composityion and its reception, in O'Briant [1979].

(13) In a letter of 5 May 1900 Russell told Couturat, then at work on his own book on Leibniz's logic (Couturat [1901]), that, while POL was on the whole of Leibniz's philosophy, it was the logie that interested him and he decided to write the book only after he discovered that the whole of Leibniz's system was based on his logic ([BRLC], i, pp. 170-1).

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[BRLC] Russell, Bertrand, *Correspondance sur la philosophie, la logique et la politique avec Louis Couturat* (1897-1913), ed. Anne Françoise Schmid (Paris: Kimé 2001).

[POL] Russell, Bertrand, *A Critical Exposition of the Philosophy of Leibniz* (London: Allen and Unwin, 1975; 1st edn., 1900).

[Coutura 1901] Couturat, Louis, *La Logique de Leibniz d'aprés des documents inédits* (Paris: Alcan).

[Duncan 1901] Duncan, G. M. , Reivew of *POL, Philosophical Review*, 10, pp. 288-97.

72. Grosholz, Emily, and Yakira, Elhanan. 1998. *Leibniz's Science of the Rational*. Stuttgart: Franz Steiner.

73. Gruver, Natascha. 2017. "Calculus ratiocinator: aspects of Leibniz' contribution to origin of symbolic logic." In *Für unser*

Glück oder das Glück andere. X. Internationaler Leibniz-Kongress Hannover, 18. – 23. Juli 2016. Band 6, 487–497. Hildesheim: Georg Olms.

74. Hacking, Ian. 1971. "The Leibniz-Carnap Program for Inductive Logic." *The Journal of Philosophy* no. 68:597–610.

75. Hailperin, Theodore. 1988. "The Development of Probability Logic from Leibniz to MacColl." *History and Philosophy of Logic* no. 9:131–191

    Abstract: "The introduction has a brief statement, sufficient for the purpose of this paper, which describes in general terms the notion of probability logic on which the paper is based. Contributions made in the eighteenth century by Leibniz, Jacob Bernoulli and Lambert, and in the nineteenth century by Bolzano, De Morgan, Boole, Peirce and MacColl are critically examined from a contemporary point of view. Historicity is maintained by liberal quotations from the original sources accompanied by interpretive explanation.

    Concluding the paper is a summary."

76. Heidegger, Martin. 1984. *The Metaphysical Foundations of Logic*. Bloomington: Indiana University Press

    Translated by Michael Heim.

    Original German edition: *Metaphysische Anfangsgründe der Logik im Ausgang von Leibniz,* (Sommersemester 1928), Herausgegeben von Klaus Held, Frankfurt: Klostermann, 1978, (Heidegger Gesamtausgabe, 26).

77. Herget, Don Emil. 1987. "Non-standard categorical syllogisms: four that Leibniz forgot." *History and Philosophy of Logic* no. 6:1–13

    Abstract: "In his "Mathesis rationis" Leibniz discounted out of hand four categorical propositions that would have considerably broadened the resultant syllogistic logic. He did this despite the facts both that he had devised a suitable manner for expressing the latent quantification over terms, and that he had reasoned adequately to determine which of the syllogisms in the resulting broadened logic were valid. Leibniz's

reasons for discounting these non-standard propositions are shown to be inadequate, and the resultant syllogistic logic is outlined."

78. Ishiguro, Hidé. 1971. "Leibniz and the Ideas of Sensible Qualities." *Royal Institute of Philosophy Lectures* no. 5:49–63

    "IN order to understand the thoughts of Leibniz it is important to stop putting Leibniz into the convenient pigeon-hole of rationalist, and stop thinking of him merely as the metaphysician and constructor of systems so vividly ridiculed by Voltaire in *Candide*. Most important of all, one should not attempt to see Leibniz's philosophy as a completely articulated and integrated whole or as built on three or five metaphysical and logical principles. It is better to remember that Leibniz was a very prolific writer, who was interested in the most varied aspects of philosophy, logic, mathematics, natural science, jurisprudence, history and philology: a man who was constantly trying to work out a large number of heterogeneous theories and thoughts. The collected editions of his writings make up more than twenty thick volumes, and these hardly exhaust his manuscripts." (p. 49)

    (...)

    "In the first part of this paper, I will attempt to expound some of the views Leibniz held about our ideas of sensible qualities such as colour and heat, which I believe throw light on Leibniz's views on logical analysis and semantics in general. In the second part of this paper, I will discuss the problem of property identity, which is raised by Leibniz's views." (p. 50, a note omitted)

79. ———. 1972. "Leibniz's Theory of the Ideality of Relations." In *Leibniz: A Collection of Critical Essays*, edited by Frankfurt, Harry, 191–213. New York: Doubleday

    Reprinted in: V. Chappell (ed.), *Gottfried Wilhelm Leibniz*, New York: Garland pp. 243-265.

80. ———. 1979. "Contingent Truths and Possible Worlds." *Midwest Studies In Philosophy*

Reprinted in R. S. Woolhouse (ed.), *Leibniz: Metaphysics and Philosophy of Science,* New York: Oxford University Press 1981, pp. 357-367.

81. ———. 1990. *Leibniz's Philosophy of Logic and Language*. Cambridge: Cambridge University Press

    Second revised edition.

    First edition London, Duckworth, 1972.

82. Johnson, A. H. 1960. "Leibniz's method and the basis of his metaphysics." *Philosophy* no. 35:51–61.

83. Jourdain, Philip E. B. 1916. "The logical work of Leibniz." *The Monist*:504–523

    Reprinted in: Roger S. Woolhouse (ed.), *Gottfried Wilhelm Leibniz: Vol. 3: Philosophy of Science, Logic, and Language*, London: Routledge 1994, pp. 421-435.

84. Juniewicz, Maciej. 1987. "Leibniz's modal calculus of concepts." In *Initiatives in Logic*, edited by Srzednicki, Jan, 36–51. Dordrecht: Martinus Nijhoff.

85. Karofsky, Amy. 1999. "The primitiveness of Leibnizian alethic modalities." *History of Philosophy Quarterly* no. 16:297–320.

86. Kauppi, Raili. 1968. "Substitutivity *salva veritate* in Leibniz and in modern logic." *Ratio* no. 10:141–149

    "Problems concerning substitutivity are discussed in the light of examples from Leibniz, Frege, Carnap, Mates, Putnam. Leibniz reduced truth to interconceptual relations, which accordingly must not be changed by substitutions *salva veritate*. In moderm logic "salva veritate" has an entirely different meaning. Attempts to formulate conditions of substitutivity, applicable e. g. to belief sentences of everyday language, in terms of intensional isomorphy, are criticized. heir failing depends on the fact that a substitution *salva veritate* in such a sentence presupposes empirical knowledge, not expressed by this sentence, about the linguistic usage, theknowledge, the opinions, etc. of the person concerned."

87. Kluge, Eike-Henner W. 1977. "Frege, Leibniz et alii." *Studia Leibnitiana* no. 9:266–274.

88. ———. 1980. "Frege, Leibniz and the Notion of an Ideal Language." *Studia Leibnitiana* no. 12:140–154.

89. Kneale, William, and Kneale, Martha. 1962. *The Development of Logic*. Oxford: Clarendon Press

    Reprinted 1975 with corrections.

    Chapter V. *Logic after the Renaissance:* § 2. *The interests of Leibniz* (p. 320-336) and § 3. *Leibniz's Calculus de Continentibus et Contentis* (pp. 336-345).

90. Konkova, Antonina, and Legeydo, Maria. 2022. "Intensional Semantics for Syllogistics: what Leibniz and Vasiliev Have in Common." *Logic and Logical Philosophy* no. 31:339–356

    Abstract: "This article deals with an alternative interpretation of syllogistics, different from the classical (extensional) one: an intensional one, in which subject and predicate are not associated with a set of individuals (the extension of the concept) but a set of attributes (the content of the concept).

    The authors of the paper draw attention to the fact that this approach was first proposed by Leibniz in works on logical calculus, which for a long time remained in the shadow of his other philosophical works. Currently, the intensional approach is gaining more and more popularity due to the development of non-classical logics, and the article will present several existing intensional formal syllogistic semantics.

    The paper will also consider another historical approach to syllogistics, associated with the name of the Russian logician Nikolai Vasiliev, who is not only one of the founders of non-classical (non-Aristotelian logic) but also of a different intensional interpretation of such logic. The authors, along with the already known formalizations of Vasiliev's ideas, present two new systems. One of them is a reconstruction of one type of imaginary logic with statements of three qualities: affirmative and two types of negative statements (with absolute and ordinary negation). The second system is the one that is

adequate to semantics, in which instead of the four classical ones, only three types of statements are presented (two particular statements are replaced by one - accidental), and their significance is determined through the relation of the classical logical entailment. Both of them are interpreted intensionally.

The intensional approach in logic and, in particular, in syllogistics allows us to expand the class of accepted principles (which occurs due to the expansion of the class of correct moods of syllogisms)."

91. Krajewski, Wladyslaw. 2001. "Aristotelian and Leibnizian Concepts of Possibility." In *Aristotle and Contemporary Science. Vol. 2*, edited by Sfendoni-Mentzou, Demetra, Hattiangadi, Jagdish and Johnson, David M., 51–56. Bern: Peter Lang.

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History of Logic

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Leibniz on Logic and Semiotics. Studies in English (Second Part: L - Z)

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2. Lenders, Winfried. 1971. "The Analytic Logic of G. W. Leibniz and Chr. Wolff: A Problem in Kant Research." *Synthese* no. 23:147–153.
3. Lenzen, Wolfgang. 1987. "Leibniz's calculus of strict implication." In *Initiatives in Logic*, edited by Srzednicki, Jan, 1–35. Dordrecht: Reidel

   Translated in German and revised in: W. Lenzen, *Calculus Universalis* (2004) pp. 281-308.

   "At first the title of this paper will provoke both logicians and Leibnitians to shake their heads: while talking about calculi of strict implication one rather associates it with the names of C I. Lewis, W. Ackermann, or some other contemporary logician, but hardly with the 17th century philosopher G. W. Leibniz. Yet already some 30 years ago in an essay on “Leibniz’s interpretation of his logical calculi” the well known Leibniz scholar, Nicholas Rescher (1954), had put forward the then bold thesis: in an interpretation that Leibniz himself had suggested, one of these calculi would become “a precursor of C.

I. Lewis' systems of strict implication" (p.10), Unfortunately, Rescher did not give a factual justification of this prophetic view. Had it been done, it would have thrown some light on the real significance of Leibniz's logic. One reason for this omission consists, perhaps, in the fact that Rescher incorrectly interpreted the important logical constant 'est Ens', or, synonymously, 'est Res' or 'est Possibile' as logical necessity instead of logical possibility."

4. ———. 1989. "Concepts vs. predicates. Leibniz's challenge to modern logic." In *The Leibniz Renaissance. International Workshop, Firenze, 2-5 giugno 1986*, 153–172. Firenze: Olschki.

5. ———. 1989. "Arithmetical vs. "real" addition. A case study of the relation between logic, mathematics, and metaphysics in Leibniz." In *Leibnizian Inquiries: A Group of Essays*, edited by Rescher, Nicholas, 149–157. Lanham: University Press of America

   "It is well known that in Leibniz's thought several interrelations exist between Logic, Mathematics, and Metaphysics. Logic and Mathematics have been linked together, e.g., in the attempts of April 1679 to

   develop a semantics of characteristic numbers for the theory of the syllogism (cf. C. 49-92). Logic and Metaphysics have been connected, e.g., by applying the principle "praedicatum inest subjecto" to the realm

   of monadology. This led Leibniz to the view of monads as self-sustained, complete entities which contain every truth not only about themselves but also about every other monad and which hence "mirror" the whole world. Mathematics and Metaphysics have been intertwined, e.g., by transferring the ideas of continuity and maximization to a theory about God's creation of the world. This culminated in the famous idea "Cum Deus calculat [...] fit mundus" (GP 7, 191). In this paper, however, I will neglect such great metaphysical speculations and concentrate instead upon a very specific relation between Mathematics and Logic, viz. the way in which Leibniz gradually derived an algebra of sets or, equivalently, an algebra of

concepts from the ordinary algebra of numbers. In the 1st part the necessary mathematical background will be outlined. In the 2nd part I will show how the idea of “real” addition and subtraction evolved from the mathematical theory of + and -. It will turn out that a major reason why Leibniz thus discovered not the whole but only a part of set-theory is due to his “metaphysical” assumption that just as there are “privative objects” in the realm of numbers, there will also be “privative objects” in the realm of concepts or sets." (p. 149)

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7. ———. 1990. "On Leibniz's Essay '*Mathesis rationis*' (Critical Edition and Commentary)." *Topoi* no. 9:29–59.

8. ———. 1991. "Leibniz on privative and primitive terms." *Theoria.Revista de Teoria, Historia y Fundamentos de la Ciencia* no. 6:83–96

   "We first present an edition of the manuscript LH VII, B2 39, in which Leibniz develops a new formalism in order to give rigorous definitions of positive, of private, and of primitive terms. This formalism involves a symbolic treatment of conceptual quantification which differs quite considerably from Leibniz's "standard" theory of "indefinite concepts" as developed, e.g., in the "General Inquiries". In the subsequent commentary, we give an interpretation and a critical evaluation of Leibniz's symbolic apparatus. It turns out that the definition of privative terms and primitive terms lead to certain inconsistencies which, however, can be avoided by slight modifications."

9. ———. 2004. "Leibniz's Logic." In *The Rise of Modern Logic: from Leibniz to Frege*, edited by Gabbay, Dov and Woods, John, 1–83. Amsterdam: Elsevier

   Handbook of the History of Logic: Vol. 3.

10. ———. 2004. "Logical Criteria for Individual (concept)s." In *Individuals, Minds, and Bodies: Themes from Leibniz*, edited by Carrara, Massimiliano, Nunziante, Antonio-Maria and Tomasi, Gabriele, 87–107. Stuttgart: Steiner.

11. ———. 2005. "Leibniz on Alethic and Deontic Modal Logic." In *Leibniz et les puissances du langage*, edited by Berlioz, Dominique and Nef, Frédéric, 341–362. Paris: Vrin.

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14. ———. 2018. "Leibniz and the Calculus Ratiocinator." In *Technology and Mathematics: Philosophical and Historical Investigations*, edited by Hansson, Sven Ove, 47–78. Cham, Switzerland: Springer

    Abstract: "This paper deals with the interconnections between mathematics, metaphysics, and logic in the work of Leibniz. On the one hand, it touches upon some practical aspects such as Leibniz's construction of a Four-species calculating machine, a mechanical digital calculating machine, and even a cipher machine.

    On the other hand, it examines how far Leibniz's metaphysical dreams concerning the "calculus ratiocinator" and its underlying "characteristica universalis" have in fact been realized by the great philosopher. In particular it will be shown that Leibniz not only developed an "intensional" algebra of concepts which is provably equivalent to Boole's "extensional" algebra of sets, but that he also discovered some basic laws of quantifier logic which allowed him to define individual

concepts as maximally-consistent concepts. Moreover, Leibniz had the ingenious idea of transforming the basic principles of arithmetical addition and subtraction into a theory of “real” addition and subtraction thus obtaining some important building blocks of elementary set-theory."

15. ———. 2018. "Leibniz’s Transformation of the Theory of the Syllogism into an Algebra of Concepts." In, edited by Sgarbi, Marco and Cosci, Matteo, 129–155. London: Bloomsbury Academic.

16. ———. 2019. "“Ex nihilo nihil fit”: On Leibniz’s “Principia Calculi rationalis”." *The Leibniz Review* no. 29:59–81

    Abstract: "In the essay “Principia Calculi rationalis” Leibniz attempts to prove the theory of the syllogism within his own logic of concepts. This task would be quite easy if one made unrestricted use of the fundamental laws discovered by Leibniz, e.g., in the “General Inquiries” of 1686. In the essays of August1690, Leibniz had developed some similar proofs which, however, he considered as unsatisfactory because they presupposed the unproven law of contraposition: “If concept A contains concept B, then conversely Non-B contains Non-A”. The proof in “Principia Calculi rationalis” appears to reach its goal without resorting to this law. However, it contains a subtle flaw which results from failing to postulate that the ingredient concepts have to be “possible”, i.e. self-consistent. Once this flaw is corrected, it turns out that the proof – though formally valid – would not have been approved by Leibniz because, again, it rests on an unproven principle even stronger than the law of contraposition."

17. ———. 2019. "Leibniz's laws of consistency and the philosophical foundations of connexive logic." *Logic and Logical Philosophy* no. 28:537–551

    Abstract: "As an extension of the traditional theory of the syllogism, Leibniz’s algebra of concepts is built up from the term-logical operators of conjunction, negation, and the relation of containment.

Leibniz's laws of consistency state that no concept contains its own negation, and that if concept A contains concept B, then A cannot also contain Not-B. Leibniz believed that these principles would be universally valid, but he eventually discovered that they have to be restricted to self-consistent concepts.

This result is of utmost importance for the philosophical foundations of connexive logic, i.e. for the question how far either "Aristotle's Thesis", $\neg(\alpha \rightarrow \neg \alpha)$, or "Boethius's Thesis", $(\alpha \rightarrow \beta) \rightarrow \neg(\alpha \rightarrow \neg \beta)$, should be accepted as reasonable principles of a logic of conditionals."

18. Levey, Samuel. 2002. "Leibniz and the Sorites." *The Leibniz Review* no. 12:25–49

    Abstract: "The sorites paradox receives its most sophisticated early modem discussion in Leibniz's writings. In an important early document Leibniz holds that vague terms have sharp boundaries of application, but soon thereafter he comes to adopt a form of nihilism about vagueness: and it later proves to be his settled view that vagueness results from semantical indeterminacy. The reason for this change of mind is unclear, and Leibniz does not appear to have any grounds for it. I suggest that his various treatments of the sorites do not spring from a single integrated view of vagueness, and that his early position reflects a mercenary interest in the sorites paradox - an interest to use the sorites to reach a conclusion in metaphysics rather than to examine vagueness as a subject to be understood in its own right. The later nihilist stance reflects Leibniz's own (if undefended) attitude towards vagueness."

19. ———. 2011. "Logical Theory in Leibniz." In *The Continuum Companion to Leibniz*, 110–135. London: Continuum.

20. Lewis, Clarence Irving. 1918. *A Survey of Symbolic Logic*. Berkeley: University of California Press

    See Chapter I. *The development of symbolic logic* pp. 1-117. (On Leibniz pp. 5-18 and *Appendix. Two fragments from Leibniz* pp. 373-388).

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    Abstract: "According to the standard view of his metaphysics, Leibniz endorses idealism: the thesis that the world is made up solely of minds or monads and their perceptual and appetitive states. Recently, this view has been challenged by some scholars, who argue that Leibniz can be seen as admitting corporeal substances, that is, animals or embodied souls, into his ontology, and that, therefore, it is false to attribute a strict idealism to him. Subtler accounts suggest that Leibniz begins his philosophical career as an advocate of (some form of) the modern 'mechanical' philosophy and ends his career as an idealist, raising the issue when and why Leibniz adopts his monadological metaphysics.

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    Abstract: "It is still difficult to say what the main source of Leibniz's modal thinking was; at least, his acquaintance with the ideas of Spanish Jesuits about the "moral necessity" is to be dated to the epoch when the modal ideas already took shape in

his mind. There was, however, one name normally referred to by Leibniz himself as his main predecessor in modal thinking, Richard Swineshead. In fact, Leibniz created his personal myth about Swineshead even before having read his works, and so, he attributed to Swineshead some of his own ideas, including the modal reinterpretation of the term *intensio* borrowed from the mediaeval physics."

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    Abstract: "Greek antiquity saw the development of two distinct systems of logic: Aristotle's theory of the categorical syllogism and the Stoic theory of the hypothetical syllogism. Some ancient logicians argued that hypothetical syllogistic is more fundamental than categorical syllogistic on the grounds that the

latter relies on modes of propositional reasoning such as *reductio ad absurdum*.

Peripatetic logicians, by contrast, sought to establish the priority of categorical over hypothetical syllogistic by reducing various modes of propositional reasoning to categorical form. In the 17th century, this Peripatetic program of reducing hypothetical to categorical logic was championed by Gottfried Wilhelm Leibniz. In an essay titled *Specimina calculi rationalis* [*], Leibniz develops a theory of propositional terms that allows him to derive the rule of *reductio ad absurdum* in a purely categorical calculus in which every proposition is of the form A is B. We reconstruct Leibniz's categorical calculus and show that it is strong enough to establish not only the rule of *reductio ad absurdum*, but all the laws of classical propositional logic. Moreover, we show that the propositional logic generated by the nonmonotonic variant of Leibniz's categorical calculus is a natural system of relevance logic known as RMI¬→."

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    "The object of this article is to show that the principle of contradiction in Leibniz is not the same principle that Aristotle called "the most certain of all principles". The five parts of this study are as follows: the first part shows the importance of the problem; the second is an *exposé* of Aristotle's thought on "the most certain of all principles." The third part treats of the principle of contradiction according to Leibniz; the fourth

compares the thought of the two philosophers and draws some conclusions about the ramifications of their differences; the fifth part is a summary."

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Abstract: "The critical edition of *Generales Inquisitiones*, published in 1999 by the Berlin Akademie Verlag in the Vol. A VI 4A of the *Sämtliche Schriften und Briefe*, promoted new interests in Leibniz's logic, as witnessed by new translations and many specific and general papers devoted to these topics. Sometimes scholars stressed difficulties and also mistakes involved in the way Leibniz managed to treat 'negation', especially focusing on the questions arising from the interplay between that operator and the use of indefinite letters. We will discuss these difficulties, trying to find a rationale for Leibniz's 'mistakes' and, on the other hand, to draw some lessons from them."

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    "In his article *Propositions and Sentences* (1956) Alonzo Church pointed out -- on the basis of a suggestion made by Joseph Maria Bochenski -- that strong analogies exist between Bolzano's theory of *Satz an sich* and Gregory of Rimini's doctrine of complexe significabile.' In the same essay, Church also pointed out that Bolzano appealed to Leibniz as to a logician who plainly recognized propositions in the abstract

sense. After Church's essay, it became very usual to mention Gregory of Rimini in reference to Bolzano's ontological conceptions. Nevertheless, we do not have any evidence of a direct influence of Gregory of Rimini's ideas on Bolzano's philosophy of logic. Bolzano seems to have only a limited acquaintance with the logic of the late medieval period: the credit accorded to Savonarola's Compendium logicae - a standard work which is absolutely lacking in originality - corroborates, I think, this view.2 Yet Bolzano may have benefited by late scholastic inheritance through the intermediation of later works, like those of Campanella, Clauberg, Fonseca, Keckermann, Leibniz and Wolf.' In fact, as already mentioned, Leibniz is the first author whom Bolzano explicitly refers to, in paragraph 21 of the Wissenschaftslehre, as a forerunner of the Satz an sich theory:

"Thus Leibniz uses as equivalent the expressions *proposition* and *cogitatio possibilis (Dial. de Connexion inter Verba a Res* [C. I. Gerhardt, ed. *Philos. Schriften, vol.* VII, p. 190]. This obviously presupposes that by propositions he meant propositions in themselves." (*)

The Leibniz's work on which Bolzano explicitly bases this conviction is the *Dialogus de connexione inter res et verba*, first published by Raspe in 1765 -- a work whose content paradoxically seems to partly disprove Bolzano's interpretation.' Thus Church considers it «

"an exaggeration or a misunderstanding" on Bolzano's part to have attributed to Leibniz's D*ialogus* "the use of the word propositio for proposition in the abstract sense" or *Satz an sich*. (6) The same remarks are repeated by Prof. Berg in his monograph on Bolzano's logic: after having identified Bolzano's *Satz an sich* with Frege's *Gedanke*, Prof. Berg writes:

According to Leibniz a proposition (*propositio*) is a possible thought (*cogitatio possibilis*), which is capable of being true or false... But no thought or reasoning is possible without words or some other kind of signs. And under transformation of a proposition into a different language a certain relationship (*proportio*) among the signs and between the signs and the

objective reality is transformed into a similar relationship. The last two conditions fit Aristotle's and Peter of Spain's but not Frege's notion of proposition. Therefore... it must have been a misunderstanding on Bolzano's part to have attributed to Leibniz the use of the world "propositio" for *Satz an sich*.(7)

In what follows, I intend to take up the problem of the correcteness of the interpretation given by Bolzano and then to develop a comparison between the positions of Leibniz and those of Bolzano relative to the notions of idea, proposition and truth.

In the notes I have employed the following abbreviations: WL = B. Bolzano, *Wissenschaftslehre*, in B. Bolzano, Gesamtausgabe, Reihe I, Schriften, Stuttgart-Bad Cannstatt, Friedrich Frommann Verlag 1985 ff; GP = G. W Leibniz, *Die philosophische Schriften*, Hrsg. von C. I. Gerhardt, Berlin, Akademie, 1857-90, vol. I-VII; VE = G. W. Leibniz, *Vorausedition zur Reihe VI - Philosophische Schriften* - Munster, Akademie, 1982 ff.

(1) A. Church, *Propositions and Sentences*, in I. M. Bochenski, A. Church, N. Goodman, *The Problem of the Universals*, Notre Dame, Notre Dame Press, 1956, p. 3.

(2) WL 1, 11/1, pp. 105 ff.

(3) WL 1, 11/1, pp. 234 ff.

(4) WL 1, 11/1, p. 111.

(5) Cfr. *Oeuvres philosophiques latines et francoises de feu Mr. de Leibnitz* ... publiees par Mr. Rud. Eric Raspe, Leipzig, 1765, pp. 505-512.

(6) A. Church, *op. cit.*, p. 10.

(7) J. Berg, *Bolzano's Logic*, Stockholm, Almquist and Wiksell, 1962, pp. 51-52.

(*) [cited in German in the original; I cite from the translation of *Wissenschaftslehre* by Rolf George, p. 24]

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59. ———. 2022. "Leibniz on Relations, Again. A Reply to Florian Vermeiren." *Studia Leibnitiana* no. 54:250–266

Abstract: "In his article, Florian Vermeiren attributes to Leibniz – like other interpreters before him – the distinction of two different kinds of relations: 1) relations in the proper sense of the word as, for example, the fatherhood subsisting between Sophroniscus and Socrates, which Leibniz considers situated 'outside the subjects' involved; 2) relational properties, such as being a father, inherent in Sophroniscus. The distinction is clearly present in Leibniz's writings. According to Vermeiren, Leibniz considers 'purely mental' only the relations 'out of the subjects' and not the relational predicates, by means of which, on the other hand, the individuals of the Leibnizian world would be truly related. In this sense, therefore, Leibniz would admit the reality of relations, which would play an important role in his ontology. At least since 1686 (the year in which he wrote the *Discourse*), however, Leibniz states that the world is made only of individuals with their internal modifications: just

as there are no properties with a leg in one subject and a leg in another, there are no individuals bound together by any kind of material nexus or 'real' ties. Thus, if we make a list of all fathers on the one hand and sons on the other, there remains the problem of how to properly connect the fathers exactly with their sons. Attributing to each of two related individuals a relational property is not enough to connect them. Being a father in David must necessarily refer in some way to Solomon as a son. Leibniz is aware of this, as his attempts to analyze relational propositions in his essays on rational grammar show.

Given the sentence 'Cajus is killed by Titius' for example, Leibniz attempts to reduce it to an inference between a pair of categorical sentences, each of which attributes a relational predicate to the subject. Relations (and relational properties) result from the substances and their modes, "without producing any change" of themselves but only in virtue of a consequence, that is of a logical inference. The image of the world derived so from the *Monadology* and other Leibnizian writings is that of a world composed of a collection of isolated individuals, independent of each other and lacking mutual connections. Relational properties correspond to internal modifications of each individual: the second term, in the case of binary relations (the 'external' one: Helen, if Paris loves Helen) is resolved into an internal representation (of Paris, in this case).

It is God who coordinates the various representations of individuals with each other, to result in a harmonious whole. Since relations are a consequence of the existence of the individual substances with their intrinsic properties, God himself can be said to be the creator of relations, in so far as he calls the individuals into existence. And this is exactly what Leibniz states, in his commentary on Temmik's book."

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    Abstract: "Reasoning with diagrams is considered to be a peculiar form of reasoning.

    Diagrams are often associated with imagistic representations conveyed by spatial arrangements of lines, points, figures, or

letters that can be manipulated to obtain knowledge on a subject matter.

Reasoning with diagrams is not just 'peculiar' because reasoners use spatially arranged characters to obtain knowledge – diagrams apparently have cognitive surplus: they enable a quasi-intuitive form of knowledge. The present paper analyses the issue of diagrams' cognitive value by enquiring into the tradition of symbolic cognition developed by Leibniz, Lambert, and Kant. The proposal resulting from this enquiry is to question the idea that the cognitive value of diagrams lies solely in allowing evidence for inferences. The imaginative dimension of diagrams connects reasoning to doxastic attitudes of meditation and enquiry."

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    Abstract: "I present a formal framework historically faithful to Leibniz's analysis of relational sentences, which: (i) engrafts thematic roles and the non-truth-functional connective insofar as (quatenus) into the monadic fragment of first-order logic; (ii) suggests a plausible ontological picture of thematic roles and relational facts ; (iii) supports argument deletion and related inferential patterns that are not taken into account by standard first-order logic."

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"1. The problem

Leibniz's impact on the emergence of mathematical (algebraic, algorithmic or symbolic) logic is an important topic for understanding the emergence and development of the current views on logic.(1) However, the question whether Leibniz had any influence at all, or whether his ideas were not more than ingenious anticipations of later developments, is still disputed. The significance of this problem can be shown by referring to Louis Couturat who claimed that in respect to the logical calculus Leibniz had all the principles of much later logical systems of the algebra of logic (George Boole, Ernst Schroder) and in some points he was even more advanced than they (Couturat, *La Logique de Leibniz d'aprés des documents inédits,* Paris: Alcan 1901, 386). One important step in dealing with the problem can be seen in an answer to the question whether early "modern" logicians like Boole, Schroder, or Frege had had any knowledge of Leibnizian logic, i.e., could Leibniz have had any influence on these pioneers of modem logic?" (p. 13)

(...)

6. Conclusions

No doubt, the new logic emerging in the second half of the 19th century was created in Leibnizian spirit. The essentials of

Leibniz's logical and metaphysical program and of his idea concerning a logical calculus were available at least since the 1840s. Erdmann's edition of the philosophical works and Trendelenburg's presentation of Leibniz's semiotics were the most important steps towards the further reception of Leibnizian ideas among mathematical logicians at the end of the 19th century. As soon as these logicians were aware of the Leibnizian ideas they recognized Leibniz's congeniality and accepted his priority. However, the logical systems had already been established. Therefore there was no initializing influence of Leibniz on the emergence of modern logic in the 2nd half of the 19th century." (p. 22)

(1) For a full scale study on the topic see Peckhaus, *Logik, Mathesis universalis und allgemeine Wissenschaft. Leibniz und die Wiederentdeckung der formalen Logik im 19. Jahrundert*, Berlin: Akademie-Verlag 1997.

74. Piekarski, Michał. 2020. "The problem of logical form: Wittgenstein and Leibniz." *Studia Philosophiae Christianae* no. 56:63–84

    Abstract: "The article is an attempt at explaining the category of logical form used by Ludwig Wittgenstein in his *Tractatus logico-philosophicus* by using concepts from Gottfried Wilhelm Leibniz's *The Monadology*. There are many similarities and analogies between those works, and the key concept for them is the category of the inner and acknowledged importance of consideration based on basic categories of thinking about the world. The Leibnizian account allows for a broader look at Wittgenstein's analysis of the relation between propositions and facts, between language and the world. Using the Hanoverian philosopher's terminology allows for the demonstration of the ambivalence of the concept of logical form in the philosophy of Wittgenstein and also the metaphysical nature of his first book"

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    "Leibniz's original source was the wide understanding of categories asordines rerum of metaphysics, and finally was taken over both in Rhenius's logic and in Thomasius's logic and metaphysics." (p. 1025).

    "As regards the role attributed to categories and forms, Hegel's programis in its essence truly Aristotelian, but it is also the

consequence of Leibniz's particular twist to the history of Aristotele's impact on logic and metaphysics." (p. 1027).

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86. ———. 2014. "Provability Incompleteness in Gödel and Leibniz." In *Logical Inquiries: Basic Issues in Philosophical Logic*, edited by Rescher, Nicholas, 107–127. Berlin: De Gruyter.
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88. Rijen, Jeroen van. 1989. "Some misconceptions about Leibniz and the Calculi of 1679." *Studia Leibnitiana* no. 21:196–204.
89. Robering, Klaus. 2014. "Leibniz' First Formalization of Syllogistics." *Studia Leibnitiana* no. 46:76–103.
90. Roncaglia, Gino. 1988. "Modality in Leibniz' Essays on Logical Calculus of April 1679." *Studia Leibnitiana* no. 20:43–62.
91. ———. 1990. "Historical remarks on the theory of opposition." In *Leibniz' Auseinandersetzung mit Vorgängern und*

Zeitgenossen, edited by Marchlewitz, Ingrid and Heinekamp, Albert, 173–183. Stuttgart: Franz Steiner

""I have already observed that the explicit subordination of all other forms of opposition to contradiction is an element that Leibniz could have found in previous logical reflections. And it can be further observed, conversely, that traces of the more 'intuitive' treatment of opposition are still present in Leibniz. A field which seems of particular interest from this point of view is that of dynamics. All the terminological tools typical of the theory of opposition and discussed so far are, in fact, widely used by Leibniz in his writings on dynamics." (p. 183)

92. ———. 1990. "Cum Deus Calculat: God's Evaluation of Possible Worlds and Logical Calculus." *Topoi* no. 9:83–90.

93. Rossi, Paolo. 1989. "The Twisted Roots of Leibniz' Characteristic." In *The Leibniz Renaissance. International Workshop, Firenze, 2-5 giugno 1986*, 271–289. Firenze: Olschki.

94. ———. 2000. *Logic and the Art of Memory. The Quest for a Universal Language*. Chicago: University of Chicago Press

    Translated from Italian with an introduction by Stephen Clucas.

    First edition: *Clavis universalis. Arti mnemoniche e logica combinatoria da Lullo a Leibniz,* Napoli: Ricciardi, 1960; Second revised edition: Bologna: Il Mulino, 1983.

    See in particular Chapter VII. *The Construction of a Universal Language* pp. 145-175 and VIII. *The Sources of Leibniz's Universal Character* pp. 176-193.

95. Royse, James R. 1980. "Leibniz and the Reducibility of Relations to Properties." *Studia Leibnitiana* no. 12:179–204.

96. Rutherford, Donald. 1988. "Truth, predication and complete concept of an individual substance." In *Leibniz. Questions de logique*, edited by Heinekamp, Albert, 130–144. Stuttgart: Steiner Verlag.

97. ———. 1995. "Philosophy and Language in Leibniz." In *The Cambridge Companion to Leibniz*, edited by Jolley, Nicholas, 224–269. Cambridge: Cambridge University Press.

98. Scaramal, Elliot. 2024. "A Defense of Leibniz's Main Definition of Complete Concepts." *Manuscrito* no. 47:1–31.

99. Schmid, Anne-Françoise. 2012. "Couturat's Reception of Leibniz." In *New Essays on Leibniz Reception: In Science and Philosophy of Science, 1800-2000*, edited by Krömer, Ralf and Chin-Drian, Yannick, 65–83. Dordrecht: Birkhäuser.

100. Serrano, Gonzalo. 2006. "Leibniz and the 17th century quarrel around syllogism." In *Einheit in der Vielheit. VIII. Internationaler Leibniz-Kongress, Band 2*, edited by Breger, Herbert, Herbst, Jürgen and Erdner, Sven, 982–988. Hannover: Gottfried-Wilhelm-Leibniz-Gesellschaft.

101. Shafiei, Mohammad. 2017. "A Higher-order Dialogical Logic to demonstrate Leibniz's Law of Identity of Indiscernibles." *Revista de Humanidades de Valparaíso* no. 5:73–88

    Abstract: "In this note I discuss some issues around the law of Identity of Indiscernibles and, above all, its difference with the so-called law of indiscernibilty of identicals. In this way I distinguish between the notions identity, sameness and equality, through a phenomenological discussion and using the key idea of intentionality. In order to formulate the Leibnizian law of Identity of Indiscernibles, and examine its validity, we need higher order logic. I will give semantic rules for a second-order logic with identity in the framework of the dialogical logic, introduced by P. Lorenzen. Then I will demonstrate the validity of the law of Identity of Indiscernibles by means of the introduced logic."

102. Shim, Michael. 2004. "Leibniz and modal realism." In *Aufklärung durch Kritik. Festschrift für Manfred Baum zum 65. Geburtstag*, edited by Baum, Manfred, Hüning, Dieter, Michel, Karin and Thomas, Andreas, 95–111. Berlin: Duncker & Humblot.

103. Sinisi, Vito F. . 1969. "Leibniz's Law and the Antinomy of the Liar." *Philosophy and Phenomenological Research* no. 30:179–279.

104. Skosnik, Jeffrey. 1980. "Leibniz and Russell on Existence and Quantification Theory." *Canadian Journal of Philosophy* no. 10:681–720.

105. Slater, Hartley. 1987. "Back to Leibniz or on from Frege?" In *The New Syllogistic*, edited by Englebretsen, George, 87–98. New York: Peter Lang.

106. Sommers, Fred. 1976. "Leibniz's program for the development of logic." In *Essays in Memory of Imre Lakatos*, edited by Cohen, Robert, Feyerabend, Paul and Wartofsky, Marx, 589–615. Dordrecht: Reidel

    Boston Studies in the Philosophy of Science, Vol. 39.

107. ———. 1976. "Frege or Leibniz?" In *Studies on Frege: Logic and Semantics*, edited by Schirn, Matthias, 11–34. Stuttgart-Bad Cannstatt: Frommann-Holzboog

    Volume III.

108. Sotirov, Vladimir. 1999. "Arithmetizations of Syllogistic *à la* Leibniz." *Journal of Applied Non-Classical Logics* no. 9:387–405

    "Two models of the Aristotelian syllogistic in arithmetic of natural numbers are built as realizations of an old Leibniz idea. In the interpretation, called Scholastic, terms are replaced by integers greater than 1, and s.Ap (“Every s is a p”) is translated as “s is a divisor of p”, sIp (“Some s is a p”) as “g.c.d. (s, p) > 1” (the same letters are used for the replacing numbers as well as for the terms). In the interpretation, called Leibnizian, terms are replaced by proper divisors of a special “Universe number” u < 1 (i.e., s < u, p < u), and sAp is translated as “s is divisible by p”, sIp as ‘l.c.m. (s, p) < u”. Both interpretations are proved to be adequate to the Aristotelian syllogistic. They are extended to syllogistic including term negation and term conjunction as well (and, therefore, all Boolean operations with terms)."

109. ———. 2001. "Leibniz's Logical Systems: A Contemporary View." In *Nihil sine ratione. Mensch, Natur und Technik im Wirken von G. W. Leibniz. VII. Internationaler Leibniz-Kongreß. Band 3.*, edited by Poser, Hans, Asmuth, Christoph, Goldenbaum, Ursula and Li, Wenchao, 1213–1220. Hannover: Gottfried-Wilhelm-Leibniz-Gesellschaft.

110. ———. 2001. "Monadic Predicate Calculus Arithmetized à la Leibniz." *Comptes Rendus de l'Academie Bulgare des Sciences* no. 54:9–10.

111. ———. 2003. "Leibniz's Logical Systems: A Reconstruction." In *Bulgarian Studies in the Philosophy of Science*, edited by Ginev, Dimitri, 85–93. Dordrecht: Springer.

112. ———. 2011. "Leibniz's Intensional Semantics of Syllogistics (a Reconstruction) " In *Natur und Subjekt: Akten des IX. Internationalen Leibniz-Kongresses, Hannover, 26. September bis 1. Oktober 2011*, edited by Breger, H., Herbst, J. and Erdner, S., 1110–1116. Hannover: Gottfried-Wilhelm-Leibniz-Gesellschaft.

113. Soysal, Zeynep, and Jeffrey, McDonough. 2016. "Leibniz's Formal Theory of Contingency Extended." In *"Für unser Glück oder das Glück anderer": Vorträge des X. Internationalen Leibniz-Kongresses*, edited by Beckmann, Ute, 451–466. Hildesheim: Georg Olms.

114. Spruit, Leen, and Tamburrini, Guglielmo. 1990. "Reasoning and Computation in Leibniz." *History and Philosophy of Logic* no. 11:1–14

    "Leibniz's overall view of the relationship between reasoning and computation is discussed on the basis of two broad claims that one finds in his writings, concerning respectively the nature of human reasoning and the possibility of replacing human thinking by a mechanical procedure. A joint examination of these claims enables one to appreciate the wide scope of Leibniz's interests for mechanical procedures, concerning a variety of philosophical themes further developed both in later logical investigations and in methodological contributions to cognitive psychology."

115. Sutherland, Donald. 2010. "Philosophy, geometry, and logic in Leibniz, Wolff, and the early Kant." In *Discourse on a New Method: Reinvigorating the Marriage of History and Philosophy of Science*, edited by Domski, Mary and Dickson, Michael, 155–192. Chicago: Open Court

On Leibniz see § 1. *Leibniz's Analysis Situs and the Logico-Philosophical Method Based on Similarity*, pp. 157-163.

116. Święczkowska, Halina. 2023. "Some Remarks on Leibniz's Idea of Thinking as Computation." *Studies in Logic, Grammar and Rhetoric* no. 68:35–40

Abstract: "The idea of automation of reasoning in science, which is extremely high-ranking nowadays in connection with the development of computer technology and research into artificial intelligence has been presented in the history of mind since taking up a cohered with the idea of mechanization of reasoning. It is therefore proper to present the greatest enthusiast every of this idea on the threshold of the contemporary science, who treated the idea of mechanization in reasoning very widely, assuming that every mind process can be expressed in some physical manner – Gottfried Wilhelm Leibniz."

117. Swoyer, Chris. 1994. "Leibniz's Calculus of Real Addition." *Studia Leibnitiana* no. 26:1–30

"I examine what is probably Leibniz's most complete logical system and show that it is well- developed formal logic with a number of original and important features. Among other things, Leibniz discusses alternative interpretations of his system, provides detailed proofs of over twenty theorems about (what are now known as) semilattices and shows their relevance to logic, and he develops what is probably the first formal theory of the part- whole relation. I then show how Leibniz's system illuminates other aspects of his logic and philosophy, including his views on the structure of concepts and on infinite analysis."

118. ———. 1995. "Leibniz on Intension and Extension." *Noûs*:96–114.

119. ———. 1995. "Leibnizian Expression." *Journal of the History of Philosophy* no. 33:65–99.

120. Sylla, Edith D. 2022. "Leibniz and the Calculators." In *Quantifying Aristotle: The Impact, Spread and Decline of the Calculatores Tradition*, edited by Di Liscia, Daniel A. and Sylla, Edith D. , 381–426. Leiden: Brill.

121. Thiel, Christian. 1982. "From Leibniz to Frege: mathematical logic between 1679 and 1879." In *Logic, Methodology and Philosophy of Science, VI*, edited by Cohen, Jonathan L., 755–770. Amsterdam: North-Holland

    Proceedings of the Sixth International Congress of Logic. Methodology and Philosophy of Science, Hannover 1979.

122. ———. 1991. "Straightening Leibniz's Diagram Calculi." *Theoria: An International Journal for Theory, History and Foundations of Science* no. 6:361–368.

123. Uckelman, Sara. 2010. "Computing with Concepts, Computing with Numbers: Llull, Leibniz, & Boole." In *Programs, Proofs, Processes*, edited by Ferreira, Fernando , Löwe, Benedikt, Mayordomo, Elvira and Mendes Gomes, Luís, 427–437. Berlin: Springer Verlag.

124. Ugaglia, Monica. 2022. "Possibility vs Iterativity: Leibniz and Aristotle on the Infinite." In *Thinking and Calculating: Essays in Logic, Its History and Its Philosophical Applications in Honour of Massimo Mugnai*, edited by Ademollo, Rancesco, Amerini, Fabrizio and De Risi, Vincenzo, 255–270. Cham (Switzerland): Springer.

125. van Atten, Mark. 2015. *Essays on Gödel's Reception of Leibniz, Husserl, and Brouwer*. Cham (Switzerland): Springer.

126. van Rijen, Jeroen. 1989. "Some Misconceptions about Leibniz and the Calculi of 1679." *Studia Leibnitiana* no. 21:196–204.

127. Vermeiren, Florian. 2022. "Questioning the Conceptualist Reading of Leibniz's Theory of Relations." *Studia Leibnitiana* no. 54:225–249

Abstract: "This paper challenges Mugnai's conceptualist reading of Leibniz's theory of relations.

I specifically question his idea that relational accidents are mental additions to absolute foundations. I examine some of the evidence on which he relies. Most importantly, I question his interpretation of Leibniz's rejection of purely extrinsic denominations (abbreviated "NPED") as stating that relations result from non-relational foundations. Mugnai thereby understands Leibniz's notion of 'extrinsic' as 'relational' or 'relative'. Such a reading contradicts both Leibniz's definition of 'extrinsic denominations' and the scholastic meaning of this notion.

Furthermore, Leibniz's use of NPED shows that some relations are intrinsic denominations.

Additionally, I argue that conceptual relations cannot do all the work in Leibniz's metaphysics.

Fundamental notions such as expression, order and, most importantly, coexistence rely on non-conceptual relations."

128. Vilkko, Risto. 2001. ""Lingua universalis" and "calculus ratiocinator" in the 20th century." In *Nihil sine ratione. Mensch, Natur und Technik im Wirken von G. W. Leibniz. VII. Internationaler Leibniz-Kongreß. Band 3.*, edited by Poser, Hans, Asmuth, Christoph, Goldenbaum, Ursula and Li, Wenchao, 1313–1318. Hannover: Gottfried-Wilhelm-Leibniz-Gesellschaft

    "During the past few decades the Leibnizian distinction between lingua universalis and calculus ratiocinator has proven to be a useful systematic tool for logic and philosophy of language. [...] In what follows, I take a closer look at how such philosophers as van Heijenoort, Goldfarb and Hintikka have profited from this old Leibnizian distinction." (p. 1313)

129. Vollmer, Heribert. 2017. "Leibniz and the development of modal logic in the 20th century." In *Für unser Glück oder das Glück andere. X. Internationaler Leibniz-Kongress Hannover, 18. – 23. Juli 2016*, edited by Li, Wenchao, 595–608. Hildesheim: Georg Olms.

130. Warmke, Craig. 2019. "Logic Through a Leibnizian Lens." *Philosophers' Imprint* no. 19.

131. Welch, John R. 1990. "Llull and Leibniz: The Logic of Discovery." *Catalan Review* no. 4:75–83

    Abstract: "Llull and Leibniz both subscribed to conceptual atomism, the belief that the majority of concepts are compounds constructed from a relatively small number of primitive concepts. Llull worked out techniques for finding the logically possible combinations of his primitives, but Leibniz criticized Llull's execution of these techniques. This paper argues that Leibniz was right about things being more complicated than Llull thought but that he was wrong about the details. The paper attempts to correct these details."

132. Westphal, Jonathan. 2016. "Leibniz and the Lucky Proof." In *Logical Modalities from Aristotle to Carnap: The Story of Necessity*, edited by Rini, Adriane, Mares, Edwin and Cresswell, Max, 218–231. Cambridge: Cambridge University Press.

133. Wiener, Philip Paul. 1939. "Notes on Leibniz' Conception of Logic and its Historical Context." *The Philosophical Review* no. 48:567–586.

134. Wilson, Margaret Daulen. 1969. "On Leibniz's Explication of "Necessary Truth"." *Studia Leibnitiana.Supplementa*:50–63.

135. ———. 1999. "Leibniz and Locke on "First Truths"." In *Ideas and Mechanism: Essays on Early Modern Philosophy*, 353–372. Princeton: Princeton University Press.

136. Woleński, Jan. 2018. "Something, nothing and Leibniz's question. Negation in logic and metaphysics." *Studies in Logic, Grammar and Rhetoric* no. 54:175–190

    "This paper discusses the concept of nothing (nothingness) from the point of logic and ontology (metaphysics). It is argued that the category of nothing as a denial of being is subjected to various interpretations. In particular, this thesis concerns the concept of negation as used in metaphysics. Since the Leibniz question 'Why is there something rather than nothing?' and the

principle of sufficient reason is frequently connected with the status of nothing, their analysis is important for the problem in question. Appendix contains a short critical analysis of Heidegger's famous statement *Das Nichts nichtet*."

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History of Logic

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History of Logic

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General Works and Bibliographies on the History of Logic in Western Thought

Some works on the history of logic up to 1977

There is a paucity of works which treat the complete history of logic. Investigation of some of the problems in this field has increased in the last decades, mostly due to symbolic logic, which has established that many of the results obtained were familiar to the Stoics and particularly to the Scholastics. But these have not been overall studies of the science. The authors of the studies we possess usually aimed at rediscovering the results reached in symbolic logic by earlier logical schools, and so many problems of historical interest have in the past been only little explored or not at all. We shall quote below only those studies published in volumes, and which have a more general aim, even when treating special problems, or limited periods of time.

The first history of logic seems to be the work of Petrus Ramus, entitled *Scholae in liberales artes* -- "Schools of Liberal Arts" (Basle, 1569). The first eight chapters of this book deal with history of logic and are called *Scholae dialecticae* -- "Dialectic Schools". Unfortunately, the author naively believes all historical or legendary personages to have been logicians and in the chapter *Logica Patrum* ("Logic of our Ancestors") he lists among them Noah and Prometheus.

After this, studies of the history of logic become more scientific. Here we quote:

- Bartholomäus Keckermann: *Praecognitorum Logicorum Tractatus III* -- "Three Treatises on the most well-known Logicians" (Hanover, 1598). It is rather a useful list of authors and titles, with some indication of contents.
- Jacob Friedrich Reimmann: *Critisirender Geschichts-Calender von der Logica* -- "Critical and Historical Calendar of Logic" (Frankfort-on-Main, 1699). Written in defective German, this work nevertheless contains valuable information.
- Pierre Gassendi: *De origine et varietate logicae* -- "On the Origin and Diversity of Logic" (Lyons, 1658), a very valuable work.
- Johann Albert Fabricius: *Specimen elencticum historiae logicae* -- "Index of Subjects of the History of Logic" (Hamburg, 1699). This "Index" is actually a catalogue of the treatises of logic known by this scholar.
- Johannes Georgius Walchius [Johann Georg Walch]: *Historia Logicae* -- "History of Logic" (Leipzig, 1721). This book differs from the preceding ones in the correctness of its information.
- Heinrich Christoph Wilhelm Sigwart: De historia logicae inter Graecos usque ad Socratem commentatio -- "On the History of Logic among Greeks as far as Socrates" (Tübingen, 1832).
- Frederich Auguste de Reiffenberg: *Principes de la Logique suivis de l'Histoire et de la bibliographie de cette Science* --" The Principles of Logic followed by the History and Bibliography of this Science" (Brussels, 1833).
- Adolphe Frank: *Esquisse d'une histoire de la logique precedée d'une Analyse etendue de l'Organum d'Aristote* -- "Sketch of a History of Logic Preceded by an Extensive Analysis of Aristotle's Organon" (Paris, 1838).
- Friedrich Adolf Trendelenburg: *Geschichte der Kategorienlehre* -- "History of the Theory of Categories" (Berlin, 1845).
- Robert Blakey: Historical Sketch of Logic, *from the Earliest Times to the Present Day* (Edinburgh, 1851).

- We have reached now the monumental work in four volumes, Carl Prantl's *Geschichte der Logic im Abendlande* -- "History of logic in Western Europe" (Leipzig, 1855-1870). This writing offers an inexhaustible source of information, of original Greek and Latin texts, some of them copied down from inaccessible books and manuscripts (which the present, work has also used). Yet this work has at least two shortcomings: it expounds the history of logic only down to the sixteenth century, and it is blemished by opinions that are inadmissible because of their violence and by a lack of understanding of ideas different from his own. Although Prantl was convinced he had written a work "so that it would not be necessary, at least for some time, to write another history of logic" (op. cit., IV, *Vorwort*), the material he collected can be only a source of information for other histories of logic. Prantl's method is exclusively chronological and therefore entails repetitions.
- Paul Janet and Gabriel Séailles: *Histoire de la Philosophie* (Paris 1887). In this "History of Philosophy", a large part deals with history of logic in a very original manner, dividing it into its main problems: history of the problem of concept, of judgement, of syllogism, of induction. It is a didactic handbook, supplying an important amount of information, sometimes following closely the treatise of Prantl.
- Friederich Harms: *Die Philosophie in ihrer Geschichte* "Philosophy in its History".
- The second volume of this work is entitled *Geschichte der Logik* - “History of Logic”. (Berlin, 1881), and deals in a very general way with the history of this discipline.
- Robert Adamson: *A Short History of Logic* (Edinburgh, 1911; reprinted, Dubuque, Iowa, 1962).
- Clarence Irving Lewis: *A Survey of Symbolic Logic* (Berkeley, 1918). This book contains numerous historical indications about mathematical logic.
- Theodor Ziehen: *Lehrbuch der Logik auf positivistischer Grundlage mit Berücksichtigung der Geschichte der Logik*, -

"Treatise on Logic, on Positivist Ground, Considering also the History of Logic" (Bonn, 1920).

- Oswald Külpe: *Vorlesungen über Logik* - "Lessons on Logic" (Leipzig, 1923). The first part of this book is a short history of logic, containing competent opinions, and a very judicious division of the history of this science.
- Federigo Enriques: *Per la storia della logica* - "For the History of Logic" (Bologna, 1922). This study contains some interesting remarks, gives the logic a larger framework, (including the methodologic and philosophical logic), but aims to show the connections between mathematics and logic.
- Henrich Scholz: *Geschichte der Logik* - "History of Logic" (Berlin, 1931). This is a short, but very erudite study, which underlines only those data which confirm or prefigure the results of mathematical logic.
- Jörgen Jörgensen: *A Treatise of Formal Logic* (3 vols., Copenhagen - London, 1931). The first volume bears the title *Historical Developments*, and offers precious information.
- Evert Willem Beth: *De Wijsbegeerte der Wiskunde van Parmenides tot Bolzano* - "The Theory of Science from Parmenides to Bolzano" (in Dutch, Antwerp-Nijmegen, 1944);
- Evert Willem Beth: *Geschiedenis der Logica* - "History of Logic" (in Dutch, the Hague, 1944).
- Francesco Albergamo: *Storia della logica delle scienze esatte* - "History of the Logic of Exact Sciences" (Bari, 1947).
- Antoinette Virieux-Reymond: *La logique et l'épistémologie des Stoïciens* - "Logic aad Epistemology of the Stoics" (Lausanne, 1949).
- Philotheus Boehner: *Medieval Logic, an outline of its development from 1350 to c. 1400* (Manchester, 1952).
- Robert Feys: *De ontwikkelung van het logisch denken* - "Development of Logic Thought" (in Dutch, Antwerp - Nijmegen, 1949).

- Alonzo Church: *Introduction to Mathematical Logic* (Princeton, 1956). This masterly treatise on mathematical logic contains numerous and important historical references. Church has also published regularly in "Journal of Symbolic Logic" the Bibliography of this science (beginning from 1936).
- Józef Maria Bochenski: Formale Logik - "Formal Logic" (Freiburg - Munchen, 1956). This is, in our opinion, an important work in this field. It contains an anthology of texts, taken from the original writings of the logicians, beginning with Greeks until now, translated into German, and is chronological. The principle of this work is to give the texts which prefigure or present the results obtained in our time by mathematical logic. Formale Logik also gives short information about Indian logic. [Translated in English as *A history of formal logic* (1961)
- Francesco Barone: *Logica formale e Logica transcendentale* - "Formal and Transcendental Logic" (2 vols., Turin, 1957-1965). The first volume is entitled *Da Leibniz aKant* - "From Leibniz to Kant", and the second one *L'algebra della logica* - “The algebra of logic”. Barone's work, although limited to a certain determined period, is rich in personal comment and contains much information.
- Ettore Carruccio: *Matematica e logica nella storia e nel pensiero contemporaneo* "Mathematics and Logic In the History and In the Contemporary Thought" (Turin, 1958).
- Benson Mates: *Stoic Logic* (Berkeley and Los Angeles, 1961).
- William and Martha Kneale: *The Development of Logic* (Oxford, 1962): We think this is the third important work in this field (chronologically, after those of Prantl and of Bochenski), very important as a work of references. The aim of this book is, as the authors say in the "Preface", "an account of the growth of logic, rather than an attempt to chronicle all that past scholars, good or bad, have said about their science". Kneale's method is not that used by Bochenski (anthology of texts), but their aim coincides with Bochenski's, being "to record the first appearances of those ideas which seem to us most important in the logic of our own day".

- Tadeusz Kotarbinski: *Leçons sur l'histoire de la logique* - "Lessons in the History of Logic" (Paris, 1964). The book is the translation of the lessons given by the author at the University of Warsaw, and though short offers a larger framework for the history of this discipline, also discussing other logic problems, for instance methodological ones, which were not considered by Bochenski or Kneale. Notwithstanding, this work aims to show the historical filiation of mathematical logic.
- Nicolai Ivanovici Stiazhkin: *Stanovlenie idei matematiceskoi logiki* - "The Genesis of the Idea of Mathematical Logic" (Moscow, 1964). This book has been translated into English under the title History of Mathematical Logic from Leibniz to Peano (Cambridge, Mass., London, 1969).
- Ernst Kapp: *Der Ursprung der Logik bei den Griechen* - "The Origin of Logic with Greeks" (Gottingen, 1965) [Originally published in English as *Greek foundations of traditional logic*, 1942)
- Wilhelm Risse : *Bibliographia Logica*. The author intends to continue the work of Prantl, in his studies bearing this general title, but in an objective manner, beginning from where the last has left it, i. e. end of the sixteenth century. This Bibliography is planned to appear in four volumes, the first being already published: *Bibliographia Logica. Verzeichnis der Druckschriften zur Logik mit Angabe ihrer Fundorte*. Band I, 1172 -1800 - "Logic Bibliography. List of printed writings with indication where they are to be found. Vol. I, 1472-1800" (Hildesheim - New York, 1965). Beside this vast Bibliography, (which will also list the manuscripts of logic), Risse has published another work in two volumes (which will be continued too): *Die Logik der Neuzeit* Band I, 1600-1640 - "Logic of Recent Times, vol. I, 1500-1640" (Stuttgart - Bad Cannstatt, 1964); *Die Logik der Neuzeit* Band II, 1640-1780 (Stuttgart - Bad Cannstatt, 1970). These two volumes expound, in Prantl's manner, but more systematically, the treatises on logic from the mentioned periods. The studies of Risse, as well as those of Prantl, are indispensable to all researches in the field of history of logic.

- Peter Harold Nidditch: *The Development of Mathematical Logic* (London, New York, 1960).
- Guido Calogero: *Storia della logica antica* - "History of the ancient logic" (Bari, 1967). The author, mentions that this is the first of a series of volumes - "The Archaic Epoch", dealing with logic from Heraclitus to Leucippus and Democritus [other volumes were never published]. Calogero also published the important work *I fondamenti della logica aristotelica* - The Bases of Aristotle's Logic" (2nd ed., Florence, 1968) [First edition: Rome, 1932]
- Alexandr Osipovich Makovelski: *Istoria Logiki* - "History of Logic" (Moscow, 1967), short general and didactic handbook of this discipline [translated in French by Geneviève Dupond as: *Histoire de la logique*, Moscou, Éditions du Progrés, 1978].
- James C. Colbert: *La evolucion de la logica simbolica y sus implicaciones* - "Evolution of Symbolic Logic and its Philosophical Implications" (Pamplona, 1968). This writing studies mathematical logic and some important authors.
- Anton Dumitriu: *Istoria Logicii* - "History of Logic" (Bucharest, 1969). The work highlights all the historical aspects of logic. It contains a chapter on logic in China and another on logic in India. An ample compendium of the whole book, in two parts, was published by “Scientia”, and appeared simultaneously in French and English versions (Nos. VII-X, 1971). [Translated in English as *History of logic* (1977)]
- Robert Blanché: *La logique et son histoire. D'Aristote à Russell* - "Logic and its History. From Aristotle to Russell" (Paris, 1970), The book is full of interesting remarks, but it neglects, as many other works do, methodology, Renaissance logic, and other important problems.
- Reuben Louis Goodstein: *Development of Mathematical Logic* (NewYork, London 1971).
- Vicente Muñoz Delgado: *Logica Hispano-Portuguesa hasta 1600* - "The Spanish- Portuguese Logic till 1600" (Salamanca,

1972). This is an important study of logic in the Iberian Peninsula, containing information ignored till now.
- Stanislaw Surma (editor): *Studies in the History of Mathematical Logic* (Wroclaw - Warszawa - Krakow - Gdansk, 1973).

We can see from the above list, that very few of the works quoted are really "histories of logic". The importance of all these contributions cannot be diminished but -- and this is a curious fact -- they generally defend or emphasize some particular results and thus neglect others.

We realize, in this way, that, indisputably, one veritable historical work, in the above list, is nevertheless, in spite of its weak side, Prantl's *Geschichte der Logik im Abendlande*, because the author does not select the logicians nor the theories he is treating of. He is judging them severely when they contradict his conception, and that is his error. But his work is unquestionably historical in character, and Prantl is really a historian, although his judgements are often too subjective and rudely expressed." (Vol. I, pp. XIII-XVI)

From: Anton Dumitriu, *History of logic*, Tunbridge Wells: Abacus Press, 1977.

The most important recent works are the *Handbook of the History of Logic,* edited by Dov Gabbay and John Woods (11 volumes) and *The Development of Modern Logic* edited by Leila Haaparanta; see the following section for the bibliographic details.

General works on the history of logic

Studies in English

Handbook of the History of Logic

1. Gabbay, Dov, and Woods, John, eds. 2004. *Greek, Indian and Arabic Logic*. Amsterdam: Elsevier.

   Handbook of the History of Logic: Vol. 1.

   Contents: Dov M. Gabbay and John Woods: Preface VII-VIII; List of Contributors IX; Julius Moravcsik: Logic before Aristotle: Development or Birth? 1; John Woods and Andrew

Irvine: Aristotle's Early Logic 27; George Boger: Aristotle's Underlying Logic: 161; Fred Johnson: Aristotle's Modal Syllogisms 247; Jonardon Ganeri: Indian Logic 309; Robert R. O'Toole and Raymond E. Jennings: The Megarians and the Stoics 397; Tony Street: Arabic Logic 523; Charles Burnett: The Translation of Arabic Works on Logic into Latin in the Middle Ages and Renaissance 597; Index 607-617.

2. ———, eds. 2008. *Mediaeval and Renaissance Logic*. Amsterdam: Elsevier.

   Handbook of the History of Logic: Vol. 2.

   Contents: Dov M. Gabbay and John Woods: Preface VII; List of Contributors IX; John Marenbon: Logic before 1100: The Latin Tradition 1; John Marenbon:: Logic at the Turn of the Twelfth Century 65; Ian Wilks: Peter Abelard and his Contemporaries 83; Terence Parsons: The Development of Supposition Theory in the Later 12th through 14th Centuries 157; Henrik Lagerlund: The Assimilation of Aristotelian and Arabic Logic up to the Later Thirteenth Century 281; Ria van der Lecq: Logic and Theories of Meaning in the Late 13th and Early 14th Century including the Modistae 347; Gyula Klima: The Nominalist Semantics of Ockham and Buridan: A 'Rational Reconstruction' 389; Catarina Dutilh Novaes: Logic in the 14th Century after Ockham 433; Simo Knuuttila: Medieval Modal Theories and Modal Logic 505; Mikko Yrjönsuuri: Treatments of the Paradoxes of Self-reference 579; E. Jennifer Ashworth: Developments in the Fifteenth and Sixteenth Centuries 609; Petr Dvořák: Relational Logic of Juan Caramuel 645; Russell Wahl: Port Royal: The Stirrings of Modernity 667; Index 701-716,

3. ———, eds. 2004. *The Rise of Modern Logic: from Leibniz to Frege*. Amsterdam: Elsevier.

   Handbook of the History of Logic: Vol. 3.

   Contents: Dov M. Gabbay and John Woods: Preface VII; List of Contributors IX; Wolfgang Lenzen: Leibniz's Logic 1; Mary Tiles: Kant: From General to Transcendental Logic 85; John W. Burbidge: Hegel's Logic 131; Paul Rusnock and Rolf George:

Bolzano as Logician 177; Richard Tieszen: Husserl's Logic 207; Theodore Hailperin: Algebraical Logic 1685-1900 323; Victor Sanchez Valencia: The Algebra of Logic 389; Ivor Grattan-Guinness: The Mathematical Turn in Logic 545; Volker Peckhaus: Schr6der's Logic 557; Risto Hilpinen: Peirce's Logic 611; Peter M. Sullivan: Frege's Logic 659; Index 751-770.

4. ———, eds. 2008. *British Logic in the Nineteenth Century*. Amsterdam: Elsevier.

   Handbook of the History of Logic: Vol. 4.

   Contents: Dov M. Gabbay and John Woods: Preface VII; List of Contributors XIII; Gordon R. McOuat and Charissa S. Varma: Bentham's Logic 1; Tim Milnes: Coleridge's Logic 33; James Van Evra: Richard Whately and Logical Theory 75; Ralph Jessop: The Logic of Sir William Hamilton: Tunnelling through Sand to Place the Keystone in the Aristotelic Arch 93; Laura J. Snyder: "The Whole Box of Tools": William Whewell and the Logic of Induction 163; Fred Wilson: The Logic of John Stuart Mill 229; Michael E. Hobart and Joan Richards: De Morgan's Logic 283; Dale Jacquette: Boole's Logic 331; Maria Panteki; French 'Logique' and British 'Logic': On the Origins of Augustus de Morgan's Early Logical Enquiries, 1805–1835 381; Amirouche Moktefi: Lewis Carroll's Logic 457; James Van Evra: John Venn and Logical Theory 507; Bert Mosselmans and Ard van Moer: William Stanley Jevons and the Substitution of Similars 515; Shahid Rahman and Juan Redmond: Hugh McColl and the Birth of Logical Pluralism 533; David Sullivan: The Idealists 605; William J. Mander: Bradley's Logic 663; Index 719-735.

5. ———, eds. 2009. *Logic from Russell to Church*. Amsterdam: Elsevier.

   Handbook of the History of Logic: Vol. 5.

   Contents: Preface VII; Contributors XI; Andrew D. Irvine: Bertrand Russell's Logic 1; Dale Jacquette: Logic for Meinongian Object Theory Semantics 29; Joan Rand Moschovakis: The Logic of Brouwer and Heyting 77; Jens Erik Fenstad and Hao Wang: Thoralf Albert Skolem 127; Claus-Peter

Wirth, Jörg Siekmann, Christoph Benzmüller, Serge Autexier: Jacques Herbrand: Life, Logic. and Automated Deduction 195; Michael Potter: The Logic of the *Tractatus* 255; Peter M. Simons: Leśniewski' Logic 305; Wilfried Sieg: Hilbert's Proof Theory 321; Barry Hartley Slater: Hilbert's Epsilon Calculus and Its Successors 385; Mark van Atten and Juliette Kennedy: Gödel's Logic 449; Keith Simmons: Tarski's Logic 511; Alasdair Urquhart: Emil Post 617; Jan von Plato: Gentzen's Logic 667; Felice Cardone and J. Roger Hindley: Lambda-Calculus and Combinatorics in the 20th Century 723; Jonathan P. Seldin: The Logic of Church and Curry 819; Andrea Cantini: Paradoxes, Self-Reference and Truth in the 20th Century 875; Index 1015-1056.

6. Gabbay, Dov, Kanamori, Akihiro, and Woods, John, eds. 2012. *Sets and Extensions in the Twentieth Century*. Amsterdam: Elsevier.

   Handbook of the History of Logic: Vol. 6.

   Contents: Preface VII; Contributors XI; Akihiro Kanamori: Set Theory from Cantor to Cohen 1; Juris Steprāns: History of the Continuum in the 20th Century 73; Jean A. Larson: Infinite Combinatorics 145; Akihiro Kanamori: Large Cardinals with Forcing 359; William J. Mitchel!: Inner Models for Large Cardinals 415; Paul B. Larson: A Brief History of Determinacy 457; Menachem Kojman: Singular Cardinals: From Hausdorff's Gaps to Shelah 's pcf Theory 509; M. Randall Holmes, Thomas Forster, and Thierry Libert: Alternative Set Theories 559; John L. Bell: Types, Sets, and Categories 633; Jean-Pierre Marquis and Gonzalo E. Reyes: The History of Categorical Logic: 1963-1977 689; Fairouz Kamareddine, Twan Laan, and Robert Constable: Russell 's Orders in Kripke's Theory of Truth and Computational Type Theory 801; Index 847-865.

7. Gabbay, Dov, and Woods, John, eds. 2006. *Logic and the Modalities in the Twentieth Century*. Amsterdam: Elsevier.

   Handbook of the History of Logic: Vol. 7.

   Contents: Preface VII; List of Contributors XI; Rob Goldblatt: Mathematical Modal Logic: A View of its Evolution 1; Paul

Gochet and Pascal Gribomont: Epistemic Logic 99; Paul McNamara: Deontic Logic 197; Greg Restall: Relevant and Substructural Logics 289; Peter Øhrstrøm and Per F. V. Hasle: A. N. Prior's Logic 399; Peter Øhrstrøm and Per F. V. Hasle: Modern Temporal Logic: The Philosophical Background 447; Jan van Eijck and Martin Stokhof: The Gamut of Dynamic Logics 499; Keith Devlin: Situation Theory and Situation Semantics 601; Erik Krabbe: Dialogue Logic 665; Index 705-719.

8. ———, eds. 2007. *The Many-Valued and Nonmonotonic Turn in Logic*. Amsterdam: Elsevier.

   Handbook of the History of Logic: Vol. 8.

   Contents: Preface VII; List of Authors XI; Grzegorz Malinowski: Many-valued Logic and its Philosophy 13; Bryson Brown: Preservationism: A Short History 95; Graham Priest: Paraconsistency and Dialetheism 129; Maria Luisa Dalla Chiara, Roberto Giuntini and Miklos Rédei: The History of Quantum Logic 205; Dominic Hyde: Logics of Vagueness 285; Didier Dubois, Francesc Esteva, Lluís Godo and Henri Prade: Fuzzy-set Based Logics — An History-oriented Presentation of their Main Developments 325; Karl Schlechta: Nonmonotonic Logics: A Preferential Approach 451; Grigoris Antoniou and Kewen Wang: Default Logic 517; Alexander Bochman: Nonmonotonic Reasoning 557; Carl J. Posy: Free Logics 633; Index 681-689.

9. Gabbay, Dov, Siekmann, Jörg H., and Woods, John, eds. 2014. *Computational Logic*. Amsterdam: Elsevier.

   Handbook of the History of Logic: Vol. 9.

   Contents: Jörg Siekmann and Dov Gabbay: Editorial note VII; List of Authors and Readers VIII;

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Index 711-734.

10. Gabbay, Dov, Hartmann, Stephan, and Woods, John, eds. 2011. *Inductive Logic*. Amsterdam: Elsevier.

    Handbook of the History of Logic: Vol. 10.

    Contents: Introduction VII; Contributors IX; J. R. Milton: Induction Before Hume 1; Marc Lange: Hume and the Problem of Induction 43; Malcolm Forster: The Debate Between Whewell and Mill on the Nature of Scientific Induction 93; Stathis Psillos: An Explorer Upon Untrodden Ground: Peirce on Abduction 117; Maria Carla Galavotti: The Modern Epistemic Interpretations of Probability: Logicism and Subjectivism 153; Alan Musgrave: Popper and Hypothetico-Deductivism 205; Jan Sprenger: Hempel and the Paradoxes of

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11. Gabbay, Dov, Pelletier, Francis Jeffrey, and Woods, John, eds. 2012. *Logic: A History of its Central Concepts*. Amsterdam: Elsevier.

    Handbook of the History of Logic: Vol. 11.

    Contents: Preface VII; List of Authors X; Conrad Asmus and Greg Restall: History of the Consequence Relation 11; Daniel Bonevac: A History of Quantification 63; J. L. Speranza and Laurence R. Horn: A Brief History of Negation 127; Daniel Bonevac and Josh Dever: A History of the Connectives 175; Jean-Yves Beziau: A History of Truth-Values 235; Simo Knuuttila: A History of Modal Traditions 309; Francis Jeffry Pelletier and Allen P. Hazen: A History of Natural Deduction 341; Storrs McCall: A History of Connexivity 415; Fairouz Kamareddine, Twan Laan and Rob Nederpelt: AHistory of Types 451; John Woods: A History of the Fallacies in Western Logic 513; Amirouche Moktefi and Sun-Joo Shin: A History of Logic Diagrams 611; Index 683-706.

Other studies in English A - C

1. Angelelli, Ignacio, and Cerezo, María, eds. 1996. *Studies on the History of Logic. Proceedings of the III. Symposium on the History of Logic*. Berlin: Walter de Gruyter.

Contents: Preface V; List of Contributors XI; Mario Mignucci: Aristotle's theory of predication 1; Robin Smith: Aristotle's regress argument 21, Hermann Weidemann: Alexander of Aphrodisias, Cicero and Aristotle's definition of possibility 33; Donald Felipe: Fonseca on topics 43; Alan Perreiah: Modes of scepticism in medieval philosophy 65; Mikko Yrjönsuuri: Obligations as thoughts experiments 79; Angel d'Ors: *Utrum propositio de futuro sit determinate vera vel falsa* (Antonio Andrés and John Duns Scotus) 97; Earline Jennifer Ashworth: Domingo de Soto (1494-1560) on analogy and equivocation 117; Allan Bäck: The *Triplex Status Naturae* and its justification 133; William E. McMahon: The semantics of Ramon Llull 155; Paloma Pérez-Ilzarbe: The doctrine of descent in Jerónimo Pardo: meaning, inference, truth 173; Jeffrey Coombs: What's the matter with matter: *Materia propositionum* in the post-medieval period 187; Rafael Jiménez Cataño: *Copulatio* in Peter of capua (12th century) and the nature of the proposition 197; Lynn Cates: Wyclif on *sensus compositus et divisus* 209; Mauricio Beuchot: Some examples of logic in New Spain (Sixteenth-Eighteenth century) 215; Adrian Dufour: necessity and the Galilean revolution 229; Guy Debrock: Peirce's concept of truth within the context of his conception of logic 241; Pierre Thibaud: Peirce's concept of proposition 257; Jaime Nubiola: Scholarship on the relations between Ludwig Wittgenstein and Charles S. Peirce 281; José Miguel Gambra: Arithmetical abstraction in Aristotle and Frege 295; Herbert Hochberg: The role of subsistent propositions and logical forms in Russell's 1913 *Philosophical logic* and in the Russell-Wittgenstein dispute 317; Alfonso García Suárez: Are the objects of the *Tractatus* phenomenological objects? 343; María Cerezo: Does a proposition affirm every proposition that follows from it? 357; Javier Legris: Carnap's reconstruction of intuitionistic logic in the *Logical syntax of language* 369; Albert C. Lewis: Some influences of Hermann Grassmann's program on modern logic 377; Juan Carlos León: Indeterminism and future contingency in non-classical logics 383; Christian Thiel: Research on the history of logic at Erlangen 397; Index 403.

2. Bar-Am, Nimrod. 2003. "A Framework for a Critical History of Logic." *Sudhoffs Archiv* no. 87:80-89.

Abstract: "The view that science has evolved while using the critical method (dialectics) is undisputed these days. Initially, the traditional view that scientific knowledge is sound and unshakable knowledge, has hindered the view of its development as a critical process. In this respect the history of logic suffered more than other branches of knowledge because the view of logic as developing belongs essentially to the last 150 years. Even today, there is no critical history of logic (the telling of its development by the critical method). This paper is a preliminary attempt in this direction."

"Let us sum up then: At the heart of traditional logic lies the traditional question, what is a sound inference? Modern logic took its first step by criticizing this question (Hume, Bolzano and Boole) and, by replacing it with the modern question, what is a valid inference?

(Boole, Russell and Tarski). This was not a technical novelty. It was a type 6 novelty, an upheaval, a meta-logical revolution which determined future agenda for years to come. Key figures, such as Whewell and Frege, did not take part in this revolution. This discovery is an interesting result of the use of our framework: Their achievements were made despite them being fence-sitters. On the one hand, they still clung to judgments, viewing as useless the merely valid inferences. On the other hand, they postponed the task of securing empirical science by means of logic." (p. 89)

3. Barth, Else M. 1974. *The Logic of the Articles in Traditional Philosophy. A Contribution to the Study of Conceptual Structures*. Dordrecht: Reidel.

   Revised translation from the original Dutch (1971) by E. M. Barth and T. C. Potts.

   Table of Contents: Preface XIX; Preface to the original edition XXI; On the use of symbols and graphical types XXIII-XXV; Part 1. The problem. I. Introduction: problems and sources 3; II. Naming what is 34; III. The semantics of the logical constants 50; Part 2. Historical survey. IV. From the history of the logic of indefinite propositions 75; V. From the history of the logic of individual propositions 141; VI. Singular - General -

Indefinite 180; VII. The identity theories of the copula 204; Part 3. Descent. VIII. Argument by analogy 291; IX: The problem of the logic of relations and its connection with the logic of the articles 337; Part 4. X: Introduction of indefinite propostions by ekthesis 381; XI. Conjunction, potentiality, and disjunction 417; XII. Summary and conclusion 457; Bibliography 482; Index of proper names 502; Index of subjects 509.

"As anybody may verify, both in German, French and other continental philosophical literature, as well as in English philosophical literature written in the continental philosophical tradition, very frequent use is made of the articles - “der”, “die”, “das” in German, “le” and “la” in French, “de” and “het” in Dutch, “-en”, “-a”, “-et” in Scandinavian languages and so on - that is, of the definite articles as grammarians call them.

Sentences which in German would begin with a definite article are frequently translated into English by indefinite articles, and often also occur without any preceding article or other operator. In any case, the choice between a definite and an indefinite prenex article in English philosophical literature can seldom be said to be philosophically significant." (p. 4)

(...)

"It is certainly no accident that sentences with definite articles, or, as is often the case in English, indefinite articles, and general sentences with no prenex articles or other prenex operators at all, were found earlier much more frequently in scientific literature, too, than today. The development on this point which introduction: problems and sources has taken place in the social sciences can be illustrated by the following

quotation: “The emphasis has shifted from the attempt to discover the characteristics of the leader, to an understanding of the leader-follower relationship” (Klineberg 1954/466). Due to the development of a logic of relations by De Morgan and Peirce, from 1860 onwards, in combination with Frege’s revision of the logic of “all” and “some”, the language form exemplified by “the state” and “die Sprache” gradually

disappeared from theoretical logic. The development in the social sciences to which Klineberg refers is not necessarily directly connected with that theoretical logic, but it could be. In any case the similarity between these developments is an interesting symptom of a generally felt need." (p. 5, a note omitted)

References

Klineberg, O., 1954 [1940], *Social Psychology*. Second revised edition. New York.

4. Bochenski, Joseph. 1961. *A History of Formal Logic*. Notre Dame: Indiana University Press.

Translated from the German edition "*Formale Logik*" (1956) by Ivo Thomas.

Reprinted New York, Chelsea Publishing Co., 1970.

"As an introduction to the present state of research and to justify the arrangement of this book, a summary presentation of results is now needed. The view we present is a new one of the growth of formal logic, stated here for the first time. It is a view which markedly diverges not only from all previous conceptions of the history of logic, but also from opinions that are still widespread about the general history of thought. But it is no 'synthetic a priori judgment', rather is it a position adopted in accordance with empirical findings and based on the total results of the present book. Its significance seems not to be confined within the boundaries of the history of logic: the view might be taken as a contribution to the general history of human thought and hence to the sociology of knowledge." (p. 10)

(...)

"The history of western logic can be divided into five periods: 1. the ancient period (to the 6th century A.D.); 2. the high Middle Age (7th to 11th centuries); 3. the Scholastic period (11th to 15th centuries); 4. the older period of modern 'classical' logic (16th to 19th centuries); 5. mathematical logic (from the middle of the 19th century). Two of those are not creative periods - the

high Middle Age and the time of 'classical' logic, so that they can be left almost unnoticed in a history of problems. The hypothesis that there was no creative logical investigation between the ancient and Scholastic periods might very probably be destroyed by a knowledge of Arabian logic, but so far little work has been done on this, and as the results of what research has been undertaken are only to be found in Arabic, they are unfortunately not available to us." (p. 11)

5. ———. 1974. "Logic and Ontology." *Philosophy East and West* no. 24:275-292.

   Abstract: "The scope of this article is to present a broad survey of the relations between logic and ontology as they have been conceived of in the history of Western thought. While it is true that Hindu philosophy offers a similar field of research, the impression is that we are not yet prepared to handle it in any synthetic way. We simply do not know enough about the details of the Hindu doctrines."

6. ———. 1981. "The general sense and character of modern logic." In *Modern Logic - A Survey. Historical, Philosophical, and Mathematical Aspects of Modern Logic and Its Applications*, edited by Agazzi, Evandro, 3-14. Dordrecht: Reidel.

   "By 'Modem Logic' (abridged as 'ML') the class of studies is meant which were originated by Leibniz, developed, among others, by Boole, Peirce, Frege, Peano, Lesniewski and their followers; in other terms the class of studies listed in Alonzo Church's Bibliography and in *The Journal of Symbolic Logic*."

   (...)

   "The aim of the paper is to describe - as the title selected by the organizers of the conference indicates - the general sense and character of ML thus understood. In other terms an attempt will be made to find the fundamental characteristics of ML-al studies.

   The method used will be comparative. We are going to ask: How does ML compare with three fields with which it is usually linked: logic, mathematics and philosophy? Is ML Logic and, if so, how does it differ from

other types of logic? Is it a mathematical discipline and, if that is the case, what is the difference between it and other mathematical sciences? Is it philosophy and, this being admitted, what is its place among the other philosophical disciplines?

The present paper will be mostly concerned with the first class of problems, the comparison between ML and the other types of logic; the other two classes of problems will be treated only marginally. As far as the

main problems are concerned, the method will necessarily be historical: for, contrary to mathematics and philosophy, all other forms of logic with which ML may be compared belong to the past." (p. 3)

7. Brumberg-Chaumont, Julie, and Rosental, Caude, eds. 2021. *Logical Skills: Social-Historical Perspectives*. Cham (Switzerland): Birkhäuser.

"The volume wishes to address a variety of questions arising when logic is approached by overriding compartmentalization, by adopting an interdisciplinary viewpoint, and by taking into account its fully social and historical dimensions. By raising the question of logical skills, it aims at pausing and stepping aside from an approach essentially centered on the doctrinal history of logical theories." (Preface, p. V)

(...)

"This volume differs from many psychology publications in that it does not seek to highlight the acquisition, possession, or lack of logical skills in anonymous and interchangeable “subjects” according to a reference logic. It deals with socio-historically situated actors and groups and analyzes the conceptions of logic that are mobilized to valuate their skills and to devise educational “politics of logic.”

The volume is also different from various philosophical works that offer a reflection on the (il)logical ways of thinking and acting of societies—or of the individuals who compose them. On the contrary, such reflections are taken as an object of social historical study in its own right.

Furthermore, it differs from histories of ideas in the field of logic. It does not set out from a definition of logic that would serve as a once-and-for-all fixed reference, which would lead to select some approaches to logic and exclude others from the scope of our study. It develops a social historical approach to logic. By focusing on logical skills, it shows the many ways in which logic can be understood. Logic does not simply appear as a set of theories and doctrines, but also as a tool that individuals and groups use for numerous purposes in various institutional, political, and social contexts. Generally speaking, logic is seen as a social practice." (Preface, p. VI)

8. Carruccio, Ettore. 1964. *Mathematics and Logic in History and in Contemporary Thought*. Chicago: Aldine.

   Original Italian edition: *Matematica e logica nella storia e nel pensiero contemporaneo*, Torino: Gheroni 1958.

   "The history of mathematics, understood in this sense, should as far as possible be studied directly from documents and from originals; what is required is not so much erudition as an effort to enliven the texts by interpretation and by relating them to their own times. The field which the historian of mathematics should cover in tracing the development, ancient and modern, of the subject, and its relationship with other aspects of life and culture, is broad enough to daunt the student; but while obviously no one can cover the whole of it in detail, each student must choose what best suits his own intellectual interests.

   The subjects treated in this book have been chosen mainly to show the development of the most important fundamental concepts of mathematics, and particularly the contribution made by mathematical thought to the evolution of logic. This will allow us to cover the entire history of mathematics from ancient times to our -own day, observing the changes that have taken place in the conception of the structure of a rational theory, until we reach the delicate, and often lively and disconcerting,

   problems of contemporary logic. Though narrowed down like this, our field of enquiry is still too vast to be treated all in one

piece. Yet, as our object is essentially formative rather than informative, we prefer to leave occasional gaps, in order to emphasize subjects which seem fundamental in the training of those who will do research in the history and philosophy of mathematics.

At this point the reader may wish for a precise definition of what we mean by the terms 'mathematics' and 'logic'. But the meaning of the terms themselves, as we shall see, keeps changing in the course of the history of thought. To understand adequately what thinkers have meant by these terms we need, therefore, a broad idea of the historical development of mathematics and logic. To understand clearly what is meant by such terms today we need too, I think, a knowledge of the evolution of the ideas in question, and it is this evolution that we shall follow in this book." (pp. 10-11)

9. Church, Alonzo. 1956. *Introduction to Mathematical Logic*. Princeton: Princeton University Press.

   Third reprint 1996. See in particular the *Historical notes*: Chapter II. *The propositional calculus (continued)* § 29 pp. 155-166; Chapter IV. *The pure functional calculus of First Order* 49 pp. 288-294.

10. Cresswell, Max, Mares, Edwin, and Rini, Adriane, eds. 2016. *Logical Modalities from Aristotle to Carnap: The Story of Necessity*. Cambridge: Cambridge University Pres.

    Contents: List of Figures and Tables VII; List of Contributors IX, List of Abbreviations XIII; Max Cresswell, Edwin Mares, and Adriane Rini: Introduction 1; 1Adriane Rini: Aristotle on the Necessity of the Consequence 11; 2 Marko Malink: Aristotle on One-Sided Possibility 29; 3 Robin Smith: Why Does Aristotle Need a Modal Syllogistic? 50; 4 Vanessa de Harven: Necessity, Possibility, and Determinism in Stoic Thought 70; 5 Paul Thom: Necessity in Avicenna and the Arabic Tradition 91; 6 Christopher J. Martin: Modality without the *Prior Analytics*: Early Twelfth Century Accounts of Modal Propositions 113; 7 Calvin G. Normore: Ockham and the Foundations of Modality in the Fourteenth Century 133; 8 Jack MacIntosh: Theological and Scientific Applications of the Notion of Necessity in the

Mediaeval and Early Modern Periods 154; 9 Peter R. Anstey: Locke and the Problem of Necessity in Early Modern Philosophy 174; 10 Brandon C. Look: Leibniz's Theories of Necessity 194; 11 Jonathan Westphal: Leibniz and the Lucky Proof 218; 12 Nicholas F. Stang: Divine Necessity and Kant's Modal Categories 232; 13 Catherine Legg and Cheryl Misak: Charles Sanders Peirce on Necessity 256; 14 Edwin Mares: The Development of C. I. Lewis's Philosophy of Modal Logic 279; 15 Max Cresswell: Carnap's Modal Predicate Logic 298; Bibliography 317; Index 339-348.

"Interest in the metaphysics and logic of possible worlds goes back at least as far as Aristotle, but few books address the history of these important concepts. This volume offers new essays on the theories about the logical modalities (necessity and possibility) held by leading philosophers from Aristotle in ancient Greece to Rudolf Carnap in the twentieth century. The story begins with an illuminating discussion of Aristotle's views on the connection between logic and metaphysics, continues through the Stoic and mediaeval (including Arabic) traditions, and then moves to the early modern period with particular attention to Locke and Leibniz. The views of Kant, Peirce, C. I. Lewis and Carnap complete the volume. Many of the essays illuminate the connection between the historical figures studied and recent or current work in the philosophy of modality. The result is a rich and wide-ranging picture of the history of the logical modalities." (p. I)

Digital Quadrivium Project



History of Logic

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General Works on the History of Logic in Western Thought

Studies in English

D - Z

1. Drucker, Thomas, ed. 2008. *Perspectives on the History of Mathematical Logic*. Boston: Birkhäuser.

   Contents: Acknowledgments VII; Contributors XIII; Irving H. Anellis: Jean van Heijenoort (1912-1986) XIII; Thomas Drucker: Introduction XV; Judy Green: The Problem of Elimination in the Algebra of Logic 1; Nathan Houser: Peirce and the Law of Distribution 10; Irving H. Anellis: The First Russell Paradox 33; Daniel J. O'Leary: *Principia Mathematica* and the Development of Automated Theorem Proving 47; William Aspray: Oswald Veblen and the Origins of Mathematical Logic at Princeton 54; Irving H. Anellis: The L6wenheim-Skolem Theorem, Theories of Quantification, and Proof Theory 71; John W. Dawson Jr.: The Reception of G6del's Incompleteness Theorems 84; Hao Wang: G6del's and Some Other Examples of Problem Transmutation 101; C. Smorynski: The Development of Self-Reference: Löb's Theorem 110; Wim Ruitenburg: The Unintended Interpretations of Intuitionistic Logic 134; Stephen C. Kleene: The Writing of *Introduction to Metamathematics* 161; Jomathan P. Seldin: In Memoriam: Haskell Brooks Curry 169; Drtag Siefkes: The Work of J. Richard Büchi 176; Index Nominum 191-195.

"The chapters included in this volume range broadly in time and subject, but they are all dedicated to unraveling the thoughts and the circumstances that have contributed to the evolution of mathematical logic. They involve technical details and philosophical underpinnings, support of colleagues and establishment of chairs. Some of the chapters give an insider's view of a particular development in the field, while others are detailed critical analyses of influential pieces of work. Their common feature is making sense rather than magic out of advances, binding together a community of contributors rather than leaving the impression of isolated wonder-workers. As the motto of the international chess federation has it, *Gens una sumus*. (We are one people.)" (p. XVI)

(...)

"These chapters put together do not give a history of mathematical logic over the last century. Even on individual logicians they do not claim to be exhaustive. The collection does, however, indicate some of the richness of ideas that are involved in studying the history of logic and the variety of materials which can be pressed into service. National and chronological boundaries are not respected by the development of the field." (p. XXII)

2. Dumitriu, Anton. 1977. *History of Logic. Volume I*. Tunbridge Wells: Abacus Press.

   Revised, updated, and enlarged translation from the Roumanian of the second edition of "*Istoria logicii*".

   Contents: Foreword IX; Historical note on works on the history of logic XIII-XVI;

   Part I: Logic in Non-European Cultures

   Chapter I. The logical structure of primitive mentality 3; Chapter II. Logic in ancient China 12; Chapter III. Indian logic 39;

   Part II: Logic in ancient Greece

   Chapter IV: The beginning of Greek logic 69; Chapter V: The sophists 95; Chapter VI: Socrates' reaction. Plato 103; Chapter

VII: The lesser Socratics 128; Chapter VIII: Aristotle's logic 141; Chapter IX: The Peripatetic School 207; Chapter X: The logic of the Stoics 216; Chapter XI: The Epicurean School. Scepticism and the New Academy 284;

Part III: Rhetors and commentators

Chapter XII: Logic and rhetoric in rome 273; Chapter XIII: Commentaries and commentators 261;

Index of names 323; Index of subjects 335-342.

"The potential author of a history of logic should not depend on any preconceived point of view. The formalistic option, for example, requires logic to be treated in a purely symbolic way, as a logical syntax of meaningless signs; obviously the historian who adopts such a view, hoping to achieve an absolute objectivity by eliminating any philosophical hypothesis, will be bound by it.

Such a logic is a logic without any philosophical content, and surely its history will have to adopt the same line. But is it possible to deal with logic without having any philosophical point of view? It is evident that such an intention is not realistic, and even in the formalistic point of view a certain philosophy is understood. Aristotle's statement "he who philosophizes, philosophizes, and he who does not philosophize, philosophizes too, so everybody philosophizes" is very significant.

A history of logic based on such a view would have to leave out of the list of logicians names like Thomas Aquinas, Kant, Hegel, Husserl, and many others. Is it possible to explain the development of logic without commenting on thinkers of great influence, who actually moulded the whole frame of human thought in their time? Obviously such a point of view is inadmissible.

A history of logic without philosophical references leads to very important consequences, to wide mutations and alterations of the very concept of logic and philosophy. After two and a half millennia, logic is taken from philosophy, and belongs

henceforth to another domain, that of mathematics. In this way, logic has escaped from the jurisdiction of philosophy, but philosophy has remained independent of logic. In the past logic was, on the contrary, closely connected to philosophy, whether it was conceived as a part of philosophy, or an introduction to it, or as an organon, or even as the philosophy itself." (Foreword, pp. IX-X)

3. ———. 1977. *History of Logic. Volume II*. Tunbridge Wells: Abacus Press.

   Contents: Foreword V;

   Part IV: Scholastic logic

   Chapter XIV: Scholasticism 3; Chapter XV: The formation of the Scholastic logic 11; Chapter XVI: The place of logic among the other sciences 50; Chapter XVII: The problem of universals 62; Chapter XVIII: Scholastic terminology 100; Chapter XIX: Parva logicalia 124; Chapter XX: The properties of terms 130; Chapter XXI: Syncategoremata 142; Chapter XXII: The theory of consequences 151; Chapter XXIII: Insolubilia 162; Chapter XXIV: General conclusion on Scholastic logic 173;

   Part V: Renaissance logic

   Chapter XXV: The Renaissance 183; Chapter XXVI: Renaissance Aristotelianism 189; Chapter XXVII: The logic of Humanism 220;

   Index of names 251; index of subjects 263-265.

   "Foreword

   The first volume of this book showed the development of the two great logical systems of Aristotle and Chrysippus. In this volume we look at the third great system of logic, that of the Scholastics. They studied the teachings of the Greeks, of the Arab and Jewish commentators, and from them evolved a *logica perennis* based on a single, well-founded philosophical doctrine. We shall see the crystallization of Scholastic logic into a well defined system, the contributions of the Scholastic logicians and the subsequent decline of the philosophical and logical doctrines to mere didactics.

At the dawn of the Renaissance the opponents of Scholastic logic were searching for new logical systems. But the Renaissance failed to achieve a unitary doctrine which could provide an adequate critique of the old logic as well as an independent, valid, logical system. The Renaissance produced new ideas and trends which though interesting failed to make any major contribution to logic comparable to other great conceptions such as Scholasticism.

Both periods have been studied in the past, but not with special reference to the logic of the period. The historian has very great problems in his attempt to sort and classify the enormous amount of material available. In order to deal with this material synthetically and avoid repetition we have adopted a synchronous and diachronous approach.

4. ———. 1977. *History of Logic. Volume III*. Tunbridge Wells: Abacus Press.

   Part VI: Methodological logic

   Chapter XXVIII: The beginnings of experimental science 3; Chapter XXIX: Francis Bacon 11; Chapter XXX: Descartes 32; Chapter XXXI: Post-Cartesian methodological researches 46; Chapter XXXII: Contemporary sciences and their problems 62; Chapter XXXIII: New dialectics 68; Chapter XXXIV: Science as language 77; Chapter XXXV: Induction and probability 99; Chapter XXXVI: Logic of research 112;

   Part VII: Development of modern logic

   Chapter XXXVII: Logic from Leibniz to Kant 135; Chapter XXXVIII: Transcedendental logic 163; Chapter XXXIX: Hegel's logic 205; Chapter XL: Reactions to the philosophy of Romanticism. Late trends 235; Chapter XLI: Materialist dialectic 260; Chapter XLII: Psychologism in logic and related trends 311; Chapter XLIII: Phenomenology and pure logic 353;

   Index of names 373; index of subjects 387-393.

   "Foreword

   The third volume of the “History of Logic deals with the evolution of logic since Renaissance.

Two great issues faced the modern epoch, the meaning of the most important scientific attainments being contingent upon the solutions found. These were:

(a) how to make scientific discoveries and

(b) what is the logico-theoretical basis of the truths discovered by science?

The first query gave rise to much methodologic research the principal aim of which was to establish an *ars inveniendi*, establishing rules which would enable anyone to discover scientific truths. With the development of contemporary science, however, the classical concept of method underwent a fundamental change and the solutions found are to be taken as the hypotheses of possible methods.

The second query provoked a widespread critical reevaluation of all those principles and concepts of logic, improperly designated “philosophy of logic".

Recent critical analysis is explained by the need to establish the logical foundations of science.

These are the problems that the present volume will attempt to pursue."

5. ———. 1977. *History of Logic. Volume IV*. Tunbridge Wells: Abacus Press.

   Contents: Foreword IX,

   Part VIII: Mathematical logic

   Chapter XLIV: Logic and mathematics 3; Chapter XLV: Raymundus Lullus' system 8; Chapter XLVI: Leibniz's logic 15; Chapter XLVII: The algebra of logic 39; Chapter XLVIII: Gottlob Frege 51; Chapter XLIX: Peano and the Italian School 64; Chapter L: Principia Mathematica 87; Chapter LI: The logico-mathematical paradoxes 113; Chapter LII: The development of mathematical logic 118; Chapter LIII: Many-valued logics 145; Chapter LIV: The decision problem 182; Chapter LV: Formal technique (systems and metasystems) 196;

Chapter LVI: General considerations on mathematical logic 224; Chapter LVII: Reactions to mathematical logic 239;

Part IX: Conclusion

Chapter LVIII: General conclusions 259;

Index of names 267; index of subjects 273-275.

"Foreword

This volume (the last) of the “History of Logic" is devoted to mathematical logic. It will show that mathematical logic did not appear suddenly but as a natural consequence of the advancement of the sciences and of the crisis they went through at the turn of the century.

We will focus on the following points:

(a) philosophical theories from Boole to Husserl provide a theoretical basis to the concept of a formal symbolic-mathematical logic;

(b) such is the prestige of the mathematical methods which have now pervaded every area that logic could not call itself a science, had it not also clad itself in a mathematical garb;

(c) finally, many fundamental problems of mathematics and the logical elucidation of its basic concepts (such as number, set etc.) have made it necessary to develop a mathematical tool which could be rigorously applied to such problems.

We shall follow the historical development of symbolic logic systems. It is apparent that mathematical logic has been developed in response to logical, philosophical and purely mathematical problems.

A history of logic cannot cover all three areas, pure mathematics, in particular, being of little relevance here. They will be dealt with only when explaining certain developments in symbolic logic, though making it clear that they are separate sciences. Certain critical remarks have been made in an attempt to delimit the nature of issues which may appear paradoxical."

6. Filkorn, Vojtech. 1963. *Pre-Dialectical Logic*. Bratislava: Publishing House of the Slovak Academy of Sciences.

   "This work is the first part of Pre-Dialectical Logic in two volumes. We deal in it with some periods of the history of this logic. Pre-dialectical logic has also its own systematic-methodologic aspect which we investigate in the second volume.(1) Both volumes are conceived as a preparation for further studies in which we want to investigate dialectical logic from its historical and systematic aspects. This is also the reason why the definition of logic and the description of its properties which the first part deals with are only preliminary; such is also the investigation of the relation between formal and dialectical logic. We shall have to return to this problem once more when we shall investigate dialectical logic." (Preface, p. 5)

   (1) 1 In the *O vod do melodologie vied* (Introduction to !he Methodology of Sciences), Bratislava 1960.

7. Gensler, Harry. 2006. *Historical Dictionary of Logic*. Lanham: Scarecrow Press.

   Also titled *The A to Z Logic*.

   Contents: Editor's Foreword by Jon Woronoff IX; Preface XI; Notation XIII; Chronology XV; Introduction XXIX-XLIV; The Dictionary 1; Bibliography 255; About the Author 307.

   This book is an encyclopedia of logic. It introduces the central concepts of the field in a series of brief, nontechnical "dictionary entry" articles. These deal with topics like logic's history, its various branches, its specialized vocabulary, its controversies, and its relationships to other disciplines. While the book emphasizes deductive logic, it also has entries on areas like inductive logic, fallacies, and definitions -- and on key concepts from epistemology, mathematics, and set theory that are apt to arise in discussions about logic. Following the series guidelines, Historical Dictionary of Logic tries to be useful for specialists (especially logicians in areas outside their subspecialties) but understandable to students and other beginners; so I avoid topics or explanations that are so technical that only math majors would understand.

The major part of this book is the dictionary section, with 352 entries. While these are arranged alphabetically, there is also an organization based on content. Four very general entries start with "logic:" and serve mainly to point to more specific entries (like "propositional logic"); these in turn often point to related topics (like "negation," "conditionals," "truth tables," and "proofs"). So we have here a hierarchy of topics. Here are the four "logic:" entries:

* logic: deductive systems points to entries like propositional logic, modal logic, deontic logic, temporal logic, set theory, many-valued logic, mereology, and paraconsistent logic.

* logic: history of is about historical periods and figures and includes entries like medieval logic, Buddhist logic, twentieth-century logic, Aristotle, Ockham, Boole, Frege, and Quine.

* logic: and other areas relates logic in an interdisciplinary way to other areas and includes entries like biology, computers, ethics, gender, God, and psychology.

* logic: miscellaneous is about everything else (including technical terms) and includes entries like abstract entities, algorithm, ad hominem, inductive logic, informal/formal logic, liar paradox, metalogic, philosophy of logic, and software for learning logic.

The entries vary in length from a sentence or two to several pages. The front of the book has three important parts:

A short notation section gives the main logical symbols that I use in the book, along with alternative symbols that others sometimes use.

A chronology lists some of the main events in the history of logic.

An introduction tries to give an overall view of logic, the big picture, in order to give a broader context for the dictionary entries.

The back of the book has a substantial bibliography on related readings." (from the Preface).

8. Haaparanta, Leila, ed. 2009. *The Development of Modern Logic*. New York: Oxford University Press.

   Contents: Preface V-VI; 1. Leila Haaparanta: Introduction 3; 2. Tuomo Aho and Mikko Yrjönsuuri: Late medieval logic 11; 3. Mirella Capozzi, Gino Roncaglia: Logic and philosophy of logic from Humanism to Kant 78; 4. Volker Peckhaus: The mathematical origins of Nineteenth century algebra of logic 159; 5. Christian Thiel: Gottlob Frege and the interplay between logic and mathematics 196; 6. Risto Vilkko: The logic question during the first half of the Nineteenth century 203; 7. Leila Haaparanta: The relations between logic and philosophy, 1874-1931 222; 8. Göran Sundholm: A century of judgement and inference, 1837-1936: Some strands in the development of logic; 9. Paolo Mancosu, Richard Zach, Calixto Badesa: The development of mathematical logic from Russell to Tarski 1900-1935 318; 10. Wilfrid Hodges: Set theory, model theory, and computability theory 471; 11. Jan von Plato: Proof theory of Classical and Intuitionistic logic 499; 12. Tapio Korte, Ari Maunu, Tuomo Aho: Modal logic from Kant to possible worlds semantics 516; Appendix to Chapter 12: Risto Hilpinen: Conditionals and possible worlds: On C. S. Peirce's conception of conditionals and modalities 551; 13. Gabriel Sandu, Tuomo Aho: Logic and semantics in the Twentieth century 562; 14. Andrew Aberdein and Stephen Read: The philosophy of alternative logics 613; 15. Sandy Zabell: Philosophy of inductive logic: the Bayesian perspective 724; 16. Alessandro Lenci, Gabriel Sandu: Logic and linguistics in the Twentieth century 775; 17. Richmond Thomason: Logic and artificial intelligence 848; 18. J. N. Mohanty, S. R. Saha, Amita Chatterjee, Tushar Kanti Sarkar, Sibajiban Bhattacharyya: Indian logic 903; Index 963-994.

   "This volume is the result of a long project. My work started sometime in the 1990s, when Professor Simo Knuuttila urged me to edit, together with a few colleagues, a volume on the history of logic from ancient times to the end of the twentieth century. Even if the project was not realized in that form, I continued with the plan and started to gather together scholars for a book project titled *The Development of Modern Logic,*

thus making a reference to the famous book by William and Martha Kneale. Unlike that work, the new volume was meant to be written by a number of scholars *almost as if* it had been written by one scholar only. I decided to start with thirteenth-century logic and come up with quite recent themes up to 2000, hence, to continue the history written in *The Development of Logic*. My intention was to find a balance between the chronological exposition and thematic considerations. The philosophy of modern logic was also planned to be included; indeed, at the beginning the book had the subtitle "A Philosophical Perspective," which was deleted at the end, as the volume reached far beyond that perspective. The collection of articles is directed to philosophers, even if some chapters include a number of technical details. Therefore, when it is used as a textbook in advanced courses, for which it is also planned, those details are recommended reading to students who wish to develop their skills in mathematical logic." (From the Preface by Leila Haaparanta)

9. Kneale, William Calvert, and Kneale, Martha. 1962. *The Development of Logic*. Oxford: Clarendon Press.

   Reprinted 1975 with corrections.

   "As its name indicates, this book is an account of the growth of logic, rather than an attempt to chronicle all that past scholars, good and bad, have said about the science. For the sake of continuity, and in order to give historical perspective to our story, my wife and I have included some references to work which does not deserve to be remembered for its own sake; and occasionally we have allowed ourselves to indulge an antiquarian curiosity, when we thought that the result might be of some interest to others. But our primary purpose has been to record the first appearances of those ideas which seem to us most important in

   the logic of our own day. Such a programme is based on judgements of value, and we realize that our selection of material and still more our comments, especially in the later chapters, may seem eccentric to some readers. In defence of our undertaking we can only say that we have followed the plan

which our interests suggested, and that we could not have written in any other way." (Preface, p. V)

(...)

"For the fifth impression we have corrected some surviving mistakes and misprints, re-worded some passages in the hope of achieving greater clarity, and added some references. But the chief novelty is an appendix in which we translate the Latin quotations of Chapter IV. Many of these improvements, like those in earlier impressions, are due to the suggestions of readers, whom we thank for their kindness in writing to us." (Preface, p. VI, May 1971)

10. Knuuttila, Simo, ed. 1988. *Modern Modalities: Studies of the History of Modal Theories from Medieval Nominalism to Logical Positivism*. Dordrecht: Kluwer.

    Contents: Simo Knuuttila: Introduction VII-XIV; Lilli Alanen and Simo Knuuttila: The foundations of modality and conceivability in Descartes and his predecessors 1; Ilkka Patoluoto: Hobbes's system of modalities 71; Jaakko Hintikka: Was Leibniz Deity an *Akrates*? 85; Martin Kusch and Juha Manninen: Hegel on modalities and monadology 109; Pascal Engel: Plenitude and contingency: modal concepts in Nineteenth century French philosophy 179; Leila Haaparanta: Frege and his German contemporaries on alethic modalities 239; Ilkka Niiniluoto: From possibility to probability: British discussions on modality in the Nineteenth century 275; Hans Poser: The failure of Logical Positivism to cope with problems of modal theory 311; Index of names 329; Index of subjects 341.

    "The word "modern" in the title of this book refers primarily to post-medieval discussions, but it also hints at those medieval modal theories which were considered modern in contradistinction to ancient conceptions and which in different ways influenced philosophical discussions during the early modern period. The medieval developments are investigated in the opening paper, 'The Foundations of Modality and Conceivability in Descartes and His Predecessors', by Lilli Alanen and Simo Knuuttila.

Boethius's works from the early sixth century belonged to the sources from which early medieval thinkers obtained their knowledge of ancient thought. They offered extensive discussions of traditional modal conceptions the basic forms of which were: (1) the paradigm of possibility as a potency striving to realize itself; (2) the "statistical" interpretation of modal notions where necessity means actuality in all relevant cases or omnitemporal actuality, possibility means actuality in some relevant cases or sometimes, and impossibility means omnitemporal non-actuality; and (3) the "logical" definition of possibility as something which, being assumed, results in nothing contradictory. Boethius accepted the Aristotelian view according to which total possibilities in the first sense must prove their mettle through actualization and possibilities in the third sense are assumed to be realized in our actual history. On these presumptions, all of the above-mentioned ancient paradigms imply the Principle of Plenitude according to which no genuine possibility remains unrealized. (For the many-faceted role of the Principle of Western thought, see A.O. Lovejoy, *The Great Chain of Being. A Study of the History of an Idea,* Harvard University Press, Cambridge, Mass. 1936, and S. Knuuttila (ed.), *Reforging the Great Chain of Being. Studies of the History of Modal Theories* (Synthese Historical Library 20), Dordrecht, Reidel 1981.)

Boethius sometimes says that there can be opposite diachronic possibilities vis-à-vis future moments of time, but even in these cases unrealized alternatives cease to be possibilities when one of them is actualized. The idea of spelling out the meaning of modal notions with the help of synchronic alternative states of affairs hardly played any role in ancient thought; after having been suggested by some Patristic thinkers, it became a systematic part of modal thinking only in the twelfth century. It was realized that even if the traditional philosophical conceptions might be applicable to the phenomenal reality, possibilities of God, acting by choice, refer to alternative providential plans or histories. Although there were not many twelfth or thirteenth century figures who, like Gilbert of Poitiers or Robert Grosseteste, would have understood the

theoretical significance of the idea of modality as referential multiplicity, the doctrine of special theological modalities motivated new kinds of discussions of the nature of natural necessities and the relations between the notions of possibility, conceivability, and knowability.

In ancient metaphysics, modality and intelligibility were considered real moments of being. A Christian variant of this doctrine can be found in such thirteenth century Parisian scholars as Thomas Aquinas, Bonaventura, and Henry of Ghent. They thought that God's infinite act of understanding contains the ideas of all conceivable kinds of beings. Ideas as possibilities have an ontological foundation, however, because God's act of thinking consists of understanding the infinite ways in which his essence could be imitated by finite beings. Because the ontological foundation of possibilities remains as such unknown to men, it is claimed that we usually cannot decide whether an alleged unrealized possibility really is a possibility or not.

In Duns Scotus's modal theory, the ontological foundation of thinkability is given up. The area of logical possibility is characterized as an infinite domain of thinkability which, without having any kind of existence, is objective in the sense that it would be identical in any omniscient intellect thinking about all thinkable things. This theory of the domain of possibility as an absolute precondition of all being and thinking was accepted by Ockham and many other medievals, and through Suárez's works it was commonly known in the seventeenth century, too. Another historically important feature of Scotus's modal theory is that it systematically developed the conception of modality as referential multiplicity. The domain of possibility as an a priori area of conceptual consistency is partitioned into equivalence classes on the basis of relations of compossibility. One of them is the actual world." (pp. VII-IX)

11. Lejewski, Czeslaw. 1981. "Logic and Ontology." In *Modern Logic. A Survey. Historical, Philosophical, and Mathematical Aspects of Modern Logic and its Applications*, edited by Agazzi, Evandro, 379-398. Dordrecht: Reidel.

"My discussion of the topic prescribed by the title of the paper will consist of two parts. In Part I, I propose to discuss, in very general and informal terms, the nature of logic and ontology, and the relationship that seems to connect these two disciplines. In Part II, I intend to examine, in some detail, a certain specific problem, which concerns logicians as well as ontologists, a problem which has been with us for about forty years, and which lacks a generally acceptable solution." (p. 379)

12. Lewis, Clarence Irving. 1918. *A Survey of Symbolic Logic*. Berkeley: University of California Press.

    Reprinted New York: Dover Publishing 1960.

    Chapter I: The development of symbolic logic.

    Section I. The Scope of Symbolic Logic. Symbolic Logic and Logistic. Summary Account of their Development 1; Section II. Leibniz 5; Section III. From Leibniz to De Morgan and Boole 18; Section IV. De Morgan 37;

    Section V. Boole 51; Section VI. Jevons 72; Section VII. Peirce 79; Section VIII. Developments since Peirce 107-117.

    "The historical summary in Chapter I attempts to follow the main thread of development, and no reference, or only passing mention, is given to those studies which seem not to have affected materially the methods of later researches. In the remainder of the book, the selection has been governed by the same purpose. Those topics comprehension of which seems most essential, have been treated at some length, while matters less fundamental have been set forth in outline only, or omitted altogether." (Preface, p. VI)

    "The presentation of the subject matter of logic in this mathematical form constitutes what we mean by symbolic logic. Hence the essential characteristics of our subject are the following: (1) Its subject matter is

    the subject matter of logic in any form that is, the principles of rational or reflective procedure in general, as contrasted with principles which belong exclusively to some particular branch of such procedure. (2) Its

medium is an ideographic symbolism, in which each separate character represents a relatively simple and entirely explicit concept. And, ideally, all non-ideographic symbolism or language is excluded. (3) Amongst the ideograms, some will represent variables (the "terms" of the system) having a definite range of significance. Although it is non-essential, in any system so far developed the variables will represent "individuals",

or classes, or relations, or propositions, or "propositional functions", or they will represent ambiguously some two or more of these. (4) Any system of symbolic logic will be developed deductively that is, the whole

body of its theorems will be derived from a relatively few principles, stated in symbols, by operations which are, or at least can be, precisely formulated." (pp. 3-4)

13. Malpass, Alex, and Antonutti Marfori, Marianna, eds. 2017. *The History of Philosophical and Formal Logic: From Aristotle to Tarski*. London: Bloomsbury.

    Contents: Marianna Antonutti Marfori: Preface VII-VIII; Introduction 1;

    Part I The Origins of Formal Logic

    1 Adriane Rini: Aristotle's Logic 29; 2 Katerina Ierodiakonou: Stoic Logic 51; 3 Sara L. Uckelman: Medieval Logic 71;

    Part II The Early Modern Period

    4 Jaap Maat: Leibniz 101; 5 Jönne Kriener: Bolzano 121; 6 Giulia Terzian: Boole 143;

    Part III Mathematical Logic

    7 Peter Øhrstrøm: C.S. Peirce 165; 8 Walter B. Pedriali: Frege 183; 9 Alexander Bird: Peano and Russell 229; 10 Curtis Franks: Hilbert 243;

    Part IV Twentieth- Century Logic

    11 P.D. Welch: Gödel 269; 12Benedict Eastaugh: Tarski 293;

    Index 315-322.

"*The History of Philosophical and Formal Logic* was conceived as a way for undergraduate students with little training in formal logic to discover the roots of logical concepts. However, we also hope that it provides a starting point for anyone with an interest in this wonderful discipline to become acquainted with its history. By producing an introductory book whose chapters span the entire history of the discipline, we aim to show how the elements of the standard undergraduate logic curriculum took their current form only relatively recently, emerging from a long development by many hands whose interests and motivations varied widely. Moreover, by shedding light on a few topics that have not been given as much attention in standard histories of logic, such as the contributions of Leibniz and Bolzano, as well as the diagrammatic logics of C.S. Peirce, we hope to play a part in encouraging a broader view of the history of logic, which as a discipline surely has much to gain in being more inclusive of other fi gures and traditions. We only regret not having been able to contribute more in this regard ourselves." (p. VIII)

14. Marciszewski, Witold, and Murawski, Roman. 1995. *Mechanization of Reasoning in a Historical Perspective*. Amsterdam: Rodopi.

    "Table of Contents: Acknowledgement 7; 1, From the Mechanization of Reasoning to a Study of Human Intelligence 12; 2. The Formalization of Arguments in the Middle Age 45; 3. Leibniz's Idea of Mechanical Reasoning at the Historical Background 77; 4. Between Leibniz and Boole: Towards the Algebraizatlon of Logic 113; 5. The English Algebra of Logic in the 19th Century 129; 6. The 20th Century Way to Formalization and Mechanization 161; 7. Mechanized Deduction Systems 209; References 231; Index of Subjects 253; Index of Names. 257; Extended Table of Contents 261-267.

    "This volume is written jointly by Witold Marciszewski, who contributed the introductory and the three subsequent chapters, and Roman Murawski who is the author of the next ones - those concerned with the 19th century and the modern inquiries into formalization, algebraization and mechanization of reasonings." (p. 7)

"There are no bare facts in history, be it political history, be it a story of ideas. Historical narration tells about past facts, but there a.re as many stories as are persputives into which we put data found in sources. The choice of a perspective may depend on axiological assumptions, as well as the position in time assumed by a historian. The latter obviously divides into (i) the standpoint of the past under study (e.g., an attempt to read Aristotle in the light of Aristotle), (ii) the standpoint of the present state of affairs (as, e.g., in Lukasiewicz 1951), and (iii) the standpoint of an envisaged future development.

It was Jan Lukasiewicz who was the pioneer of approach (ii), as expressed in the title of his *Aristotle's Syllogistic from the Standpoint of Modem Formal Logic*, 1951. Among his seminal achievements in this field there was an interpretation of Stoic logical writings in the light of modern propositional logic.

Approach (iii) highlights those facts which one deems relevant to a forecasted course of events. The forecast to be substantiated in this chapter, and to shed light at the content of this volume, is as follows. There starts a process of merging logic with cognitive science, the latter being the theory of perception and intelligence advanced in terms of information-processing; this is not to mean any loss of autonomy on either side, rather the emergence of a new research area to which both sides essentially contribute. When seen in this perspective, the development of logic leads in the direction which was hardly expected by the founding fathers. In their intention, logic should have been an indispensable tool of research. In fact, though, discoveries do not happen to result from a conscious use of logical inference rules. Instead, logic made it possible to create artificial reasoners, and these prove apt models to help us in a better understanding of natural reasoning (even if they function as negative models to yield a contrastive background); and once we see reasoning as a method of problem-solving, we enter on a study of intelligence.

This volume is to show how the main stream of development of logic has led to that result.

(...)

Within that formalization trend there was the result of the utmost importance for the mechanization of reasoning, namely the algebraization of logic in the form of binary algebra (claimed by Leibniz and effected by Boole and others), the latter having been combined with binary arithmetical notation and with the two-states functioning of electrical circuits; to that came methods of arithmetizing syntax and, moreover, methods of reducing the whole of logic to the binary algebra (the elimination of quantifiers). That development resulted in the present state of logic and essentially contributed to the rise of computers. Those, in turn, made it possible to mechanize deductive reasoning which proves a suitable base to start with an inquiry into the nature of intelligence.

In such a historical perspective the development of logic is viewed from the position taken in this volume. This is the standpoint of the present relations between logic and cognitive science, the present being seen as pregnant with an expected future development - according to Leibniz's dictum *praesens gravidum est futuro*." (pp. 11-12)

15. Mates, Benson. 1965. "A Brief Outline of the History of Logic." In *Elementary Logic*, 205-230. New York: Oxford University Press.

    Second revised edition 1972.

    Chapter 12: *A brief outline of the history of logic*, pp. 205-230.

    "In approaching the history of logic one must keep in mind that the term 'logic' and its cognates have been applied to many subjects other than the one presently under consideration, and, conversely, that the latter has been denoted by many terms other than 'logic'. Even if our competence permitted it, there would seem to be little point in undertaking a simultaneous history of all those topics in epistemology, metaphysics, psychology, sociology, and philology that at one time or another have been discussed under the heading 'logic'. The goal here is only to set forth the history of what we call 'logic' -roughly characterizable, perhaps, as the general theory of the consequence relation-by whatever names this subject may be known to other authors, past or present.

For the sake of clarity it should also be borne in mind that the proper business of a logician is the investigation and formulation of general principles concerning what follows from what; whether particular examples of his own reasoning are valid or not is essentially irrelevant. By the same token, correct reasoning, however praiseworthy it may be, does not of itself constitute a contribution to logic; men were giving valid arguments long before there was any such thing as the science of logic, just as stones were no doubt efficiently pried up long before anyone formulated the principle of the lever." (p. 205)

16. Nidditch, Peter H. 1962. *The Development of Mathematical Logic*. London: Routledge & Kegan Paul.

    Contents: 1. Purpose and language of the Book 1; 2. Aristotle's syllogistic 3; 3. The idea of a complete, automatic language for reasoning 14; 4. Changes in algebra and geometry, 1825-1900 23; 5. Consistency and metamathematics 30; 6. Boole's algebra of logic 33; 7. The algebra of logic after Boole: Jevons, Peirce and Schroeder 44; 8. Frege's logic 59; 9. Cantor's arithmetic of classes 66; 10. Peano's logic 73; 11. Whitehead and Russell's 'Principia Mathematica' 77; 12. Mathematical logic after 'Principia Mathematica': Hilbert's metamathematics 79; Further reading 86; Index 87.

    "1.1. Purpose of book. The purpose of the present book is to give such an account of Mathematical Logic as will make clear in the framework of its history some of the chief directions of its ideas and teachings. It is these directions, not the mass of detail forming the theory and its history, which are important for the rest of philosophy and are important, in addition, from the point of view of a general education. In the limits of our space we are able to give attention only to what has been, or seems as if it may be, fertile or of special value in some other way. More than this, Mathematical Logic having no small number of important developments, a selection of material is necessary, the selection being guided by the rule to take up the simpler questions, other things being roughly equal. Facts have to be looked at in the light of one’s purpose. Though they may all have the same value simply as facts, they are not at all equal as

judged by the profit and the pleasure that thought, and not least the thought of the learner, is able to get from them." (p. 1)

17. Nuchelmans, Gabriel. 1973. *Theories of Proposition. Ancient and Medieval Conceptions of the Bearers of Truth and Falsity*. Amsterdam: North-Holland.

    Contents: Preface V; 1. Introduction 1; 2. Plato 13; 3. Aristotle 23; 4. The Stoic *lekton* 45; 5. The Stoic *axioma* 75; 6. Later developments in Greek antiquity 89; 7. The transition to the Latin West 105; 8. Boethius and the beginning of the Middle Ages 123; 9. Abelard 139; 10. The doctrine of the *dictum* in the century after Abelard 165; 11. Preliminaries to the fourteenth century debate 177; 12. The *complexum* theory of Ockham and Holkot 195; 13. Some reist opponents of Ockham and Holkot 209; 14. The theory of the *complexe significabile* 227; 15. The oppositions against the theory of the *complexe significabile* 243; 16. The significate of a true *propositio* 273; Selective bibliography 281; Indices 289-309.

    "This book is intended as the first part of a history of those problems and theories in the domain of philosophical semantics which nowadays are commonly referred to as problems and theories about the nature and the status of propositions. Although the conceptual apparatus and the terminology by means of which questions concerning propositions were asked and answered have considerably varied from period to period, the main types of disputes and solutions have remained remarkably constant. One of the aims of this study is precisely to trace the vicissitudes of the vocabulary in which this refractory topic was treated in the remote past. As is evident from the Bibliography, many parts of the field have been explored by predecessors. Guided by their results, I have tried to fill in more details and to design a provisional map of the area as a whole." (From the Preface).

18. ———. 1980. *Late-Scholastic and Humanist Theories of Proposition*. Amsterdam: North-Holland.

    Contents: Part One: Late-Scholastic theories of the proposition. 1. Introduction 3; 2. Different kinds of propositions and their ways of signifying 9; 3. The tie between the principal parts of a

proposition 27; 4. The adequate signification and the adequate significate of a proposition 45; 5. Disguised propositions 74; 6. Judgment 90; 7. The object of judgment 103; 8. Propositions as bearer of truth-values 114; Part Two: Humanist theories of proposition. 9. Introduction 143; 10. The first attempt at reorientation 146; 11. The Melanchtonian treatment of a theme 159; 12. Peter Ramus 168; 13. The diffusion of Ramist terminology 180; 14. Eclectics 189; Epilogue 204; Bibliography 209; Indices 224-237.

"After publishing, more than six years ago, my *Theories of the Proposition. Ancient and Medieval Conceptions of the Bearers of Truth and Falsity*, I initially intended to cover the remaining phases of the history of the semantics of declarative sentences in one volume. As the material proved more abundant and unwieldy than I had anticipated, I decided to limit the next instalment to the period between 1450 and 1650. Accordingly, the present book treats the theories of the proposition put forward by late-scholastic and humanist philosophers. It will be followed, in the not too distant future, I hope, by a third volume which will continue the account until the first decades of the nineteenth century.

In making my way through the intricate mass of sources, which are often works that are completely forgotten and extremely hard to obtain, I was greatly assisted by Professor Ashworth's pioneering book on *Language and Logic in the Post-Medieval Period*. Moreover, when I had practically finished my manuscript, she was kind enough to send me the draft of an article entitled 'Theories of the Proposition: Some Early Sixteenth Century Discussions'. As this article is based on a corpus of texts which is slightly different from mine, it enabled me to check some of my results against the findings of a very competent collaborator in this lonely field of research. I can only advise the reader to do the same when the article will have been published (in Franciscan Studies [38, 1978 pp. 81-121])."

19. ———. 1983. *Judgment and Proposition. From Descartes to Kant*. Amsterdam: North-Holland.

Contents: 1. The legacy of scholasticism and humanism 9; 2. Idea and judgment in Descartes 36; 3. Repercussions of Descartes' theory of judgment 55; 4. Arnauld and the Port-Royal *Logic* 70; 5. Some eighteenth-century critics of the Port-Royal view 88; 6. Geulincx's contribution to Cartesian philosophy of logic 99; 7. Ideas and Images. Gassendi and Hobbes 121; 8. The heyday of British empiricism 139; 9. Sensationalism and its critics in France 174; 10. Common sense philosophy and nominalism in Great Britain 194; 11. Leibniz's logical realism 214; 12. The German enlightenment 233; 13. Some problems in Kant and his contemporaries 246; Epilogue 257; Bibliography 262; Indices 280-295.

"This volume completes -- for the time being -- a series of investigations that were undertaken with the purpose of tracing in some detail the development of that field of logico-semantic research for which the foundations were laid in the first chapters of Aristotle's *De interpretatione* and which, in honour of that pioneer, might perhaps be called apophantics. The first part -- *Theories of the Proposition. Ancient and Medieval Conceptions of the Bearers of Truth and Falsity* -was published in 1973, followed by a second part -- *Late-Scholastic and Humanist Theories of the Proposition* -- in 1980. The last instalment takes the account from the beginning of the modern period to roughly that point in the nineteenth century from which on discussions of the subject in the recent past and contemporary systematic treatment tend to coalesce. " (From the Preface).

20. Nye, Andrea. 1990. *Words of Power: A Feminist Reading of the History of Logic*. New York: Routledge.

    Contents: "Prologue IX; Acknowledgments XIII; Introduction: Reading Logic 1;

    Part I: *Classical Logic* 7

    1. The Desire of Logic: Parmenides's Passion 9; 2. Weaving the Seine of *Logos*: Plato and the Sophist 23; 3. Aristotle's Syllogisms 41; 4. *Logos Spermatikos*: The Logic of Empire 65;

    Part II: *Medieval Logic* 83

5. An Arsenal of Reasons: Abelard's Dialectic 85; 6. The Antinomies of Power: Ockham's Razor 103;

Part III: *Reading Frege* 125

7. Breaking the Power of the Word 129; 8. The Marriage of Mathematics and Language 139; 9. Frege's Thoughts 154; 10. A Thought like a Hammer: The Logic of Totalitarianism 163;

Conclusion: Words of Power and the Power of Words 173;

Index 187-190.

"I attempt here a different kind of validation of the feminist indictment of logic, one not based on any theory of language or logic, whether transactional, structuralist, poststructuralist, or psychoanalytic. In my view, there is no one Logic for which such a theory can account, but only men and logics, and the substance of these logics, as of any written or spoken language, are material and historically specific relations between men, between men and women, and between them and objects of human concern.

Unlike either the logician or theorist I make no pretense at anonymity. I am a woman reading logic. I am also a philosopher who, like many other women philosophers, has often felt uneasy claiming that title. Perhaps only a woman would undertake such a project, would do such a thing as try to read logic, a woman uncomfortable in the world of men, involved in the physical details of family life, births, marriages, the keeping of houses, a woman too intent on emotional commitments to be capable of purely abstract thought. Perhaps only a woman would not make even the pretense of disinterested scholarship, but would admit to believing that involvement and commitment can lead to an understanding that logical analysis bound to consistency and univocality cannot.

You cannot ask of such readings that they reveal any absolute or complete truth about logic. There is never only one reading. You can ask that they be sensitive, accurate, attentive, revealing, and informed by an aspiration to a better life for

women and for men. These are the standards by which I ask my reader to judge what follows."

21. Prior, Arthur Norman. 1962. *Formal Logic*. Oxford: Clarendon Press.

    Second edition (First edition 1955).

    "This book is designed primarily as a textbook; though like most writers of textbooks I hope it will prove to be of interest to others beside Logic students. Part I covers what I would regard as the 'fundamentals' of the subject-the propositional calculus and the theory of quantification. Part II deals with the traditional formal logic, and with developments which have taken that as their starting-point. I do not regard this as covering different ground from that covered in Part I under quantification theory, but rather as covering the same ground in a different way. Both ways seem to me to have their merits, and to throw light on one another and the subject. I would say the same of the logic of classes and relations in extension, discussed in Part III, Ch. III ; but the other chapters of this last Part deal with what I take to be genuine extensions of the subject-matter opened up in Part I, in two different directions - modal logic, and `non-classical' systems of propositional calculus. Negatively, I have attempted to keep within the range indicated by my title: I have touched hardly at all upon `scientific method', and have indulged in a minimum of metaphysical reflection (avoiding, for example, such topics as the relations between 'propositions' and sentences).In the greater part of the book the symbolic notation used is that of Lukasiewicz, with minor modifications. This seems to me unquestionably the best logical symbolism for most purposes, and I should like to have helped to show that it is. In Part III, Ch. III, however, I have used the notation of Principia Mathematic a (referred to throughout this work as PM) ; in the particular field there covered, there is no other as fully developed or as deservedly well known. It does students no harm to learn to use two different notations, and to employ the one that is best for whatever they may have in hand at the time.Other innovations beside the symbolism are these: (i) throughout the book, a fairly frequent setting out of formal

proofs (something to which the Polish notation particularly lends itself) ; (ii), in Part I, the devotion of particular attention to completeness proofs, and to forms of the propositional calculus not yet widely studied, especially to varieties of it which use the 'standard false proposition' 0, and variable operators as well as propositional variables; (iii), in Part II, considerable use of scholastic material and of material from the writings of de Morgan. I have included these items from a sense of their importance rather than of their novelty, and have placed them where their appearance seems to me most rational and economical; but if any teacher wishes to use this book for a more orthodox type of logic course, there are various ways in which he may do so. If, for example, he wishes to introduce the traditional logic at an early stage, he could pass to Part II immediately from Part I, Ch. I, Ch. II, § 1, and Ch. IV, §§ and 2. (This procedure would have in any case the advantage of giving the student an interval of rest from pure symbolism before passing to the more interesting but more difficult aspects of the propositional calculus.) If he wishes to give the more usual sort of 'modern' course, he could pass immediately on from the same portions of Part I to Part III, Ch. I, § 2 and Ch. III." (from the Preface to the first edition).

"Apart from one or two very small corrections, I have in this edition left the body of the work just as it was, but have completely revised the two original appendixes and placed a wholly new appendix (the present Appendix II) between them. These alterations and additions will, I hope, make the appendixes much more valuable both for general reference and for pedagogical use. In the latter connexion I would particularly recommend that what I have said in the body of the book on quantification theory - which has met with some just criticisms - be read in conjunction with § 4 of Appendix I. There is also abundant material for exercises in simply verifying some of the relations asserted to hold between postulate-sets in this Appendix, using to this end the techniques sketched in the one that follows it." (from the Preface to the Second edition).

22. ———. 2006. "Logic, History of." In *Encyclopedia of Philosophy. Second Edition*, edited by Borchert, Donald M.,

397-484. New York: Thomson Gale.

The first edition of the *Encyclopedia of Philosophy*, edited by Paul Edwards, was published in 1967.

The editor of the article *Logic, history of* in the first edition was Arthur Norman Prior.

"The mainstream of the history of logic begins in ancient Greece and comes down through the Arabian and European logic of the Middle Ages and through a number of post-Renaissance thinkers to the more or less mathematical developments in logic in the nineteenth and twentieth centuries. In the period after the fall of Rome many of the ancient achievements were forgotten and had to be relearned; the same thing happened at the end of the Middle Ages. Otherwise this Western tradition has been fairly continuous. Indian and Chinese logic developed separately. Today logic, like other sciences, is studied internationally, and the same problems are treated in the Americas, western and eastern Europe, and Asia and Australasia. The story of the development of logic will be told here under the following headings:

Susanne Bobzien: Ancient logic; Brendan S. Gillon: Logic and inference in Indian philosophy; A. C. Graham (1967): Chinese logic (Bibliography updated by Huichieh Loy); Nicholas Rescher (1967): Logic in the Islamic world (with an Addendum by Tony Street); Christopher J. Martin: Medieval (European) logic; Ivo Thomas (1967): The Interregnum (between medieval and modern logic); Precursors of modern logic: Ivo Thomas (1967): Leibniz; Ivo Thomas (1967): Euler; Ivo Thomas (1967): Lambert and Ploucquet; Yehoshua Bar-Hillel (1967): Bolzano; Modern logic: the Boolean period; P. L. Heath (1967): Hamilton; P. L. Heath (1967): De Morgan; John Corcoran: Boole; P. L. Heath (1967): Jevons; P. L. Heath (1967): Venn; Francine F. Abeles: Carroll; A. N. Prior (1967): Peirce; A. N. Prior (1967): A. N. Prior (1967): Keynes; A. N. Prior (1967): Johnson; The heritage of Kant and Mill; A. N. Prior (1967): From Frege to Gödel; Ivo Thomas (1967): Nineteenth century mathematics; Bede Rundle (1967): Frege; Bede Rundle (1967): Whitehead and Russell; Bede Rundle (1967): Ramsey; Bede

Rundle (1967): Brouwer and Intuitionism; Bede Rundle (1967): Hilbert and Formalism; Bede Rundle (1967): Löwenheim; Bede Rundle (1967): Skolem; Bede Rundle (1967): Herbrand; Bede Rundle (1967):Gödel; John P. Burgess: Since Gödel: Bede Rundle (1967): Gentzen; Bede Rundle (1967): Church; Herbert B. Enderton: Turing and computability theory; Wilfrid Hodges: Decidable and undecidable theories; Wilfrid Hodges: Model theory; Grahan Priest: The proliferation of nonclassical logics; Peter Cholak and Red Solomon: Friedman and revers mathematics." (from the Second Edition)

23. Rastogi, Maharaj Narain. 1983. *The Theories of Implication in Indian and Western Philosophy. A Critical Study*. Delhi: Bharatiya Vidya Prakashan.

    Contents: Irving Copi: Foreword VII; Preface IX-X; I Introduction: Inference and implication 1; II Liner Implication: Aristotle 8; III Linear Implication: Nyāyā 24; IV Absolute Systematic Implication 43; V Material and Formal Implication 57; VI Strict implication 68; VII Implication and Meaning 85; VIII Implication and Facts100; IX Implication and Necessity 115; X Conclusion: Systematic Intensional Implication 136; Appendix: Implication and Arthāpatti 153; List of Symbols 159; Bibliography 160; Corrigenda 164.

    "This work presents an original conception and analysis of implication in the sense of entailment. It proceeds in both historical and critical fashion. After distinguishing the relation of implication from the process of inference, the author examines the relevant ideas of Aristotle and those involved in the Nyāyā Syllogism. The logical doctrines of Absolute Idealism are next considered with special reference to the writings of Bosanquet. They are criticized primarily for their connection with the unsatisfactory coherence theory of truth. The notion of material implication is examined carefully and found not to be a satisfactory model of what we mean by implication as the relation between premises and conclusion in a valid argument. C.I. Lewis's strict implication is considered with some sympathy, but is also ultimately rejected for good cause. The analyses of a number of other contemporary writers on logic are examined, including E.J. Nelson, J. Bennet, Strawson,

Geach, Hampshire, and Körner. From the shortcomings of earlier treatments we are led to the new definition of implication in terms of systems of thought and their constituents. The new conception of implication does indeed seem to be free from the difficulties connected with earlier treatments of it. The work represents a considerable amount of research and hard, careful thinking." (Foreword by Irving Copi)

24. Scholz, Heinrich. 1961. *Concise History of Logic*. New York: Philosophical Library.

    Translated from the German edition "*Abriss der Geschichte der Logik*" (1931) by Kurt F. Leidecker.

    Translated in Italian as: "*Breve storia della logica"* Milano, Silva Editore 1967.

    Contents: Preface to the first edition (1931) V; Introduction by Kurt F. Leidecker IX; Abbreviations XIII-XIV; Types of logic 1; The Classical type fof formal logic 24; The Modern type of formal logic 50; Bibliographic appendix 76; Supplementary observation 86; Notes 89; Index of names 137-140.

    "The reader of this *Concise History of Logic* is entitled to know what the objections to this book are and why it was nevertheless published.

    Carl Prantl (1820-1888) produced between 1855 and 1870 a standard work and source book for the history of logic from Aristotle to the end of the 15th century in which it is possible even now to appreciate an admirable mastery of the material, an exemplary punctiliousness in presenting the sources, and a nearly equally perfect intuitive certainty with which the material has been selected. For the history of modern logic there simply does not exist any work which could remotely be compared with Prantl's. Indeed, such a work will be written only when more shelf footage of monographs is available and each monograph can be considered on a par with the one Louis Couturat (1868-1914) wrote on the logic of Leibniz. (1)

    It is, therefore, incumbent on us to state boldly that the present concise history is a hazardous enterprise. For, it is impossible to summarize knowledge which does not even exist as yet, and

which cannot since his time. However, in our endeavor we must never lose sight of the fact that the logic of antiquity, and to a considerable degree the logic of the middle ages, have come down to us in heaps of fragments.

A third and very great flaw is the multiplicity of forms in which logic manifested itself, particularly in three stages; when it was raised to the first power in the days after the Logic of Port Royal (1662); when it was raised to the second power after Kant; and finally when it was raised to the third power after Hegel, a stage in which we have witnessed a plethora of forms right down to the present where we are no longer able to survey them.

I have risked writing this brief history nevertheless, supported by my belief in the new logic, a belief that has aided me in conquering my inhibitions. This belief has encouraged me again and again in the difficult task of condensing the vast material into the limited space available. I owe thanks to my publisher for the understanding which prompted him to acknowledge the necessity of my going beyond the limits which. I had agreed to at the outset. This made it possible to produce a little volume in which not merely beliefs could be stated, but knowledge could be spread out; knowledge, I might add, which I can back up completely by my own researches. Nothing has been referred to or touched upon in this concise history which has not passed through my fingers or which has not been thoroughly studied by me. All dates, likewise, were checked so that I have been able to correct, and that without much ado, not a few of the errors in Eisler's indispensable Philosophen Lexikon as well as other, older, reference works." (From the Preface).

25. Shenefelt, Michael, and White, Heidi. 2013. *If A then B: How the World Discovered Logic*. New York: Columbia University Press.

    "There are excellent histories of logic already in circulation (including the magisterial *Development of Logic* by William and Martha Kneale, Oxford University Press, 1962). And thanks to online sources, there are also

many able accounts of the latest work in the field, including nonclassical symbolic logic. Nevertheless, we believe our book to be fundamentally different from previously published works. Earlier histories of logic have focused on the specific stories of individual logicians, relating their discoveries, their intellectual influences, and their personal predicaments. But logic is the work of more than logicians alone; logicians, like other writers, need readers, and the forming of a readership is just as vital to the survival of a logician's insights as the logician's individual circumstances.

In logic, as in other departments of intellectual history, a readership is a consequence of social forces—forces that affect large numbers of people, quite apart from individual will. As a result, if one then leaves out of consideration the forces shaping such a readership (or the forces shaping a logician's audience), one is in danger of missing much of the explanation of why logical discoveries show up when and where they do.

(...)

"More broadly, to treat logic's history as if it were only a matter of individuals, without considering the larger forces shaping the audience and the logician alike, would be like treating political history as if it were only a matter of individuals—as a tale of specific rulers or rebels but with no account of why large numbers of contemporaries reacted to their actions in any particular way. It would be like treating political history as only a story of the insights, villainies, and sacrifices of particular persons, with no social analysis.

In making these claims for the importance of social forces in the development of logic, we in no way deny the significance of the individual in history; rather, we contend that historical changes can have many different causes. The social process can be an important force—just as important as the individual. And in stressing this point, we see ourselves not as contradicting earlier work in the history of logic but as offering a further level of explanation." (Preface, pp. XI-XIII)

26. Styazkhin, N. I. 1969. *History of Mathematical Logic from Leibniz to Peano*. Cambridge: The M.I.T. Press.

Contents: Preface V-VI; Chapter One. The Development of Mathematical Logic During the Middle Ages in Europe 1; Chapter Two. Leibniz, The Founder of Symbolic Logic 56; Chapter Three. The Development of Symbolic Logic After Leibniz; the Seventeenth and Eighteenth Centuries 93; Chapter Four. Forerunners of the Algebra of Logic of George Boole 137; Chapter Five. George Boole's Calculus of Classes 170; Chapter Six. The Development of the Algebra of Logic After Boole at the End of the Nineteenth Century 203; Conclusions 283; References 285; Index 315-333.

"Two basic approaches have been used by researchers in studying the history of logic: the philological and the "retrospective- logical." The first approach entails careful terminological examination of source materials, comparison of different variants of the same documents, and clarification of the relationships between the logical facts and the data from the science of language. The second approach reduces to analysis of older logical concepts in order to find elements of contemporary viewpoints, using contemporary logical apparatus as a thread of Ariadne for guidance through the labyrinth of past logical investigations.

While both these approaches have undeniable advantages, they also have disadvantages. Historians who use the philological approach risk reducing their study to a history of terminological innovation, while researchers using the retrospective-logical method run the risk of modernizing the material under investigation. This book attempts to combine both approaches to avoid undesirable excesses. In considering older logical theories, the author has tried to explain how they have affected the corresponding modern viewpoints and simultaneously to devote the requisite attention to philological aspects.

This book deals with the development of a number of ideas and attitudes in mathematical logic, covering the period from the Middle Ages to the beginning of the twentieth century.

Throughout its entire history, mathematical logic has been closely related to development of other sciences, and its own

development has been affected by the state of scientific methodology (primarily mathematics)." (Preface, p. V)

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History of Logic

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General Works on the History of Logic in Western Thought

Studies in French

1. Auroux, Sylvain. 2008. "Brève histoire de la proposition." *Les Cahiers de l'ILSL (Institut des langues et des sciences du langage)* no. 25:15-34

   Résumé : "La notion de proposition apparaît dès le *Sophiste* de Platon : pour le philosophe, il n'y a *logos* que si sont assemblés un *onoma* et un *rhema*. Cette découverte sera doublement réinterprétée. D'abord par Aristote et les logiciens, qui réduiront la notion de proposition à celle de discours susceptible d'être vrai, dont ils définissent la forme canonique, ensuite par les grammairiens, qui l'identifieront par la complétude du sens sans utiliser des notions comme sujets et prédicats. La généralisation de la notion de proposition (et l'apparition de notions comme «propositions incidentes», «propositions subordonnées») provient de la nouvelles logique des idées clairement formulée par les Messieurs de Port-Royal et de la grammaire générale. Les limitations de la conception traditionnelle (aristotélicienne) de la structure de la proposition ne seront clairement dépassées que par la conception fonctionnelle de Frege/Russell. Les linguistes ont majoritairement conservé, jusqu'à Benveniste, la conception traditionnelle et la prééminence du rôle de la copule."

2. Belna, Jean Pierre. 2014. *Histoire de la logique*. Paris: Ellipses

   Table des matières : Introduction 3; Chapitre 1 : La logique grecque 7; Chapitre 2 : Les logiques orientales 39; Chapitre 3 :

La logique au Moyen Âge 51; Chapitre 4 : L'âge classique 67; Chapitre 5 : La naissance de la logique moderne 81; Chapitre 6 : Logique(s) au xxe siècle 117; Conclusion 159; Bibliographie 161; Index des noms 163-165.

"Il nous a semblé légitime, bien qu'inévitablement en partie arbitraire, de découper cette introduction à l'histoire de la logique en six chapitres, dont le deuxième est à part puisque les logiques chinoise et indienne, aussi anciennes que la logique occidentale, n'ont eu historiquement aucun contact avec elle. Pour ce qui concerne cette dernière, après sa naissance en Grèce, qui est l'objet du premier chapitre, la fin de l'Antiquité n'a fait que poursuivre l'oeuvre entreprise. À la logique médiévale, qui culmina au XIVe siècle et dont traite le troisième chapitre, succédèrent les critiques de l'âge dit « classique » (XVIe-xviie siècles) et un sommeil relatif de près de deux siècles, dont nous parlons au quatrième chapitre. Ce qu'on peut appeler la « logique moderne » est née au XIXe siècle, ce dont le cinquième chapitre rend compte. Le dernier, consacré pour l'essentiel à la première moitié du xxe siècle, prolonge le précédent, car la logique n'a alors cessé de se développer, dans diverses directions." (p. 4)

3. Biard, Joël, and Mariani, Zini Fosca, eds. 2009. *Les lieux de l'argumentation. Histoire du syllogisme topique d'Aristote à Leibniz*. Turnhout: Brepols

Sommaire : Joël Biard et Fosca Mariani Zini : Avant-propos 7; Michel Crubellier : Y a-t-il un « syllogisme topique » chez Aristote ? 11; Juliette Lemiare : Contradiction et topos dans le syllogisme dialectique 33; Clara Auvray-Assayas : Les *Topica* de Cicéron : réévaluation d'un projet philosophique 53; Fosca Mariani Zini : Les topiques oubliées de Cicéron 65; Karlheinz Hülser : The Topical Syllogism and Stoic Logic 93; Roberto Pinzani : Prove e sillogismi topici in Boezio 119; Giulio D'Onofrio : Topica e sapere teologico nell'alto Medioevo 141; Henri Hugonnard-Roche : Syllogisme topique et logique hypothétique dans la tradition arabe (Fārābî et Averroès) 171; Ahmad Hasnawi : Topique et syllogistique : la tradition arabe (Al-Fārābî et Averroès) 191; Christophe Grellard : Argumentation topique et production de la croyance chez Jean

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"En publiant ce volume sur l'histoire du « syllogisme topique », qui a été préparé par deux séries de journées d'études, nous poursuivons deux buts : renouveler l'enquête sur les frontières entre les arts du discours qui, de l'Antiquité à la Renaissance, ont connu divers tracés, et nous interroger à nouveaux frais, sur la longue durée, sur les rapports controversés entre le modèle analytique du syllogisme et d'autres modalités d'inférence, impliquant des considérations sémantiques ou renvoyant à d'autres logiques, que les hommes exercent dans des domaines qui sont déterminés par l'horizon épistémique du crédible ou du plausible.

Pour répondre à ces objectifs, nous avons pris le parti de nous laisser guider par les vicissitudes de ce que l'on peut désigner comme le « syllogisme topique »." (p. 7, une note omise)

(…)

"Le choix du syllogisme topique vaut donc par sa transversalité. L'expression porte en elle les problèmes qu'on se proposait de traiter de manière collégiale. D'une part, le déterminant topique indique les bords et les recoupements entre les disciplines à partir d'Aristote, chez qui le *topos* ou lieu est défini dans la *Rhétorique*, bien qu'il caractérise l'argumentation

dialectique traitée dans les *Topiques*. Compris comme un schème d'argumentation, le *topos* semble donc appartenir aux stratégies dialectiques et rhétoriques. Qui plus est, selon que la dialectique est considérée comme un exercice ou comme entretenant un rapport privilégié avec la philosophie et les sciences, on est en droit de se demander si des procédés topiques sont à l'oeuvre dans ces disciplines." (p. 8)

4. Blanché, Robert. 1970. *La logique et son histoire d'Aristote à Russell*. Paris: Armand Colin

   Deuxième edition revue par Jacques Dubucs, Paris, Colin, 1996.

5. Büttgen, Philippe, Dieble, Stéphane, and Rashed, Marwan, eds. 1999. *Théories de la phrase et de la proposition de Platon à Averroés*. Paris: Éditions Rue d'Ulm

   Sommaire: Philippe Büttgen, Stéphane Diebler et Marwan Rashed: Avant-propos VII-IX; I. Aux origines ontologiques du langage rationnel; Claude Imbert: Le dialogue platonicien en quête de son identité 3; Denis O'Brien: Théories de la proposition dans le *Sophiste* de Platon 21; Francis Wolff: Proposition, être et vérité: Aristote ou Antisthène? 43; II. Entre logique et sémantique: l'autonomie problématique de la théorie aristotélicienne; Barbara Gernez: La théorie de la *lexis* chez Aristote 67; Jacques Brunschwig: Homonymie et contradiction dans la dialectique aristotélicienne 81; Pierre Chiron: La période chez Aristote 103; III. La théorie stoïcienne et ses enjeux; Jean-Baptiste Gourinat: La définition et les propriétés de la proposition dans le stoïcisme ancien 133; Frédérique Ildefonse: La théorie stoïcienne de la phrase (énoncé, proposition) et son influence chez les grammairiens 151; Marc Baratin: La conception de l'énoncé dans les textes grammaticaux latins 171; IV - D'Aristote à l'aristotélisme; Henri Hugonnard-Roche: La théorie de la proposition selon Proba, un témoin syriaque de la tradition grecque (VIe siècle) 191; Philippe Hoffmann: Les analyses de l'énoncé: catégories et parties du discours selon les commentateurs néoplatoniciens 209; Abdelali Elamrani-Jamal: La proposition assertorique (*de inesse*) selon Averroès 249; Ali Benmakhlouf: Averroès et les propositions indéfinies 269; Maroun Aouad: Les prémisses

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6. Gardies, Jean-Louis. 1989. "La definition de l'identité d'Aristote a Zermelo." *Theoria.Revista de Teoria, Historia y Fundamentos de la Ciencia* no. 4:55-79

   Abstract: "This paper sketches a history of definition of identity from Aristotle's "Tpics" down to the modern set theory. The author tries to explain particularly, first, how the transformation of the concept of predicate at the end of the Nineteenth century made it necessary to revise the Leibnizian definition of the identity of individuals; secondly, why Dedekind, Peano, Schroder, etc., made, between two possible definitions of identity of predicates or of sets, a choice which later made it necessary to postulate in set theory the axiom of extensionality."

7. Graffi, Giorgio. 2008. "*Subiectum* et *praedicatum* de l'antiquité classique à Port-Royal." *Cahiers de l'ILSL (Centre de linguistique et des sciences du langage de Lausanne)* no. 25:51-68

   Résumé : "Les notions grammaticales de «sujet» et «prédicat» sont déjà présentes dans le *De Interpretatione* d'Aristote, et peut-être même dans le *Sophiste* de Platon, mais elles sont nommées, respectivement, *ónoma* et *rhêma*, tandis que les mots *hypokeímenon* et *kategoroúmenon*, qui littéralement correspondent à «sujet» et «prédicat», désignent plutôt des notions ontologiques. L'origine du couple terminologique *subiectum / praedicatum* se trouve dans le commentaire de Boèce au *De Interpretatione*. Au Moyen-Age, ce couple est redoublé par celui de *suppositum* et *appositum* : on a soutenu que la notion de *suppositum* dans le sens grammatical a son origine chez Priscien, et qu'au Moyen-Age le couple *suppositum / appositum* remplace chez les grammairiens le couple *subiectum / praedicatum*, réservé à l'usage des logiciens. On soutiendra ici au contraire que ces deux thèses ne sont pas fondées : s*uppositum* n'a pas de sens grammatical chez

Priscien, les notions de *suppositum* et *suppositio* semblent plutôt dériver d'un usage «métadiscursif» du verbe *supponere*, et l'examen attentif des textes montre que les deux couples reviennent dans les travaux des grammairiens aussi bien que dans ceux des logiciens. L'emploi exclusif de l'un et de l'autre couple respectivement par les grammairiens et les logiciens,

semble caractériser plutôt l'époque de la Renaissance. Pourtant, dès le milieu du XVIIe siècle, les notions de «sujet» et «prédicat» redeviennent des mots-clés de la grammaire, grâce surtout aux Messieurs de Port-Royal, qui ont probablement fixé la signification et l'usage de ces termes jusqu'à aujourd'hui."

8. Imbert, Claude. 1999. *Pour une histoire de la logique. Un héritage platonicien*. Paris: Presses Universitaires de France.
9. Kotarbinski, Tadeusz. 1964. *Leçons sur l'histoire de la logique*. Paris: Presses universitaires de France

   Traduit de l'édition original polonaise (1957) par Anna Posner.
10. Mehl, Édouard, ed. 2012. *La science et sa logique. Le statut épistémique de la logique de Descartes à Husserl*. Strasbourg: Les Cahiers philosophiques de Strasbourg

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1. *Atti del Convegno di storia della logica (Parma, 8-10 ottobre 1972)*. 1974. Padova: Liviana editrice

   Indice: RELAZIONI.

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   Indice: Prefazione 7; Introduzione 9; 1 - I precursori15; 2 - Aristotele 28; 3 - Teofrasto 96; 4 Megarici e stoici 104; 5 - La fine dell'antichità 139; 6 - La logica medievale 149; 7 - Il rinascimento e l'esordio dell'era moderna 193; 8 - Leibniz 216; 9 - Progressi 253; 10 - Il risveglio della logica 310; 11 - L'avvento della logistica 348; Indicazioni bibliografiche 411.

   "Ogni storia, è stato detto, è contemporanea. Ingenuamente o consapevolmente proiettiamo sul passato, per interpretarlo o semplicemente per percepirlo, non soltanto le nostre nuove cognizioni, ma anche e soprattutto i nostri interessi presenti e la nostra attuale attrezzatura concettuale. Ciò è chiaramente illustrato, come si vedrà, dalla storia della logica. Il rinnovamento di questa disciplina nell'epoca nostra ha modificato il nostro sguardo, e oggi non è più possibile vedere la logica di Aristotele, quella degli stoici quella dei medievali, e perfino quella moderna da Leibniz a Boole compreso, con lo stesso occhio con cui la si guardava ancora al principio del secolo. La storia della logica va riscritta, e da più parti ci si industria a farlo da qualche decennio.

Ma è parimenti vero, è stato anche detto, che nessuna storia è contemporanea, e lo è tanto meno quanto più è ricco, nel campo studiato, il periodo contemporaneo, come avviene appunto per la logica.

Ci perdiamo nel groviglio dei particolari, difficilmente riusciamo a far emergere le linee maestre, e quelle che discerniamo s'intrecciano e s'accavallano fastidiosamente. Inoltre, a mano a mano che ci si avvicina al presente, la storia deve cedere il posto al quadro: a un quadro che si sa essere provvisorio, giacché l'importanza storica di un fatto o di un'idea non si riconosce che successivamente, dalle sue conseguenze. Non ci si dovrà perciò meravigliare se l'ultimo capitolo di questo libro ha uno stile differente da quello dei precedenti. Il quadro della logica contemporanea qui abbozzato non potrebbe in alcun modo sostituire lo studio diretto di un trattato. Il lettore al quale ci rivolgiamo idealmente è anzi colui che, approfondito già sufficientemente tale studio, desiderasse ora completare la propria conoscenza della logica d'oggi con uno sguardo al suo passato, pensando che, come diceva A. Comte, si capisce bene una scienza solo attraverso la sua storia." (Prefazione)

4. Bochenski, Joseph. 1972. *La logica formale*. Torino: Einaudi

   A cura e con una premessa di Amedeo G. Conte.

   Vol. 1: Dai presocratici a Leibniz; Vol. 2: La logica matematica.

5. Buzzetti, Dino. 1976. "Cronaca, preistoria e storia della logica." *Rivista di Filosofia*:484-496

   English Abstract: "The author surveys recent contributions to the history of logic and develops methodological reflections aiming to show that a proper treatment of the discipline requires a wide-scope investigation taking into account not only formal theories acceptable by present-day standards of adequacy, but also the relationship between formalization and ordinary language, the philosophical, and the material heuristic motivations."

6. Carruccio, Ettore. 1958. *Matematica e logica nella storia e nel pensiero contemporaneo*. Torino: Gheroni

"In particolare la scelta degli argomenti da trattare nel presente volume è stata effettuata secondo il seguente criterio: ricostruire lo sviluppo dei motivi fondamentali concettualmente più significativi della ricerca matematica, mirando particolarmente a porre in evidenza il contributo offerto dal pensiero matematico all'evoluzione della logica.

Questo piano di lavoro ci permetterà di spaziare attraverso tutta la storia della matematica, dall'Antichità ai nostri giorni, osservando le trasformazioni verificatesi nel corso della storia, nella concezione della struttura di una teoria razionale, fino a porre i delicati problemi spesso vivi e sconcertanti della logica contemporanea.

Pur cosi delimitato, il campo delle nostre indagini, è ancora troppo ampio perchè ci sia possibile coltivarlo integralmente.

Tuttavia essendo lo scopo del presente volume essenzialmente formativo, più che informativo, si preferisce lasciare qua e là qualche lacuna, pur di dare rilievo agli argomenti considerati fondamentali per la preparazione dei ricercatori futuri nel campo della storia e della filosofia della matematica." (p. 7)

7. Corsi, Giovanni, Mangione, Corrado, and Mugnai, Massimo, eds. 1989. *Le teorie delle Modalità. Atti del Convegno internazionale di storia della logica*. Bologna: CLUEB

   Organizzato dalla Società italiana di logica e filosofia delle scienze (SILFS), San Gimignano, 5-8 dicembre 1987.

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9. Kneale, William Calvert, and Kneale, Martha. 1972. *Storia della logica*. Torino: Einaudi

   A cura e con una premessa di Amedeo G. Conte.

10. Mangione, Corrado, and Bozzi, Silvio. 1993. *Storia della logica. Da Boole ai nostri giorni*. Milano: Garzanti.

11. Preti, Giulio. 1976. *Saggi filosofici. Volume II: Storia della logica e storiografia filosofica* Firenze: La Nuova Italia

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1. Klowski, Joachim. 1970. "Zum Entstehen der logischen Argumentation." *Rheinisches Museum für Philologie* no. 113:111-141.

2. Pape, Ingetrud. 1966. *Tradition und Transformation der Modalität*. Hamburg: Meiner

   Band 1: Möglichkeit - Unmöglichkeit.

3. Prantl, Carl. 1855. *Geschichte der Logik im Abendlande*. Leipzig: S. Hirzl

   Anastatic reprint of the original edition printed in four volumes (1855-1867), Hildesheim: Goeg Olms 1997.

   " It is a remarkable fact, unique perhaps in the writing of history, that Carl Prantl, the first to write a comprehensive history of western logic, on which task he spent a lifetime, did it precisely to prove that Kant was right, i.e. that formal logic has no history at all.

   His great work contains a collection of texts, often arranged from a wrong standpoint, and no longer sufficient but still indispensable. He is the first to take and discuss seriously all the ancient and scholastic logicians to whom he had access, though mostly in a polemical and mistaken spirit. Hence one can say that he founded the history of logic and bequeathed to us a work of the highest utility.

   Yet at the same time nearly all his comments on these logicians are so conditioned by the prejudices we have enumerated, are written too with such ignorance of the problems of logic, that he cannot be credited with any scientific value. Prantl starts from Kant's assertion, believing as he does that whatever came after Aristotle was only a corruption of Aristotle's thought. To be formal in logic, is in his view to be unscientific. Further, his interpretations, even of Aristotle, instead of being based on the texts, rely only on the standpoint of the decadent 'modern' logic. Accordingly, for example, Aristotelian syllogisms are misinterpreted in the sense of Ockham, every formula of

propositional logic is explained in the logic of terms, investigation of objects other than syllogistic characterized as 'rank luxuriance', and so of course not one genuine problem of formal logic is mentioned.

While this attitude by itself makes the work wholly unscientific and, except as a collection of texts, worthless, these characteristics are aggravated by a real hatred of all that Prantl, owing to his logical bias, considers incorrect. And this hatred is extended from the teachings to the teachers. Conspicuous among its victims are the thinkers of the Megarian, Stoic and Scholastic traditions. Ridicule, and even common abuse, is heaped on them by reason of just those passages where they develop manifestly important and fruitful doctrines of formal logic." (From: I. M. Bochenski, *A History of Formal Logic*, Notre Dame: University of Notre Dame Press, 1961, pp. 6-8)

Studies in Spanish

1. "I Simposio de Historia de la Lógica, 14-15 de Mayo de 1981." 1983. *Anuario Filosofico de la Universidad de Navarra Pamplona* no. 16

   Contents: I. Angelelli: Presentación del Simposio 7; Mario Mignucci: La teoria della quantificazione del predicato nell'antichità classica 11; Claude Imbert: Histoire et formalisation de la logique 43; Klaus Jacobi: Aussagen über Ereignisse. Modal- und Zeitlogische Analysen in der Mittelalterlichen Logik 89; Vicente Muñoz Delgado: Pedro de Espinosa (+ 1536) y la lógica en Salamanca hasta 1550 119; Angel d'Ors: Las *Summulae* de Domingo de Soto. Los límites de la regla '*tollendo tollens'* 209; José Luis Fuertes Herreros: Sebastián Izquierdo (1601-1681): un intento precursor de la lógica moderna en el siglo XVII 219; Larry Hickman: The *Logica Magna* of Juan Sanchez Sedeño (1600). A Sixteenth century addition to the Aristotelian *Categories* 265; Hans Burkhardt: Modaltheorie und Modallogik in der Scholastik und bei Leibniz 273; Christian Thiel: Die Revisionssbedürftigkeit der logischen Semantik Freges 293; Ignacio Angelelli: Sobre una clase especial de proposiciones reduplicativas 303; Alfonso

García Suárez: Fatalismo, trivalencia y verdad: una análisis del problema de los futuros contingentes 307; Georges Kalinowski: La logique juridique et son histoire 331-350.

2. Angelelli, Ignacio, and D'Ors, Angel, eds. 1990. *Estudios de Historia de la Lógica. Actas del II Simposio de Historia de la Lógica, Universidad de Navarra, Pamplona, 25-27 de Mayo de 1987.* Pamplona: Ediciones Eunate

   Contents: I. Angelelli: Presentación; E. J. Ashworth: The doctrine of signs in some early sixteenth-century Spanish logicians 13; I. Boh: On medieval rules of obligation and rules of consequence 39; Alexander Broadie: Act and object in Late-Scholastic logic 103; Hans Burkhardt: Contingency and probability: a contribution to the Aristotelian theory of science 125; Jeffrey S. Coombs: John Mair and Domingo de Soto on the reduction of iterated modalities 161; Donald Felipe: Johannes Felwinger (1659) and Johannes Schneider (1718) on syllogistic disputation 183; Norbert Hinske: Kant by computer. Applications of electronic data processing in the humanities 193; Herbert Hochberg: Predication, relations, classes and judgment in Russell's philosophical logic 213; Joachim Hruschka: The hexagonal system of deontic concepts according to Achenwall and Kant 277; Simo Knuuttila: Varieties of natural necessity in medieval thought 295; Wolfgang Lenzen: Precis of the history of logic from the point of view of the leibnizian calculus 321; Juan Carlos Leon, Alfredo Burrieza: Identity and necessity from the fregean perspective 341; Albert C. Lewis: An introduction to the Bertrand Russell editorial project: axiomatics in Russell 353; Christopher Martin: *Significatio nominis* in Aquinas 363; Mario Mignucci: Alexander of Aphrodisias on inference and syllogism 381; Vicente Muñoz Delgado: El análisis de los enunciados *'de incipit et desinit'* en la logica de Juan de Oria (1518) y en la de otros españoles hasta 1540 413; Niels Offenberger: Die Oppositionstheorie strikt partikulärer Urteilsarten aus der Sicht der Vierwertigkeit 489; Angel d'Ors: La doctrina de las proposiciones insolubles en las *Dialecticae introductiones* de Agustin de Sbarroya 499; Juana Sánchez Sánchez: Quine y Kripke sobre el análisis objetual de los enunciados de identidad 553; Christian Thiel: Must Frege's

role in the history of philosophy of logic be rewritten? 571; Lista de participantes 585; Indice 589-591.

3. Muñoz Delgado, Vicente. 1974. "La lógica formal y su dimensión histórica." *Cuadernos Salmantinos de Filosofía* no. 1:111-155.

4. ———. 1979. "Consideraciones sobre la lógica y su historia." *El Basilisco* no. 6:86-96.

5. Velarde Lombraña, Julián. 1989. *Historia de la lógica*. Oviedo: Universidad de Oviedo

   Indice de materias: Prologo de Gustavo Bueno Martínez V-XV; Introducción 17; I. Los origines 19; II. Aristoteles 31; III: Megarico-Estoicos 84; IV. Epicureos 97; V. El fin de la Antigüedad clásica 100; VI. La Edad Media 109; VII: Ramón Llull 153; VIII. Humanistas y Cartesianos 154; IX. Leibniz 166; X. La lógica simbólica en el siglo XVIII 207; XI. Lógica filósofica en los siglos XVIII y XIX 218; XII: El algebra de la lógica 244; XIII. La logística hasta a Russell 300; XIV. Russell 365; XV. El programa Hilbertiano 397; Apéndice: lógica polivalente 409; BibliografÍa de carácter general 419; Indice de autores 421-431.

Bibliographies on the history of logic

1. Rabus, Leonhard. 1868. "Logische Literatur. Erste Abtheilung. Bis zum Bekanntwerden der byzantinischen und arabischen Logik im Abendlande." In *Logik und Metaphysik. I. Erkenntnislehre, Geschichte der Logik, System der Logik* , 453-518. Erlangen: Andreas Deichert.

   "... the best bibliography of logic (*Neuzeit*) has been, before Risse's work, the impressive list printed in the year 1868 by Verlag von Andreas Deichert (Druck der Universitäts-Buchdruckerei von E. Th. Jacob in Erlangen) as appendix to Rabus' *Logik und Metaphysik* . And even with respect to Risse's *Bibliographia Logica* one may assert that Rabus has not been completely defeated; there are in fact some authors (such as N. Wallerius and S. Hasenmüller) mentioned by Rabus but not by Risse.

(...)

It is curious to observe how the *Logische Literatur* of G.L. Rabus has been so much overlooked. (...) It occupies pages 443 to 518 and provides more than 1200 authors. This enormous list is distributed in six chronological sections. Rabus' bibliography is a remarkable and original contribution: almost 1000 authors are recorded from the Aufkommen des Protestantismus until the year 1865. In this sense it is a necessary complement to Prantl's unfinished work. But, in contrast with Prantl, Rabus offers to the XXth century reader a pure masterpiece of historical research, free from subjective interfering commentaries. The seventh section of the bibliography: *Hülfsmittel zum Studium der Geschichte der Logik* shows the very wide frame in which Rabus conducted his work although it is not clear whether the quoted sources were exhaustively investigated.

Rabus' bibliography from the Renaissance onwards is also a remarkable supplement to I. M. Bochenski's bibliography (*Formale Logik* , first ed. 1956) and offers to contemporary logicians interested in the history of logic, the possibility of exploring a wide terra incognita. In fact, until now historical research from the point of view of contemporary logic has concentrated on centuries previous to the Renaissance (see I. M. Bochenski, *Formale Logik* , p. 297 and W. and M. Kneale, *The Development of Logic* , p. 298)."

From: Ignacio Angelelli, *The "Logische Literatur" of L. Rabus,* in: W. Arnold, H. Zeltner (Eds.), *Tradition und Kritik. Festschrift für Rudolf Zocher zum 80. Geburtstag,* Frommann Verlag: Stuttgart, 1967, pp. 39-42.

2. Church, Alonzo. 1936. "A Bibliography of Symbolic Logic (First part)." *Journal of Symbolic Logic* no. 1:121-216.

Current bibliographies regularly thereafter.

"There is presented herewith what is intended to be a complete bibliography of symbolic logic for the period 1666-1935 inclusive.

In the compilation use has been made of existing bibliographies, including those in Venn's *Symbolic logic* , Schröder's *Vorlesungen Über die Algebra der Logik* (vol. 1 and vol. 2 part 2), Lewis's *A survey of symbolic logic* , the Royal Society index, the International catalogue of scientific literature, and the bibliographical journals, *Jahrbuch Über die Fortschritte der Mathematik* and *Zentralblatt für Mathematik und ihre Grenzgebiete* , as well as many bibliographies of special authors or special subjects. In addition many titles have been included as a result of search through bound volumes of journals, or from references found in the literature, or from information supplied by authors themselves or others. So far as possible the original work (or a reprint of it) has been consulted in each case before its inclusion in the bibliography. In a number of cases where it has proved to be very difficult to obtain a copy of the original work, titles have been included on the basis of what was believed to be good authority as to existence and content, checking, however, one source of information against another in order to avoid the reproduction of typographical and other errors.

It has been the intention to confine the bibliography to symbolic logic proper as distinguished from pure mathematics on the one hand and pure philosophy on the other. The line is, of course, difficult to draw on both sides, and perhaps has not herein always been drawn consistently, but the attempt has been necessary in order to keel) within reasonable limits of length.

By symbolic logic is understood the formal structure of propositions and of deductive reasoning investigated by the symbolic method." (p. 121)

3. ———. 1938. "A Bibliography of Symbolic Logic (Second part)." *Journal of Symbolic Logic* no. 3:178-212.

4. ———. 1952. "Brief Bibliography of Formal Logic." *Proceedings of the American Academy of Arts and Sciences* no. 80:155-172.

5. Risse, Wilhelm. 1965. *Bibliographia logica. I. Verzeichnis der Druckschriften zur Logik mit Angabe ihrer Fundorte (1472-1800)* . Hildesheim: Georg Olms.

"No other branch of philosophy presently possesses a bibliography quite so extensive and comprehensive as this one for logic, which is a by-product, as the *Vorwort* explains, of Risse's systematic history of the development of logic, *Die Logik der Neuzeit* .

Volume 1 (1965, 293p.) lists in chronological arrangement monographs published from 1472 to 1800. Volume 2 (1973, 494p.) does the same for the period 1801-1969. Both volumes cite holding libraries (mainly European but also some American) for most of the works listed. Volume 3 (1979, 412p.) lists articles published both in periodicals and in anthologies, arranged according to a detailed classification system outlined in the front. Volume 4 (1979, 390p.) is a catalogue of 3,006 manuscripts, arranged by author if known and by title if anonymous, with separate sections for medieval and more recent manuscripts. Holding libraries or archives are indicated.

All volumes are thoroughly indexed."

From: Hans E. Bynagle, *Philosophy: A Guide to the Reference Literature. Third edition* , Westport: Libraries Unlimited 2006, pp. 724-725.

6. ———. 1973. *Bibliographia logica. II. Verzeichnis der Druckschriften zur Logik mit Angabe ihrer Fundorte (1801-1969)* . Hildesheim: Georg Olms.

7. ———. 1979. *Bibliographia logica. III. Verzeichnis der Zeitschriftenartikel zur Logik* . Hildesheim: Georg Olms.

"Preface: The third volume of the "Bibliographia Logica" lists papers on logic and the history of logic which have appeared in periodicals and anthologies. The list is incomplete for two reasons: (1) Numerous works were inaccessible to me, particularly earlier periodicals and those published outside Germany; (2) applications of logic in other disciplines are included only if logical themes are mentioned in the titles.

The variety of themes and conceptions of logic led to an arrangement of titles in three categories:

A: Logic ("traditional logic", "classical logic"), starting with Aristotle;

B: Logistics ("symbolic logic", "mathematical logic"), representations of logic in the mathematical tradition and using mathematical means;

C: History of logic.

The criterion used in categorizing the individual titles is the theme dealt with, not the point of view of the author.

The three categories are indicated by letters; sub - categories by numbers. The arrangement of material is given in the table of contents in German, English, and French (p. 9*). Titles of frequently quoted periodicals are abbreviated (Table of symbols p. 401)."

8. ———. 1979. *Bibliographia logica. IV. Verzeichnis der Handschriften zur Logik* . Hildesheim: Georg Olms.

9. Ashworth, Earline Jennifer. 1974. "Some Additions to Risse's *Bibliographia Logica* ." *Journal of the History of Philosophy* no. 12:361-365.

   "One of the greatest contributions to the history of logic in recent years was the publication in 1965 of Wilhelm Risse's *Bibliographia Logica* , Vol. I, which covers the years from 1472 to 1800. However, despite the fact that Risse's monumental work lists an estimated 8,000 logical works, it is still far from comprehensive, as Mr. Hickman pointed out in an earlier article in this journal.(1) Why this should be the ease immediately becomes apparent when one starts to work in a library such as the Bodleian at Oxford with its handwritten catalogue of books printed before 1920 and its lack of any specialized bibliographies such as the British Museum has provided for early printed books. Even in well catalogued libraries such as the University Library at Cambridge it can be difficult to locate texts, and one often stumbles across a new logical work through the accident of its being bound in the same volume as better known works. As a result of my researches over the last few years, I have put together a list of works which do not appear in Risse in the hope that other

historians of logic may benefit from my discoveries. I cannot, however, claim that I have exhausted the resources of the libraries which I have visited. Doubtless there are still not only new editions but new authors left to be discovered." (p. 361)

"This paper concerns logic texts published between 1472 and 1800. I list 20 items whose authors do not appear in Risse, 12 items whose authors appear in Risse in connection with another title or other titles, and 58 items which appear in Risse in another edition or in other editions. I indicate the libraries in which all these items are to be found, and I also list some useful bibliographical works."

(1) L. Hickman, "Late Scholastic Logics: Another Look," *Journal of the History of Philosophy* , IX (1971), 226-234.

10. ———. 1978. *The Tradition of Medieval Logic and Speculative Grammar from Anselm to the End of the Seventeenth Century. A Bibliography from 1836 Onwards* . Toronto: Pontifical Institute of Medieval Studies.

Contents: Preface VII; Part One. Anselm to Paul of Venice (items 1-632) 1; Part Two. After Paul of Venice (items 633-879) 73; Index of Names 101; Index of Texts 105; Index of Translations 107; Index of Subjects 109.

"My main interest in drawing up this bibliography was to list all the books and articles which have to do with formal logic and semantics from the time of Anselm to the end of the seventeenth century. I see this area as including such topics as consequences, syllogistic, supposition theory, and speculative grammar, but as excluding such topics as the categories, the struggle between nominalism and realism, and pure grammar. It is not, of course, always easy to draw a line between works which are concerned with formal logic and semantics and works which are not so concerned, and inevitably my choice of borderline cases will seem too restrictive to some and too liberal to others. However, my hope is that I have not excluded any book or article which obviously falls into the area I have delimited.

I have used the phrase "the tradition of medieval logic" in the title in order to indicate that although I include the seventeenth century, I am not concerned with the contributions of modern philosophy. The work of men such as Pascal, Descartes, Arnauld, Leibniz and Locke carries us far indeed from medieval discussions of logic and semantics. Moreover, there is already such an extensive literature on these figures that to include them in my bibliography would completely change its character. On the other hand, I do include humanist logic and renaissance Aristotelianism, since they involve a reaction to the medieval tradition which can only properly be understood in the light of that tradition.

This is a bibliography of secondary works and of modern editions of early texts. Accordingly I have excluded those nineteenth century reprints of earlier works such as Aldrich's *Artis Logicae Compendium* which were produced merely as text books, and I have also excluded modern facsimile editions of early printed texts unless they are accompanied by substantial editorial material. In addition, I have omitted a list of the various editions of Milton's *Artis Logicae Plenior Institutio* , since printings of his complete works are both numerous and easily found. The earliest book I list is Victor Cousin's 1836 edition of Abelard, since this can properly be viewed as the starting point of modern scholarly work on medieval logicians.

I do not refer to short edited or translated passages in books of readings. I have included only the more lengthy book reviews, and only a few unpublished dissertations. I have not included biographical and general historical works unless they have some specific contribution to make to the history of logic. I have tried to include all relevant material published before 1977, but the listing of 1976 publications is inevitably incomplete, given the delays which so often occur in the printing of books and journals.

I have endeavoured to look at each item personally, and to include as much information as possible. In those cases where I have failed to locate an item, or have located it in a place where

I could not conveniently see it, I have made a note of my failure. The reader should bear in mind that these entries may be quite inaccurate. Where I have only been able to see a copy of an article, I have added the note: "Journal not seen."

Works which deal with the period as a whole will be found in Part One.

Where an author has more than one book or article, the items are arranged chronologically.

Below each item I list the headings under which it is indexed and, where relevant, cross-references to reviews, discussions, translations and reprints. The ordering of the headings corresponds to the four indexes I have provided: (1) an index of names; (2) an index of texts; (3) an index of translations; (4) an index of subjects. Only substantial texts and translations are indexed. In the few cases where a book review is not crossreferenced, the reason is that only the review contains material relevant to my purposes. It is my hope that these indexes, which are based on my knowledge of a work's contents rather than its title alone, will prove one of the most valuable aspects of my bibliography.

Readers who wish to find articles dealing with related fields or published after 1976 are recommended to consult two bibliographical sources in particular. They are:

1. *Repertoire Bibliographique de la Philosophie* . Publié par l'Institut supérieur de philosophic de l'Université catholique de Louvain.

2. *The Philosopher's Index* . An International Index to Philosophical Periodicals.

Readers who wish to remedy the omissions I describe in my first three paragraphs are also recommended to consult the following:

Risse, Wilhelm. *Bibliographia Logica* . Band II. 1801-1969. Hildesheim-New York: Georg Olms Verlag, 1973.

Risse's work is far more comprehensive than my own, since he includes not only formal logic, but what might be described as the logic of ideas.

On the other hand, his bibliography is arranged chronologically rather than alphabetically; and inevitably, given the scope of his work, he does not give full publication details and his indexes are minimal. Volume II contains only books, and it is to be hoped that the volume listing journal articles will appear before too long. (*)

I owe a great debt of gratitude to those people who went through an earlier version of this bibliography and provided me with a large number of extra references. In particular I would like to thank William McMahon, Jan Pinborg, Charles Schmitt, and Paul Vincent Spade. I would also like to thank the editorial staff of the Pontifical Institute of Mediaeval Studies for their helpful advice on organization and presentation, the staff of Inter-Library Loan at the University of Waterloo for their unfailing help, and the Canada Council for various grants which have enabled me to work in British libraries. Finally, I should like to thank the Humanities Research Council of Canada for aiding the publication of this book." (*Preface* , pp. VII-IX)

(*) [Bibliographia logica. III. *Verzeichnis der Zeitschriftenartikel zur Logik*. Hildesheim-New York: Georg Olms Verlag, 1979].

11. Pironet, Fabienne. 1997. *The Tradition of Medieval Logic and Speculative Grammar. A bibliography (1977-1994)* . Turnhout: Brepols.

    This book is a continuation of Earline Jennifer Ashworth's bibliography, *The Tradition of Medieval Logic and Speculative Grammar from Anselm to the End of the Seventeenth Century: A Bibliography from 1836 Onwards* , that is the reason why the title is partly adopted from it.

    The aim and the general principles are the same as Ashworth's ones, but I have broadened the field: this bibliography itemizes books and articles written between 1977 and 1994 on logic and grammar from Boethius to the end of the seventeenth century,

not excluding topics as the categories and, in some extension, the struggle between nominalism and realism nor works of or on men such as Pascal, Descartes, Arnauld, Leibniz and Locke. Of course, main topics are still consequences, syllogistic, supposition theory, insolubles, obligations, semantics, speculative grammar, etc., but I think that the extension to subjects and authors mentioned above corresponds to the way researches in that field evoluted last years. First, we note that the number of editions, translations and studies on medieval logic and grammar has considerably increased: about 1000 items from 1836 to 1976, about 2000 from 1977 to 1994. Second, we see that it is difficult to make a clear distinction between different branches of knowledge, this is why many people work on the relations between logic or grammar and related matters, such as metaphysics, physics, theology, etc. Third, always more people working on modern philosophy tend to go back to medieval philosophy to search for the roots of the texts they study, while medievalists are interested to know which influence medieval philosophers have had on their successors.

With a very few exceptions, book reviews and articles from general works are not included.

I have tried to check each item personally or, at least, to ask the author to check the references I collected. The note “Not seen” means that I can not guarantee the accuracy of given informations.

When an author has more than one book or article, the items are arranged chronologically.

Informations in square brackets below each item indicate headings in the indexes or, if necessary, give cross-references. Most collective works have been listed under the name of the (main) editor, and articles published in such works refer to them.

Four indexes are provided: index of names, index of texts, index of translations and index of subjects:

102 refers to item 120;

S: 120 refers to item 120 in the supplement to Ashworth's bibliography.

Items 231, 649, 780 are not forgotten. After last minute changes, they disappeared while others have been added (e.g. 1486b or 1602b).

I can not pretend that this bibliography is exhaustive, especially for its second part, I just hope that I have not forgotten important items that should have been included in. I thank here all the colleagues who accepted to help me, some of them went through the first version of this work, others checked or sent me references. In particular, I would like to thank Jennifer Ashworth for the special attention she turned to this work. She also furnished me most of the informations for the supplement to her bibliography." (*Preface* , pp. VII-VIII)

12. Müller, Gert Heinz, and Lenski, Wolfgang, eds. 1987. *[Omega] - Bibliography of Mathematical Logic* . Berlin: Springer.

    Six volumes: 1. Classical logic edited by Wolfgang Rautenberg; 2. Non-classical logics edited by Wolfgang Rautenberg; 3. Model theory edited by Heinz-Dieter Ebbinghaus; 4. Recursion theory edited by Peter G. Hinman; 5. Set theory edited by Andreas R. Blass; 6. Proof theory; Constructive mathematics edited by Jane E. Kister, Dirk van Dalen, Anne S. Troelstra.

    "This collection of six hefty, orange volumes is a dream come true for anyone interested in mathematical logic and its history. It contains a remarkably complete bibliography of the field, from 1879, the year of Frege's *Begriffsschrift,* through 1985.

    (...)

    Each volume has a number of introductory sections, including a general survey of work in the volume, and useful appendices of various sorts.

    However, the core of each volume consists of three indices: Subject Index, Author Index, and Source Index." (p. 524)

    Jon Barwise, Review, in: *Bulletin of the American Mathematical Society* , Vol. 19, 1988, pp. 524-528.

13. Anellis, Irving A. 1995. "Studies in the Nineteenth-Century History of Algebraic Logic and Universal Algebra. A Secondary Bibliography." *Modern Logic* no. 5:1-120.

    With the assistance of Thomas L. Drucker, Nathan Houser, Volker Peckhaus and Christian Thiel.

    "This bibliography lists all the nineteenth and twentieth century secondary materials on the history of algebraic logic (03Gxx), universal algebra (08Bxx) and closely related topics, including in particular lattice theory (06-xx), known to the compilers up to the time of printing.

    Also included are secondary studies on such areas as linear and multilinear algebras (15-xx) and what in the early nineteenth century such British algebraists as George Peacock and Charles Babbage called "symbolical algebra." The principle of selection in the latter case was to include studies concerning the work of such researchers as Peacock and Babbage, Benjamin Peirce, James Joseph Sylvester, Arthur Cayley, and Hermann Grassmann since their work significantly influenced the direction of the logical researches of such men as Charles Peirce and Alfred North Whitehead. We exclude studies of researchers such as Camille Jordan, despite the fact that the work of such researchers as Jordan, although relating to linear and multilinear algebra, is not known to have had any significant influence on Peirce, Schröder or any of their colleagues working in algebraic logic." (p. 4)

14. Schüling, Hermann. 1963. *Bibliographie der im 17. Jahrhundert in Deutschland erschienenen logischen Schriften* . Giessen: Universitätsbibliothek.

    Inhaltsverzeichnis: 1. Einleitung 3; 2. Die Ermittlung der Drucke 9; 3. Verzeichnis der im 17.Jh. in Deutschland erschienenen logischen Schriften 12; 4. Nachtrag 135; 5. Register: a. In Buchtiteln erwähnte Personennamen (Herausgeber, Kommentatoren, Verfasser beigedruckter Schriften, Respondenten usw.) 138; b. Deutschsprachige Logiken des 17. Jahrhunderts 142; c. Für bestimmte Schulen geschriebene Lehrbücher der Logik 142-143.

"Die folgende Arbeit versucht, durch ein möglichst vollständiges Verzeichnis der im 17. Jahrhundert in Deutschland erschienenen logischen Schriften die Grundlage für eine Erforschung der Geschichte der Logik in

diesen räumlichen und zeitlichen Grenzen zu geben.

Die außerordentliche Bedeutung der Logik im damaligen System der Wissenschaften, die schon aus der grossen Zahl logischer Bücher erhellt, ist wenig bekannt.

Die Logik ist wichtigste Methodenlehre der Universitätswissenschaften." (s. 3)

15. Redmond, Walter Bernard. 1972. *Bibliography of the Philosophy in the Iberian Colonies of America* . The Hague: Martinus Nijhoff.

    Contents: Preface VII; Abbreviations XIII-XIV; Catalogue of manuscripts and printed works on Philosophy from the Colonial Period in Latin America; Philosophical works from Colonial Latin America 1; Anonymous works 111; Appendix of some Colonial philosophical works which have become lost 134; Bibliography of the secondary literature concerning the philosophy of the Colonial Period of Latin America 139-174.

    "The first part of this bibliography is a catalogue of philosophical writings from colonial Latin America which, on the basis of the secondary literature, are presumed to be extant. It is followed by a short appendix listing some colonial authors whose philosophical works are lost, but which perhaps still exist. The second part of the bibliography contains the secondary literature: studies on the philosophy of colonial Latin America as well as subsequently published texts and translations of the works of the colonial authors. It also contains non-philosophical works to which reference is made in the first section. A brief digest of the content of each philosophical work follows the entry." (p. VIII)

16. Hickman, Larry A. 1971. "Late Scholastic Logics: Another Look." *Journal of the History of Philosophy* no. 9:226-234.

"It was not until the mid-sixties, however, that the importance of the logic of the second scholastics came to be fully appreciated by even a small circle of philosophical historiographers. 1964 marked the publication of Mufioz Delgado's book on nominalistic logic at the University of Salamanca from 1510-1530. This was also the year for the appearance of the first volume (1500-1640) of Risse's work on the history of logic in the Neuzeit. With the aid of these two works one could finally get a feel for the possibilities and subtleties of the period.

The following year was even more important as it brought the publication of not one, but two important bibliographies in the field. Angelelli (1965) published an article on the importance of late Ibero-American scholasticism and provided a critical presentation of a portion of a rare nineteenth-century bibliography he had discovered (Rabus, 1868). In the same year, Risse published his scarcely believable Bibliographia Logica, listing an estimated eight thousand logical titles from the Neuzeit. Highly sophisticated critical studies of Neuzeit scholastic answers to perennial logical problems began to appear (Angelelli, 1967) (Mufioz Delgado, 1966, 1967, 1968)." (pp. 226-227)

Eighty-free additions to Risse's *Bibliographia logica* are listed in pp. 228-232.

References

Angelelli, Ignacio. "Sobre la 'restauraci6n' de los textos filos6ficos ib6ricos," Documentación Critica Ibero-Americana de Filosofla y Ciencias Afines, II (1965), 423-446

------ *Studies on Gottlob Frege and Traditional Philosophy* (Dordrecht-Holland: D. Reidel Publishing Company, 1967)

Mufioz Delgado, Vicente. "Fuentes impresas de logica hispano-portuguesa del siglo XVI." *Reportario de Historia de las Ciencias Eclesi6sticas en España,* I (1967), 435-464.

------ "La lógica como 'scientia sermocinalis' en la obra de Pedro Sanchez Cirueto (1470-1554)." *Estudios* , XXII (1966),

23-52.

------ "La lógica en la Universidad de Alcala durante la primera mitad del siglo XVI." *Salmanticensis,* Fasc. I (1968), 161-218.

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History of Logic

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The Rise of Contemporary Logic from Boole to Gödel

Introduction

(page under construction)

Great Logicians of the Second Half of the Nineteenth and of the Twentieth Century (1854-1931)

George Boole (1815 - 1864)

Lewis Carroll (1832 - 1898)

John Venn (1834 - 1923)

William Stanley Jevons (1835 - 1882)

Hugh MacColl (1837 - 1909)

Ernst Schröder (1841 - 1902)

Georg Cantor (1845 - 1918)

Francis Herbert Bradley (1846 - 1924)

Giuseppe Peano (1858 - 1932)

Ernst Zermelo (1871 - 1953)

Jan Łukasiewicz (1878 - 1956)

Thoralf Skolem (1887 - 1963)

Frank Plumpton Ramsey (1903 - 1930)

Jacques Herbrand (1908 - 1931)

Kurt Gödel (1906 - 1978)

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History of Logic

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11. Bochenski, Joseph M. 1981. "The General Sense and Character of Modern Logic." In *Modern Logic: A Survey*, edited by Agazzi, Evandro, 3-14. Dordrecht: Reidel.

    "By 'Modern Logic' (abridged as 'ML') the class of studies is meant which were originated by Leibniz, developed, among others, by Boole, Peirce, Frege, Peano, Lesniewski and their followers; in other term the class of studies listed in Alonzo Church's Bibliography and in *The Journal of Symbolic Logic*.

    The expression 'ML' is sometimes used, it is true, in other ways, e.g. to denote studies in Hegelian dialectics. Those uses are irrelevant for the sake of the present paper which will be exclusively concerned with ML as described above. It may be only said, that no other known sort of contemporary logic can compare with the latter as far as standards of procedures and quality of results are concerned.

    The aim of the paper is to describe - as the title selected by the organizers of the conference indicates - the general sense and character of ML thus understood. In other terms an attempt will be made to find the fundamental characteristics of ML-al studies.

    The method used will be comparative. We are going to ask: How does ML compare with three fields with which it is usually linked: logic, mathematics and philosophy? Is ML Logic and, if so, how does it differ from other types of logic? Is it a mathematical discipline and, if that is the case, what is the difference between it and other mathematical sciences? Is it

philosophy and, this being admitted, what is its place among the other philosophical disciplines?

The present paper will be mostly concerned with the first class of problems, the comparison between ML and the other types of logic; the other two classes of problems will be treated only marginally. As far as the main problems are concerned, the method will necessarily be historical: for, contrary to mathematics and philosophy, all other forms of logic with which ML may be compared belong to the past." p. 3

12. Church, Alonzo. 1951. "A formulation of the logic of sense and denotation." In *Structure Method and Meaning. Essays in Honor of Henry M. Sheffer*, edited by Henle, Paul, Kallen, Horace M. and Langer, Susanne K., 3-34. New York: Liberal Arts Press.

    "The intensional aspects of Frege's logical doctrine, and his distinction between the sense (*Sinn*) and the denotation (*Bedeutung*) of a name, were explained by him informally in his paper, *Uber Sinn und Bedeutung*, (1) and in incidental passages in a number of his other publications, including the first volume of his book, *Grundgesetze der Arithmetik* (Jena, 1893). In his more formal work, Frege's formalized language (*Begriffsschrift*, or *Formelsprache*) has an entirely extensional interpretation, and it may even be that his interest in intensional logic was primarily to clear up certain difficulties regarding its relationship to extensional logic, (2) so as to be able to proceed with development of the latter unhampered. Nevertheless, it seems that Frege would agree that intensional logic also must ultimately receive treatment by the logistic method. And it is the purpose of this paper to make a tentative beginning toward such a treatment, along the lines of Frege's doctrine.

    While we preserve what we believe to be the important features of the theory of Frege, we do make certain changes to which he would probably not agree. One of these is the introduction of the simple theory of types as a means of avoiding the logical antinomies. Another is the abandonment of Frege's notion of a function (including propositional functions) as something

ungesattigt, in favor of a notion according to which the name of a function may be treated in the same manner as any other name, provided that distinctions of type are observed. (But it is even possible that Frege might accept this latter change, on the basis of an understanding that what we call a function is the same thing which he calls *Werthverlauf einer Funktion*.)" pp. 3-4

(1) In *Zeitschrift fur Philosophie und philosophische Kritik*, (1892), 25-50. See English translations of this paper by Black, in *The Philosophical Review*, LVII (1948), 207-230, and by Feigl, in *Readings in Philosophical Analysis* (New York, 1949); and also a discussion of Frege's doctrines by Russell, in Appendix A of *The Principles of Mathematics*. In reading these, it is necessary to make allowance for differences in the translations that are adopted of some of Frege's terms. We shall here translate Frege's *ausdr?cken* as "express" and Frege's *bedeuten* or *bezeichne*n as "denote" or "be a name of," so that a name is said to express its sense and to denote or to be a name of its denotation.

(2) We mention the doctrine of Frege's *Begriffsschrift* of 1879, according to which the relation of identity or equality is a relation between names rather than between the things named, apparently on the ground that identity construed in the latter sense would be too trivial a relation to serve its intended purpose. If use and mention are not to be confused, the idea of identity as a relation between names renders a formal treatment of the logic of identity all but impossible. Solution of this difficulty is made the central theme of *Uber Sinn und Bedeutung* and is actually a prerequisite to Frege's treatment of identity in *Grundgesetze der Arithmetik*.

13. ———. 1973. "Outline of a Revised Formulation of the Logic of Sense and Denotation (Part First)." *Noûs* no. 7:24-33.

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15. ———. 1993. "A Revised Formulation of the Logic of Sense and Denotation Alternative (1)." *Noûs* no. 27:141-157.

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23. Heijenoort, Jean van, ed. 1967. *From Frege to Gödel. A Source Book in Mathematical Logic, 1879-1931*. Harvard: Harvard University Press.

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27. Lukasiewicz, Jan. 1987. "On the Principle of the Excluded Middle." *History and Philosophy of Logic* no. 8:67-69.

28. Malatesta, Michele. 1989. "An extension of Gentzen's natural deduction." *Metalogicon* no. 2:1-32.

    "Roots of Gentzen's system can be found in the mediaeval logic and in the logic of the Graeco-Roman age. This logic has the distinguishing characteristic of using n-adic connectives (n<2) instead of dyadic ones, and this at the object language level. The texts which exhibit the previous logic are Aulus Gellius' *Noctes Atticae* XVI,8, for the logical product or conjunction, and Galen's *Institutio logica* for the logical sum or alternation."

29. Moore, Gregory H. 1980. "Beyond first-order logic: the historical interplay between mathematical logic and axiomatic set theory." *History and Philosophy of Logic* no. 1:95-138.

    "What has been the historical relationship between set theory and logic? on the one hand, Zermelo and other mathematicians developed set theory as a Hilbert-style axiomatic system. On the other hand, set theory influenced logic by suggesting to

Schröder, Löwenheim and others the use of infinitely long expressions. The question of which logic was appropriate for set theory -- first-order logic, second-order logic, or an infinitary logic -- culminated in a vigorous exchange between Zermelo and Gödel around 1930."

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34. Peckhaus, Volker. 1997. "The way of logic into mathematics." *Theoria* no. 12:39-64.

    "Using a contextual method the specific development of logic between c. 1830 and 1930 is explained. A characteristic mark of this period is the decomposition of the complex traditional philosophical omnibus discipline logic into new philosophical sub-disciplines and separate disciplines such as psychology, epistemology, philosophy of science and formal (symbolic, mathematical) logic. In the 19th century a growing

foundational need in mathematics provoked the emergence of a structural view on mathematics and the reformulation of logic for mathematical means. As a result formal logic was taken over by mathematics in the beginning of the 20th century as is shown by sketching the German example."

35. Proust, Joëlle. 1989. *Questions of Form. Logic and the Analytic Proposition from Kant to Carnap*. Minneapolis: University of Minnesota Press.

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    Contents: Acknowledgements 7; Introduction 9; 1. History of logic in Germany 1830-1920 15; 2. Logic and psychology 41; 3. Logic and linguistics 59; 4. Logic and mathematics 71; 5. The reception of mathematical logic in Germany 91; 6. Mauthner's critique 121; 7. Rickert's critique 139; 8. Ziehen's critique 153; Conclusion 169; Bibliography 177-187.

    "This work attempts to throw some light on an interesting feature in the development of German logic which has not yet received the attention it deserves. Almost a whole generation of German philosophers did not accept the new mathematical logic at the turn of the 20th century. In this respect development in Germany differs greatly from that in Britain where George Boole's ideas received the attention of philosophers through the work of W.S. Jevons. However, both Gottlob Frege and Ernst Schroder, the main representatives of mathematical logic in Germany, remained isolated figures whose works were either strongly criticized or completely neglected by philosophers. Schroder was able to get some attention to his ideas but the influence of Frege remained very limited for a long time. Frege's ideas started to have an impact in Germany only through the *Principia Mathematica* by Russell and Whitehead.

The fate of mathematical logic in Germany cannot be explained away by saying that German philosophers were not interested in logic. They were. In fact, the landscape of German traditional logic is at that time so rich and varied that it is difficult to give a coherent account of it. What makes the period particularly interesting are the interrelationships between psychology, logic and linguistics. All these disciplines came of age in Germany almost simultaneously. Wilhelm Wundt founded modem experimental psychology during the 1870s. Frege did the same for modem mathematical logic at the end of the same decade. As linguistics underwent a deep change at the turn of the 20th century, the basic concepts of language and linguistics were studied not only by linguists but also by philosophers and psychologists.

In the late 19th century linguistics, philosophy and psychology were seen to be much closer to each other than nowadays. Linguists, philosophers and psychologists alike wrote on logical questions. Particularly interesting is the relationship between logic and psychology. In this period philosophers and psychologists were involved in an intense struggle over the chairs of philosophy. This struggle influenced deeply the logical discussion of the period (the debate over the so-called 'psychologism'). One group of logicians believed that their work could be made easier by the results of the new experimental psychology. In other words, they believed that the new scientific psychology could offer a solid foundation for the new scientific logic. Another group of logicians criticized these attempts and tried to present logic as an independent philosophical science. However, both groups had one thing in common: a negative attitude towards mathematical logic.

The present survey of the critique of mathematical logic at the turn of the 20th century attempts to answer several interesting questions: How did the contemporary German philosophers see the role and significance of logic? What kind of relationships did they claim to exist between logic, mathematics, linguistics and psychology? What exactly were the arguments of the (now) almost forgotten critics? I shall start by giving a historical survey of the development of German logic 1830-1920 as it

appears against the background of German academic philosophy (chapter 1). Next I shall study the interrelationships between logic and psychology (chapter 2), logic and linguistics (chapter 3), and logic and mathematics (chapter 4). After this I shall present the general features of the reception of mathematical logic in Germany between 1880 and 1920 (chapter 5). This is followed by a more detailed account of the arguments of three individual critics: Fritz Mauthner (chapter 6), Heinrich Rickert (chapter 7), and Theodor Ziehen (chapter 8). I have chosen these three for several reasons. Firstly, each represents a different viewpoint: Mauthner was mainly interested in the problems of language, Rickert was one of the most prominent philosophers of the period, and Ziehen was originally a psychologist. Secondly, I have wanted to bring forward previously unknown figures (this is the reason why I did not choose Husserl, for instance, who wrote much on the subject). Thirdly, I have tried to choose critics who presented interesting ideas. And lastly, in order to have a large enough corpus for study I have had to choose writers who wrote much on the subject."

37. Rao, A.Pampapathy. 1996. "A survey of free logics." *Modern Logic* no. 6 (2):123-191.

38. Sagüillo, José M. 2002. "Conceptions of logical implication." *Logica Trianguli* no. 6:41-67.

    Abstract: "This is a survey paper of approaches to the concept of logical implication.

    Roughly stated the main motivation of these approaches is to provide a necessary and sufficient condition for a set of propositions to logically imply a single proposition. In regard to their affinities these approaches are grouped into two: the transformational conception and the informational conception. Some approaches in each conception are philosophical and some are mathematical in character, their common assumption being that they reflect a previous intuition – in some cases – already at work in

    classical mathematics. The first part of the paper is devoted to approaches within the transformational conception of logical

implication emphasizing the contributions of Bolzano, Russell, Tarski, Quine and current model – theory. The second part of the paper discusses approaches within the informational conception of logical implication. Carnap and Bar Hillel's extrinsic approach and Corcoran's intrinsic approach developed in his information-theoretic logic are respectively compared and some of their

philosophical underpinnings are brought to light. The paper concludes with some final remarks concerning the ontic question of the nature of logical implication and the epistemic question of the human access to this relation in both conceptions of logical implication. The article also attempts to connect the views of these representative thinkers with the current philosophical debate on the nature of logical consequence and the role ofset-theoretic model theory in philosophy of logic."

39. Salmon, Nathan. 1993. "A Problem in the Frege-Church Theory of Sense and Denotation." no. 27:158-166.

40. Schurz, Gerhard. 1994. "Admissible versus valid rules: a case study of the modal fallacy." *The Monist* no. 77 (3):376-388.

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"In the most narrow sense, the Polish school of logic may be understood, as the Warsaw school of mathematical logic with Jan Lukasiewicz, Stanislaw Lesniewski, and Alfred Tarski as the leading figures. However, valuable contributions to mathematical logic were also made outside Warsaw, in particular by Leon Chwistek. Thus, the Polish school of logic *sensu largo* also comprises logicians not belonging to the Warsaw school of logic. The third interpretation is still broader. If logic is not restricted only to mathematical logic, several Polish philosophers who were strongly influenced by formal logical results, for example Kazimierz Ajdukiewicz and Tadeusz Kotarbinski, can be included in the Polish school of logic *sensu largissimo*. Polish work on logic can therefore encompass a variety of topics, from the 'hard' foundations of mathematics (e.g. inaccessible cardinals, the structure of the real line, or equivalents of the axiom of choice) through formal logic, semantics, and philosophy of science to ideas in ontology and epistemology motivated by logic or analysed by its tools. Since the development of logic in Poland is a remarkable historical phenomenon, I shall first discuss its social history, especially the rise of the Warsaw school. Then I shall describe the philosophical views in question, the most important and characteristic formal results of Polish logicians, their research in the history of logic, and applications of logic to philosophy. My discussion will be selective: in particular I will omit most results in the 'hard' foundations of mathematics." p. 401

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History of Logic

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A Selection of Prominent Logicians from Aristotle to Gödel (1931)

Introduction

Sigla:

SEP = There is an entry in the Stanford Encyclopedia of Philosophy

IEP = There is an entry in the Internet Encyclopedia of Philosophy

Aristotle (384 BC - 322 BC) | SEP | IEP |

Aristotle's Logic: Introductory Readings and the Syllogistic

Aristotle's *De Interpretatione*: Semantics and Philosophy of Language

Aristotle's Theory of Categorical Syllogism in the *Prior Analytics*

Disciples of Aristotle

Eudemus of Rhodes (c. 350 BC - 290 BC)

Theophrastus of Eresus (371 BC - c. 287 BC) | SEP | IEP |

Megarians and Dialecticians

Philo the Dialectician (4th century BC)

Diodorus Cronus (second-half of the 4th century BC) | SEP |

Stoics

Zeno of Citium (c. 334 BC - 262 BC)

Cleanthes of Assos (c. 331 BC - c. 232 BC) | IEP |

Chrysippus (c. 280 - c. 207 BC) | IEP |

Epictetus (50 - 130) | SEP | IEP |

Epicureans

Philodemus of Gadara (c. 110 - c. 40 BC) | SEP |

Greek Commentators of Aristotle's logical works

Alexander of Aphrodisias (end of 2nd century) | SEP |

Porphyry (234? - 305?) | SEP |

Ammonius Hermeiou (c. 435/445 - 517/526) | SEP |

Simplicius of Cilicia (c. 490 - c. 560)

John Philoponus (c. 490 - c. 570)

Other Greek logicians

Claudius Galenus (129 - 200) | SEP |

Sextus Empiricus (160 - 210)

Plotinus (204 - 270) | SEP |

Diogenes Laertius (3rd century)

Proclus Diadocus (412 - 485) | SEP |

Latin Logic before Eleventh Century

Cicero (106 BC 43 BC) | SEP |

Lucius Apuleius of Madaura (c. 123/125 - 180)

Marius Victorinus (4th century)

Martianus Capella (5th century)

Anicius Manlius Severinus Boethius (c. 480 - 524 or 525) | SEP |

Byzantine Logicians (from 6th to 12th century)

Alcuin of York (c. 735 - 804)

John Scottus Eriugena (c. 815 - 877) | SEP |

Logic in the Eleventh Century

Abbo of Fleury (c. 945 - 1004)

Anselm of Canterbury (1033 - 1109) | SEP | IEP |

Al Kindi (c. 801 - 873) | SEP |

Al-Farabi (c. 872 - 950/951) | SEP |

Avicenna (Ibn Sina) (c. 980 - 1037) | SEP | IEP |

Peter Damian (1007 - 1072) | SEP |

Averroes (Ibn Rushd) (1126 - 1198) | IEP |

Logic and Grammar in Twelfth Century

The anonymous *Glosulae super Priscianum* (written between 1080 and 1150)

Roscelin (c. 1050 - c. 1125)

William of Champeaux (c. 1070 - 1122) | SEP |

Garlandus Computista [Gerlandus of Besançon] (early 12th century)

Peter Abelard (1079 - 1142) | SEP | IEP |

Adam Parvipontanus (or Adam of Balsham) (? - 1181)

Gilbert of Poitiers (after 1085 - 1154)

John of Salisbury (c. 1120 - 1180) | SEP |

Moses Maimonides (1135 m- 1204) | SEP | IEP |

Logic and Grammar in Thirteenth Century

William of Sherwood (or Shyreswood) (1200/5 - 1266/71) | SEP |

Albert the Great (1200 - 1280) | SEP |

Peter of Spain (d. 1277) | SEP |

Robert Kilwardby (1215? - 1279) | SEP |

Roger Bacon (1215 - 1294) | SEP | IEP |

Henry of Ghent (c. 1217 - 1293) | SEP |

Richard the Sophister (second quarter of the 13th century) | SEP |

Ramón Llull (c. 1233 - 1316)

Giles of Romes (1243 - 1316) | SEP |

Boethius of Dacia (fl. 1260 - 1270)

William Heytesbury (? - d. 1272/3)

Simon of Faversham (c. 1260 - 1306) | SEP |

John Duns Scotus (c. 1266 - 1308) | SEP | IEP |

Radulphus Brito (c. 1270 - 1320)

Logic and Grammar in Fourteenth Century

Pseudo-Scotus (14th century)

Thomas of Erfurt (first quarter of the 14th century) | SEP | IEP |

Walter Burley (c. 1275 - 1344) | SEP |

Peter Aureoli (c. 1280 - 1322)

Siger of Courtrai (c. 1283 - 1341)

William of Ockham (c. 1287 - 1347) | SEP | IEP |

Walter Chatton (c. 1290 - 1343) | SEP |

Robert Holkot (c. 1290 - 1349)

Thomas Bradwardine (c. 1290 - 1349)

John Buridan (c. 1300 - after 1358) | SEP |

Gregory of Rimini (c. 1300 - 1358) | SEP |

Nicholas of Autrecourt (c. 1300 - after 1358) | SEP |

Richard Kilvington (1305 - 1361) | SEP |

Albert of Saxony (c. 1316 - 1390) | SEP |

John Wyclif (c. 1330 - 1384) | SEP |

Marsilius of Inghen (c. 1340 - 1396) | SEP |

Robert Alyngton (? - 1398) | SEP |

William Crathorn (fl. 1330) | SEP |

Richard Billingham (fl. 1350 - 1360)

Peter of Mantua (d. 1400)

Vincent Ferrer (c. 1350 - 1420/1)

Peter of Ailly (c. 1350 - 1420)

Sharpe Johannes (c. 1360 - 1515) | SEP |

William Penbygull (? - 1420 | SEP |)

Paul of Venice (c. 1369 - 1429) | SEP |

Paul of Pergola (1380 - 1455)

Logicians of the Fifteenth Century

George of Trebizond (1395 - 1472/3)

Nicholas of Cusa (1401 - 1464)

Lorenzo Valla (1407 - 1457) | SEP |

Rodolphus Agricola (1444 - 1485)

Pico della Mirandola (1463 - 1494) | SEP |

Logic in the Modern Age. First Part: 1500 - 1640

Jean Luis Vivés (1493 - 1540) | SEP |

Domingo de Soto (1494 - 1560)

Philipp Melanchthon (1497 – 1560)

Petrus Ramus (1515 - 1572) | SEP |

Pedro da Fonseca (1528 - 1599)

Franciscus Toletus (1532 - 1596)

Giacomo (Jacopo) Zabarella (1533 - 1589) | SEP |

Bartholomäus Keckermann (1572 - 1609)

Joachim Jungius (1587 - 1657)

Robert Sanderson (1587 - 1663)

Thomas Hobbes (1588 - 1679) | SEP | IEP |

Franco Burgersdijk (1590 - 1635)

Gassendi Pierre (1592 - 1655) | SEP |

The Conimbricenses (*In universam dialectica Aristotelis*, 1606)

Logic in the Modern Age. Second Part: 1640 - 1780

Athanasius Kircher (1601/2 - 1680)

Sebastián Izquierdo (1601 - 1681)

Juan Caramuel y Lobkowtiz (1606 - 1682)

Georges Dalgarno (1616 - 1687)

Antoine Arnauld (1612 - 1694) | IEP |

John Wallis (1616 - 1703)

Johannes Clauberg (1622 - 1665)

Arnold Geulincx (1624 - 1669)

John Locke (1632 – 1704)

Nicolas Malebranche (1638 – 1715)

Gottfried Wilhelm Leibniz (1646 - 1716) | SEP | IEP |

Ehrenfried Walther von Tschirnhaus (1651 – 1708)

Christian Thomasius (1655 - 1728)

Johann Franz Budde (1667 - 1729)

Giovanni Girolamo Saccheri (1667 - 1733)

Andreas Rüdiger (1673 - 1731)

Christian Wolff (1679 - 1754) | SEP |

Johann Peter Reusch (1691 - 1758)

Johann Georg Walch (1693 – 1775)

Joahann Andreas Segner (1704 - 1777)

Leonhard Euler (1707 - 1783)

Étienne Bonnot de Condillac (1714 - 1780) | SEP | IEP |

Joachim Georg Darjes (1714 - 1791)

Gottfried Ploucquet (1716 - 1790)

Georg Friedrich Meier (1718 – 1777)

Immanuel Kant (1724 - 1804) | SEP | IEP |

Johann Heinrich Lambert (1728 - 1777)

Nicolas Condorcet (1743 - 1794)

Logic in First Half of Nineteenth Century

Jeremy Bentham (1748 - 1832) | SEP | IEP |

Georg Wilhelm Friedrich Hegel (1770 - 1831)

Joseph Diaz Gergonne (1771 - 1859)

Samuel Taylor Coleridge (1772 - 1834)

Bernard Bolzano (1781 - 1848) | SEP | IEP |

Richard Whateley (1787 - 1863)

William Hamilton (1788 - 1856)

William Whewell (1794 - 1866) | SEP |

Friedrich Adolf Trendelenburg (1802 - 1872)

Augustus De Morgan (1806 - 1871)

John Stuart Mill (1806 - 1873) | SEP | IEP |

Logic in the Second Half of Nineteenth Century

George Boole (1815 - 1864) | SEP |

Hermann Lotze (1817- 1881) | SEP |

Christoph von Sigwart (1830 - 1904)

Charles Dodgson [Lewis Carroll] (1832 - 1898)

John Venn (1834 - 1923)

William Stanley Jevons (1835 - 1882)

Hugh MacColl (1837 - 1909)

Victoria, Lady Welby (1837 - 1912)

Franz Brentano (1838 - 1917) | SEP |

Charles Saunders Peirce (1839 - 1914) | SEP | IEP |

Ernst Schröder (1841 - 1902)

Georg Cantor (1845 - 1918)

Francis Herbert Bradley (1846 - 1924) | SEP | IEP |

Christine Ladd-Franklin (1847 - 1930)

Bernard Bosanquet (1848 - 1923) | SEP |

Gottlob Frege (1848 - 1925) | SEP | IEP |

Logic in the Twentieth Century

John Neville Keynes (1852 - 1949)

Alexius Meinong (1853 - 1920) | SEP |

Giuseppe Peano (1858 - 1932)

Edmund Husserl (1859 - 1938) | SEP | IEP |

Alfred Whitehead (1861 - 1947) | SEP | IEP |

David Hilbert (1862 - 1943)

Louis Couturat (1868 - 1914)

Ernst Zermelo (1871 - 1953)

Bertrand Russell (1872 - 1970) | SEP | IEP |

Jan Łukasiewicz (1878 - 1956) | SEP |

Ernst Mally (1879 - 1944) | SEP |

Luitzen Egbertus Jan Brouwer (1881 - 1966) | SEP |

Clarence Irving Lewis (1883 - 1924) | SEP | IEP |

Hermann Weyl (1885 - 1955) | SEP |

Kazimierz Twardowski (1886 - 1938) | SEP |

Stanislaw Lesniewski (1886 - 1939) | SEP |

Thoralf Skolem (1887 - 1963)

Ludwig Wittgenstein (1889 - 1951) | SEP | IEP |

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Ancient Chinese Logic. A Survey of Contemporary Studies

Theories about language in Classical China

"Technically, classical China had semantic theory but no logic. Western historians, confusing logic and theory of language, used the term 'logicians' to describe those philosophers whom the Chinese called the 'name school'. The best known of these were Hui Shi (380-305 b. C.) and Gongsun Lung (b. 380 b. C.?). This group now also includes the Later Mohists and the term 'distinction school' (translated as 'dialecticians') has become common.

The importance of the more detailed Mohist work came to light in modern times. The Confucian tradition had lost access to it. Rescuing that text rekindled a long-lost interest in Chinese theories of language. The restored Mohist texts give us a general theory of how words work. A term picks out part of reality. Some terms are more general than others; terms like 'dobbin' or 'horse' or 'object' might pick out the same thing. When we use a term to pick something out, we commit ourselves to using the name to pick out similar things and 'stopping' with the dissimilar. Thus, for each term we learn an 'is this' and an 'is not'. 'Is not' generates an opposite for each name and marks the point of distinction or discrimination.

Chinese doctrine portrays disagreements as arising from different ways of making the distinctions that give rise to opposites. The word *bian* (distinction/dispute) thus came to stand for a philosophical dispute. The Mohists argued that, in a 'distinction/dispute', one party will always be right. For any descriptive term, the thing in question will either be an 'is this' or an 'is not'. Mohists were realistic

about descriptions and the world. Real similarities and differences underlie our language. They rejected the claim that words distort reality; to regard all language as 'perverse', they noted, was 'perverse'. The Mohists failed, however, to give a good account of what similarities and differences should count in making a distinction. Mohists also found that combining terms was semantically fickle. In the simplest case, the compound picked out the sum of what the individual terms did. Classical Chinese lacked pluralization so 'cat-dog' works like 'cats and dogs'. Other compound terms (such as 'white horse') worked as they do in English. The confusion led Gongsun Long to argue, on Confucian grounds, that we could say 'white horse is not horse'." (pp. 694-695)

From: Chad Hansen, "Logic in China", in: Edward Craig (ed.), *Routledge Encyclopedia of Philosophy*, London/New York: Routledge 1998, Vol. 5, pp. 693-706.

"Systematic argument in Chinese philosophy began with the Moist school, founded in the fifth century b. C. by the first anti-Confucian thinker Mo Tzu (c. 468 - c. 376 b. C.). He laid down three tests for the validity of a doctrine: ancient authority, common observation, and practical effect. At first the controversies of the various schools over moral and political principles led to increasing rigor in argument; then to an interest in dialectic for its own sake, as evidenced in Hui Shih's paradoxes of infinity and in Kung-sun Lung's sophism "A (white) horse is not a horse"; and still later to the antirationalism of the Taoist Chuang Tzu (born c. 369 B.C.), who rejected all dialectic on the grounds that names have only an arbitrary connection with objects and that any point of view is right for those who accept the choice of names it assumes.

Logic of Mohism. In the third century b.C. the Mohists responded to Chuang Tzu's skepticism by systematizing dialectic in the "Moist Canons" and the slightly later Ta-ch'ü and Hsiao-ch'ü.

Moist Canons. The "Canons" confined dialectic to questions of the form "Is it this or is it not?" or, since they assumed that the proposition is merely a complex name for a complex object, "Is it or is it not the case that . . . ?" (The form is distinguished in Chinese by a verbless sentence with a final particle, not by a verb "to be.") In

true dialectic the alternatives are paired ("Is it an ox or not?") so that one and only one fits the object. Dialectic excludes such questions as "Is it an ox or a horse?" (it may be neither) and "Is it a puppy or a dog?" (it may be both). Its solutions are absolutely right or wrong; being or not being "this," unlike being long or short, is not a matter of degree, since nothing is more "this" than this is. The Mohists further argued that it is self-contradictory to deny or to affirm all propositions: the statement "All statements are mistaken" implies that it is itself mistaken, and one cannot "reject rejection" without refusing to reject one's own rejection.

Names are of, three types, distinguished by their relations to "objects," which are assumed to be particular. "Unrestricted" names (such as "thing") apply to every object. Names "of kinds" (such as "horse") apply to every object resembling the one in question. "Private" names (for example, the proper name "Tsang") apply to one object. Whether a name fits an object is decided by appeal to a "standard." There may be more than one standard for an object; for "circle" the standard may be a circle, one's mental picture of a circle, or a compass. Some standards fit without qualification: a circle has no straight lines. Some fit only partially: in deciding whether someone is a "black man" it is not enough to point out his black eyes and hair. The "Canons" began with 75 definitions, evidently offered as "standards," of moral, psychological, geometrical, and occasionally logical terms. An example of a definition of a logical term is "'All' is 'none not so' " (supplemented in the Hsiao-ch'ü by " 'Some' is 'not all' "). The first of the series is "The 'cause' is what is required for something to happen." ("Minor cause: with this it will not necessarily be so; without this it necessarily will not be so. Major cause: with this it will necessarily be so.") The "Canons" also distinguish the senses of 12 ambiguous terms. Thus, "same" is (1) identical ("two names for one object"), (2) belonging to one body, (3) together, and (4) of a kind ("the same in some respects").

"Ta-ch'ü" and "Hsiao-ch'ü." The Moist Ta-ch'ü further refined the classification of names. Names indicating "number and measure" cease to apply when their objects are reduced in size; when a white stone is broken up it ceases to be "big," although it is still "white." Names indicating "residence and migration" do not apply when the population moves, as in the case of names of particular states ("Ch'i")

or of kinds of administrative divisions ("country"). The claim that one knows X only if one knows that an object is X applies only to names indicating "shape and appearance" ("mountain," but not "Ch'i" or "county").

The Ta-ch'ü, and still more the Hsiao-ch'ü, also showed a shift of interest from the name to the sentence and to the deduction of one sentence from another. The Chinese never analyzed deductive forms, but the Mohists noticed that the formal parallelism of sentences does not necessarily entitle us to infer from one in the same way as from another, and they developed a procedure for testing parallelism by the addition or substitution of words. For example, "Asking about a man's illness is asking about the man," but "Disliking the man's illness is not disliking the man"; "The ghost of a man is not a man," but "The ghost of my brother is my brother." In order to reconcile the execution of robbers with love for all men some Mohists maintained that although a robber is a man, "killing robbers is not killing men." Enemies of Mohism rejected this as sophistry, on the assumption that one can argue from "A robber is a man" to "Killing robbers is killing men," just as one can argue from "A white horse is a horse" to "Riding white horses is riding horses." The Hsiao-ch'ü replied that there are second and third sentence types of the same form, which do not allow such an inference-for example, "Her brother is a handsome man," but "Loving her brother is not loving a handsome man"; "Cockfights are not cocks," but "Having a taste for cockfights is having a taste for cocks." A four-stage procedure was used to establish that "A robber is a man" belongs to the second type:(1) Illustrating the topic ("robber") with things ("brother," "boat") of which formally similar statements may be made.

(2) Matching parallel sentences about the illustrations and the topic-for instance, "Her brother is a handsome man, but loving her brother is not loving a handsome man"; "A boat is wood, but entering a boat is not entering [piercing?] wood"; "A robber is a man, but abounding in robbers is not abounding in men, nor is being without robbers being without men."(3) Adducing supporting arguments for the last and most relevant parallels by expanding them and showing that the parallelism still holds: "Disliking the abundance of robbers is not disliking the abundance of men; wishing to be without robbers is not wishing to be without men."(4) Inferring, defined as "using its [the

topic's] similarity to what he [the person being argued with] accepts in order to propose what he does not accept": "Although a robber is a man, loving robbers is not loving men, not loving robbers is not loving men, and killing robbers is not killing men." (pp. 415-416)

From: Angus C. Graham, "Chinese Logic", Third section of "Logic, History of" in: Paul Edwards (ed.), *The Encyclopedia of Philosophy*, New York: Macmillan 1967, Vol. IV pp. 523-524; Second edition: Donald M. Borchert (ed.), New York: Thomson Gale 2006, vol. 5, pp. 415-417.

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4. Alt, Wayne E. 1991. "Logic and Language in the Chuang Tzu." *Asian Philosophy: An International Journal of the Philosophical Traditions of the East* no. 1:61-76.

   "It is difficult to deny that there are passages in *Chuang Tzu* that seem to suggest mystical themes. Yet it cannot be denied that many, if not most, of the passages from this work, have nothing to do with mysticism. By attending to some of these passages, I will argue for an alternative interpretation of *Chuang Tzu*. My alternative runs contrary to the predominant mystical interpretation. Instead of discussing transcendental unities, it emphasises the efforts of thoughtful men to understand the ways of the world in which they live, and to enrich their daily lives by perfecting the practice of the arts.

   One of Chuang Tzu's major concerns was to unravel and expose the fallacies of the learned, especially those whose conclusions threatened to undermine principles requisite for the practice of the arts. To discredit the theories of men like Hui Tzu required that Chuang Tzu develop remarkably sophisticated methods of reasoning and analysis.

   As such, he has frequently been misunderstood, even by twentieth century commentators, as drawing conclusions which refer to a dimension that transcends ordinary human understanding. Indeed, since his antagonists sometimes disregarded the constraints of normal discourse and challenged fundamental principles of reason and good sense, Chuang Tzu's philosophical critiques themselves sometimes appear to transcend these limits. A. C. Graham has even argued that

Chuang Tzu "abandoned reason" and "rejected logic"." (pp. 62-63)

5. Ames, Roger T., and Nakajima, Takahiro, eds. 2015. *Zhuangzi and the Happy Fish*. Honolulu: University of Hawai`i Press.

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   Abstract: "The article offers re-reading of one of the most prominent writings on logic in ancient China notorious for its ambiguous and evasive nature - Gongsun Long's *Baima Jun* - from the logical semantics and linguistic semiotics point of view. Previous interpretations of *Baima Jun*, which attributed to its alleged author either bringing in of abstract universals or introducing of nominalistic speculations into the philosophical debate of the day, serve as a point of departure for the interpretative theory based on re-examination of the two

debating points in the contemporary philosophical discussion-Doctrine of Rectification of Names and Debate of Name and Substance. Present rereading suggests that Gongsun Long's dialogue effectively challenges the Neo-Mohists' non-problematic assessment of conditions needed for a successful logical discourse by stressing the key importance of a semiotic aspect of the logical reasoning.

Moreover, the possibility of restating Gongsun Long's arguments in the wording of Saussurean semiotics indicates the conceivability of *Baima Jun*'s interpretation as an implicit theory of linguistic signs."

7. Assandri, Friederike, and Meisterernst, Barbara. 2019. "Chinese Philosophy, Religions and Language." In *The Routledge Handbook of Chinese Linguistics*, edited by Huang, Chu-Ren, Jing-Schmidt, Zhuo and Meisterernst, Barbara, 9-27. New York: Routledge.

   "The pre-Qin philosophers' preoccupation with language focused on the question of designations, 名 míng 'names', and their relation to referents as things in the world, 實 shí 'actualities'. The issue was the pragmatic assertability and acceptability (Tanaka 2004: 192) of terms, rather than the question of whether language represents reality in a way that is "true". Thus, the focus of philosophizing was on how to establish acceptable relations between names and actualities, with a view to the normative functions and the pedagogical and epistemological effectiveness of language.

   Confucius (Kongzi 孔子) and Laozi 老子, both major reference points for later thinkers, developed two fundamentally different approaches to the relation of names and their referents, contingent with their respective direction of philosophical inquiry. Preoccupied with questions relating to social order, Confucius focused on the normative function of names in establishing and ordering social relations, while Laozi's philosophical inquiry was directed at questions about the relation of humans to an ultimate reality he called Dao. Thus, Laozi focused on the epistemological question of whether

language and names are a viable means to understand, or “grasp”, this ultimate reality."

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Tanaka, Koji. 2004. The limit of language in Daoism. *Asian Philosophy* 14(2): 191–205.

8. Bao, Zhiming. 1987. "Abstraction, *Ming-Shi*, and Problems of Translation." *Journal of Chinese Philosophy* no. 14:419-444.

   "This paper is divided into four interrelated sections. First, I shall discuss the thesis that Chinese cannot express abstraction. This I shall refer to as the no-abstraction thesis. I will argue that this no-abstraction thesis is misconceived, and stems from a naive assumption that there is a one-to-one correspondence between the structure of language and the structure of thought, whence comes the belief that the expression of abstract entities must depend on certain grammatical devices. A lack of such devices has been taken as evidence for a nominalistic language and a philosophy that has no abstract entities. This assumption also seems to presuppose that for each linguistic sign, *redness* for example, there exists some entity such that the sign stands in the relation of naming to that entity.

   Related to the no-abstraction thesis is the contention that Chinese philosophy, especially pre-Han, is nominalistic. Gongsun Long's thought, for example, entertains no abstract entities. And the Neo-moists do not talk about any intermediary between *ming* and *shi* commonly translated as 'name' and 'object', respectively. Some attention will be paid to this translation, to see whether it contributes to labeling Neo-Moist semantics as nominalistic. Throughout the paper, I will analyse briefly some classical texts, mainly *Pai ma lun*, the white horse dialogue of Gong sun Long (in Ill) and the Neo-Moist Canons (in IV). If we carefully analyse a few grammatical points in the Gongsun Long text, which have hitherto been overlooked, we will arrive at an interpretation which calls for abstract entities. As for the Canons, it will be argued, speculative though the argument may be, that a Fregean interpretation of Neo-Moist semantics is, with some

qualification, also consistent with the text." (pp. 419-420, a note omitted)

9. ———. 1990. "Language and World View in Ancient China." *Philosophy East and West* no. 40:195-219.

   "My main objective in this article is to demonstrate that a common conception of language, which I will call the classical conception of language, serves as a thread which runs across the various theories of language advanced by these thinkers. The classical conception of language does not view language as a mere descriptive tool that is a separate entity independent of the world which it describes. Rather, language and the world are inseparably bound up.

   Language is able to describe the world by virtue of an isomorphic fit between them. By "isomorphic" or "isomorphic fit" I mean this: A is isomorphic with B if, for each event E_i which affects A, there is a corresponding event E_j which affects B, and E_i and E_j may, but need not, be the same event.(1) As anillustration, let us consider a hypothetical belief that the anger of heavenly spirits may have as its consequence the fall of a particular kingdom. An event E_i in heaven (the spirits getting angry) corresponds to an event E_j in human society (the fall of the kingdom). Within that belief system, heavenly affairs (among them the anger of the spirits) and human affairs (among them the fall of the kingdom) have an isomorphic fit." (p. 195)

   (1) The definition of "isomorphic fit" is rather strong, since to show that two systems are isomorphic one must show that for each event which affects one system there is a corresponding event which affects the other system. This involves the notion of sets of all events, which is untenable within the context of our inquiry. In other words, it may be impossible to construct a set of all events or other entities relevant to the exposition of the relationship between language and the world. The intuition behind the definition is clear. It strikes home the property of interdependence between language and the world in the conception of language in ancient China.

10. Beaney, Michael. 2021. "Swimming Happily in Chinese Logic." *Proceedings of the Aristotelian Society* no. 121:355-379.

    "The *Zhuangzi* is the richest and most intellectually challenging of all the texts of ancient Chinese philosophy, and it is full of stories which have been interpreted in a wide variety of ways over the subsequent two millennia. It is one of the founding texts of Daoism, but it is also central to the entire landscape of ancient Chinese thought. In this paper I want to explore some of the logical features of this landscape by focusing on the happy fish dialogue and addressing what we can call the problem of Chinese logic. Are there distinctive forms of argumentation and analysis in ancient Chinese thinking and/or distinctive logical conceptions and theories? Or can Chinese reasoning be analysed and entirely explained by modern forms of logic, such as propositional logic and quantificational theory? What implications does this have for how we interpret historical texts?

    In what follows, I will first say more about the problem of Chinese logic (§ii) before introducing the *Zhuangzi* and the happy fish dialogue (§iii). I will then elucidate the key concepts involved in this dialogue (§iv) and discuss selected interpretations of it (§v). I conclude by returning to the Chinese logic dialogue, which frames my analysis of the happy fish dialogue, in drawing out the hermeneutic implications (§vi)." (pp. 355-356)

11. Benesch, Walter. 1991. "The Place of Chinese Logics in Comparative Logics: Chinese Logics Revisited." *Journal of Chinese Philosophy* no. 18:309-331.

    "It was my intt!rest as a philosopher in the assumptions and origins of logics, and then my concern as a teacher in developing a cross-cultural approach that first led me into comparative logics.· I have since come to realize that the understanding of any particular logic must involve the ability to view that logic from the questions, problems and perspectives of other systems. Thus my paper represents both my experiences and my recommendations as an educator "in the

field of logics. I shall offer four theses for consideration." (p. 309)

(...)

"My fourth thesis is that there is indeed a "Chinese logic," and that it is not only possible to clearly identify it, but it can and will prove an indispensible part of the thinking techniques and methodologies that we use to explore ourselves and the world." (p. 319)

(....)

"Chinese logics are inferential vehicles for accommodating different and changing aspects of human thought and experience. Meaning is a perspective upon change and process. Being arises from non-being through change. *Aspect logic presupposes a synthesis of being and non-being, the changing and change*."

12. ———. 1993. "The Euclidean Egg (1), the Three Legged Chinese Chicken (2)." *Journal of Chinese philosophy* no. 20:109-131.

"Contextual vs. Formal Approaches to Reason and Logics"

An Approach to Comparative Philosophy & Logics.

"In the spirit of the three-legged Chinese chicken and the Euclidean egg, I will begin my paper with the suggestion that there are at least three positions on the question as to which came first, the chicken or the egg. . . ?

The first assumes the chicken. Thls is the Aristotelean view that any actual entity is the fulfilment of a potential which is determined and defined by a prior actuality.

(...)

The second assumes the egg. This reflects a contemporary view in biology and genetics.

(...)

The third assumes the question itself must come first for its very asking presupposes sets of temporal, spatial, and linguistic

interpretations, distinctions and contexts - none of which either is or isn't a chicken or an egg."

(...)

"I believe this third position reflects a fundamental difference in the locus of the thinker in the world about which she/he thinks. It is sharedin common by a number of philosophers East/West, but since the three legged chicken is a specifically Chinese paradox, I should like to explore it with a number of Chinese philosophers as I understand them. I also believe this position is the essence of what I would call Chinese *aspect/perspective* logic. It is the exploration of this third position on the chicken/egg uestion and its contrast with the presuppositions of both the chicken and the egg schools in philosophy and science that is the substance of my paper, an argument for and a demonstration of a comparative approach to philosophy and logic." (pp. 109-110)

(1) "A Point is that which denotes position, without possessing any magnitude." (Euclid: *Elements*, Bk. I, Definitions; Law, Henry: *The Elements of Euclid*, John Weale, London, 1853, p. 2),

(2) "A fowl has three legs" (Paradox of app. 4th Cent. B.C.; Hu Shih: *The Development of the Logical Method in Ancient China*, Oriental Book Co., Shanghai, 1928, p. 118).

"As to the paradoxes: ' A fowl has three legs ' ; and 'A brown horse and dark ox make three,' the *Kung-sun Lung-tzu* (ch. 4) says : " The speaking about the leg of a fowl is one. Its number of legs is two. Two and one make three. The speaking about the leg of an ox and ram is one. The number of their legs is four. Four and one make five " (p. 75)." Fung Yu-Lan, *A History of Chinese Philosophy*, Vol. 1, Princeton: Princeton University Press 1952, p. 217,

13. Benesch, Walter, and Wilner, Eduardo. 2002. "Continuum Logic: A Chinese contribution to knowledge and understanding in philosophy and science." *Journal of Chinese Philosophy*:471-494.

"In the following analysis, we shall offer two propositions for consideration:

1. There is a continuum logic implicit in traditional Chinese philosophy.

2. This continuum logic has particular relevance for the pursuit of knowledge and understanding in philosophy and the sciences in contemporary “participant/spectator” views of the universe.

We have divided our discussion of the above propositions into three sections: The first considers contemporary philosophical perspectives in the sciences, especially biology; the second presents various approaches to logics, and proposes viewing logics and consciousness as related aspects of a mind and nature continuum; the third offers an exposition of Chinese continuum logic and its applications in the acquisition of knowledge and understanding." (p. 471)

14. Benická, Jana, and Hubina, Miloš. 2013. "Gongsun Long— A Somehow Aristotelian Reading." In *Talking Literature: Essays on Chinese and Biblical Writings and Their Interaction*, edited by Findeisen, Raoul David and Slobodnik, Martin, 21-31. Wiesbaden: Harrassowitz.

"Regarding the previous treatment of the Discourse on the White Horse (especially its key sentence—bai ma fei ma ‘a white horse is not a horse’), two basic interpretative approaches have been assumed so far: abstract and nominalistic." (p. 12)

(...)

"Our ‘Aristotelian’ reading of the text, based on our own translation, is an attempt to suggest an interpretation under which the text, taken as a whole, makes sense and is logically consistent, not a historical reconstruction of the original intentions of the author. We argue that the logical consistency of the text is perfectly maintained if we read it as an example of the standard problem of predication, a central issue with ontological relevance for Aristotle. It can be described as a pondering over what do we do when we say that something is something (else)? And how the two things that in sentence

assume places of subject and predicate exist in the world? Obviously, in an assertive statements we (1) strip the subject of the quality we are to ascribe to it (otherwise it would be indistinguishable from the attribute) and we set it apart as a subject of predication only to (2) claim, in the assertion, that the attribute actually belongs to it or is identical with it. This process of separating the subject and attribute for the very sake of claiming their connection invokes the question of the status of the 'disjoined' abstract entities (substance–attribute, subject–predicate) and the relation between them. Since there is no explicit denial of substance or essence(9)

in the text and, contrary to it, the Master and Disciple alike clearly differentiate between essential and accidental qualities, we feel free to presuppose that substance-attribute (container—content) structure the basic cognitive structure determining not only Aristotelian or 'Western' but human thinking about the world is not denied here. No theoretically costly Buddhist-like attack on substance is apparent. Hence no 'non-Western' philosophical footing." (pp. 13-14)

(9) Substance as a carrier of all qualities and essence as a 'core' determining 'what thing really is'.

15. Bloom, Alfred H. 1981. *The Linguistic Shaping of Thought: A Study in the Impact of Language on Thinking in China and the West*. Hillsdale: Laurence Erlbauim Associates.

"The question of whether the language we speak may shape the way we think rarely fails to excite the imagination of anyone who considers it for the first time and rarely fails to hold, from that point on, at least a lingering fascination and intuitive appeal. When bilingual speakers of two linguistically unrelated languages are asked whether they think they think differently when using each of their languages, they almost invariably answer "yes." When English speakers, who have extensive experience with monolingual speakers of non-Indo-European languages, are asked whether it is their impression that speakers of the non-Indo-European languages think differently from the way they themselves think, as a result of language, they likewise just about invariably answer "yes." When

translators of works drawn from literary traditions of unrelated languages are asked whether there is a language/thought barrier to overcome in translation, they usually find it hard to surpress a smile at so "naive" a question. Yet when psychologists are asked whether they think languages shape thought, they are as likely as not to say "no." When linguists are asked whether they think languages shape thought, they are as likely as not to respond that the question is not one with which the discipline of linguistics should concern itself; and when the work of the dominant empirical traditions of psychology, philosophy, and linguistics for the past fifty years is scanned for treatments of the question of whether or not languages shape thought, it quickly becomes evident that within these traditions that question, for one reason or another, never seemed to be a legitimate one or a relevant one to ask." (pp. 1-2)

16. Bodde, Derek. 1939. "Types of Chinese Categorical Thinking." *Journal of the American Oriental Society* no. 59:200-219.

    "One of the criticisms levelled by westerners against Chinese philosophy is that it has failed to develop a system of logic. Like most sweeping criticisms, this is not absolutely true, for during the fourth and third centuries B. C., the followers of the Mohist school do appear to have experimented with methods of thinking in many ways comparable to our western logic.' The statement remains true, however, to the extent that this school did not long survive, and that it failed to leave a lasting impression on Chinese thought." (p. 200)

    (...)

    "The consequence of this very fundamental Chinese feeling for order and harmony is the extraordinary development, both in speech and in literature, of what may be called numerical categories.

    Under the numeral three, for example, there are such categories as the Three Rituals, Three Sacrificial Animals, Three Auspicious Stars, etc.; under four, the Four Seas, Four Great Rivers, Four Cardinal Points, etc.; under five, the Five Punishments, Five Forms of Taxation, Five Supernatural

Creatures, etc.; and so on up to the Ten Thousand Things,(5) which is a generic term signifying all things in the universe.(6)

Among these numerical categories, those in five and nine are the most important." (p. 201)

(1) See Fung Yu-lan, *A History of Chinese Philosophy* (Peiping, 1937), English translation by Derk Bodde, vol. 1, ch. 11.

(5) *Wan wu.*

(6) For an extended list of 319 such categories, see W. F. Mayers, *The Chinese Reader's Manual* (Shanghai reprint of 1924), part 2.

17. Boltz, William G. 2000. "Logic, Language, and Grammar in Early China." *The Journal of the American Oriental Society* no. 120:218-229.

    Reviewed work: *Science and Civilisation in China*, Volume 7, Part 1: *Language and Logic in Traditional China* by Christoph Harbsmeier.

    Abstract: "In examining what he calls the "logical features" and "logical concepts" of the Classical Chinese language Christoph Harbsmeier has shown in this volume of *Science and Civilisation in China* that "logic is logic" and that, like mathematics, physics, and chemistry, for example, logic in China is no different from logic in the West in its primary, fundamental nature. Whatever differences there may appear to be are secondary matters of how logical propositions are expressed in the language and of the accidental fact of the particular concerns of extant texts. An analysis of the logical features of Classical Chinese becomes a useful and revealing part of a comparative study of grammar in Classical Chinese and in the principal Western classical languages, Greek and Latin, and in English. Grammars may differ; the meanings of words and of syntactic constructions may differ, and as a consequence logical propositions may appear to be formulated in different ways in Chinese and English (or other Western languages), but the underlying premises and conclusions of logical reasoning are language independent, and the logical

features of the Classical Chinese language reflect linguistic universals."

18. Bosley, Richard. 2005. "The Emergence of Concepts of a Sentence in Ancient Greek and in Ancient Chinese Philosophy." *Journal of Chinese Philosophy* no. 24:209-229.

    "The emergence of an explicit concept of a sentence in a developing philosophical tradition is of considerable significance. The concept is necessary for developments in logic and metaphysics. For without the

    concept it is impossible to pursue an inquiry into logical inference and various fallacies and sophistries. The point of this paper is to discuss the two developments as they emerge in the writings of Plato and Aristotle, in the West, and in the East, in the fragments of the Later Mohists. There are interesting differences which may reflect different concerns and assumptions of the two philosophical traditions. It will also be suggested just how differences between Classical Chinese and Classical Greek influence philosophical concerns.

    A.C. Graham(2) has helped us understand the emergence of a notion of a sentence in ancient Chinese philosophy. Before considering Graham's statement of the difficulty which ancient Chinese thinkers must have had in coming to articulate a notion of the sentence, let us briefly consider the situations which ancient thinkers were in as they began to enrich philosophical consciousness." (p. 209)

    (2) The source of my quotations from and my summaries of Graham's work is *Later Mohist Logic Ethics and Science*.

19. Brons, Lajos L. 2016. "Recognizing "Truth" in Chinese Philosophy." *Logos and Episteme* no. 7:273-286.

    Abstract: "The debate about truth in Chinese philosophy raises the methodological question How to recognize ‘truth’ in some non-Western tradition of thought? In case of Chinese philosophy it is commonly assumed that the dispute concerns a single question, but a distinction needs to be made between the property of *truth*, the concept of TRUTH, and the word ·truth·. The property of *truth* is what makes something true; the

concept of TRUTH is our understanding of *truth*; and ·truth· is the word we use to express that understanding. Almost all human beings over the age of 2 have the concept of TRUTH, and therefore, the question whether some tradition has the concept of TRUTH is moot, but that doesn't imply that every language has a (single) word for ·truth·. Furthermore, recognizing ·truth· is complicated by the conceptual neighbors of TRUTH. What distinguishes ·truth· from its neighbors is disquotationality. Theories of *truth* similarly need to be distinguished from theories about adjacent notions. If a theory is more plausibly interpreted as a theory of *justification*, then it is not a theory of *truth*."

20. Butzenberger, Klaus. 1993. "Some General Remarks on Negation and Paradox in Chinese Logic." *Journal of Chinese Philosophy* no. 20:313-347.

    "In different periods of Chinese philosophy, statements may be encountered that have traditionally been considered paradoxical, their impact on research into Chinese logic having been quite stimulating" (p 313, a note omitted)

    (...)

    "Let us conclude our remarks with focusing on the Chinese logicians' and philosophers' reactions towards paradoxical propositions. As we have seen, in older Chinese logic and linguistics, a certain system of metatheoretical assumptions concerning linguistic analysis was presupposed. Incidentally, this system was proven inconsistent by the dialecticians who were able to deduce an NFI [Normal Form of an Invariance proposition] together with its negation. Thus, the system became unreliable and necessitated further clarification of principles stated but implicitly. Hsün Tzu seems to have been the first to accurately describe such an evolution towards explicit formulation and clarification.

    In their heptapartite distinction of arguments referred to above, the Mohists were the first to create a new system of linguistic analysis accounting for the problems forwarded by the dialecticians. So, paradoxical propositions reinforce the development and improval of systems.

This attitude towards paradoxes might be called a negative one: If, in a system, a paradoxical proposition emerges, the system has to be altered to such an extent that the paradoxical proposition cannot be deduced any more. This alteration is considered an improval of the system.

This is, however, not the only attitude concerning paradoxical propositions.

As it is well known, some ramifications of Taoism, and, quite similarly, Buddhism, subscribe to the point of view that no possible system at all is adequate for describing reality. Systems, on the other hand, are but based on artificially engendered distinctions and divisions of reality which do not correspond to anything real. Hence, there can be no final system that is adequate in any case, and any confidence in having found such a system is but a tremendous error. According to this point of view, logic must be able to metatheoretically cope with the necessary transitions from one system to another without ever being confined to one single and fixed system. As a formal device for ad infinitum reinforcing such transitions, paradoxical propositions are used. In exchange, different types of negation have to be used in order to prevent this type of logic from becoming inconsistent." (pp. 336-337)

21. Cai, Zong-qi. 2011. "The Early Philosophical Discourse on Language and Reality and Lu Ji's and Liu Xie's Theories of Literary Creation." *Frontiers of Literary Studies in China* no. 5:477-510.

    Abstract: "This paper is an attempt to investigate how Lu Ji and Liu Xie develop their theories of literary creation on the foundation of the early philosophical discourse on language and reality. The first part of the paper examines various key terms, concepts, and paradigms developed in the philosophical discourse.

    The second part pursues a close reading of Lu's and Liu's texts to demonstrate how ingeniously they adapt and integrate those terms, concepts, and paradigms to accomplish two important tasks: to establish a broad framework for conceptualizing

literary creation and to differentiate the complex mental and linguistic endeavors at different stages of the creative process. The paper ends with some general reflections on the impact of the two essays on the subsequent development of Chinese literary and aesthetic thoughts."

22. Cantor, Lea. 2016. "Zhuangzi on 'happy fish' and the limits of human knowledge." *British Journal for the History of Philosophy* no. 28:216-230.

    Abstract: "The "happy fish" passage concluding the "Autumn Floods" chapter of the Classical Chinese text known as the Zhuangzi has traditionally been seen to advance a form of relativism which precludes objectivity. My aim in this paper is to question this view with close reference to the passage itself. I further argue that the central concern of the two philosophical personae in the passage – Zhuangzi and Huizi – is not with the epistemic standards of human judgements (the established view since Hansen, "The Relatively Happy Fish"), but with the more basic problem of species-specific perspectives. On my reading, Zhuangzi's emphatic *positionality* in the passage – on the dam, accompanied by his friend Huizi – plausibly suggests a circumspect reflection on the limitedness of human knowledge. It is significant that Zhuangzi's knowledge of fish happiness is avowedly *from a certain place*, and not absolute. But there is still a sense in which this view is objective: namely, insofar as it adequately accounts for an inherently human perspective on the world. I call this modest form of relativism 'Species Relativism', which, crucially, leaves room for objectivity, even though a fully objective (i.e. absolute) view of the world is not accessible to humans."

23. Cao, Feng. 2008. "A return to intellectual history: A new approach to pre-Qin discourse on name." *Frontiers of Philosophy in China* no. 3:213-228.

    Abstract: "Discussions of name (*ming*) during the pre-Qin and Qin-Han period of Chinese history were very active. The concept *ming* at that time can be divided into two categories, one is the ethical-political meaning of the term and the other is the linguistic-logical understanding. The former far exceeds the

latter in terms of overall influence on the development of Chinese intellectual history.

But it is the latter that has received the most attention in the 20th century, due to the influence of Western logic. This has led to the result of a bias in the contemporary studies of *ming*. Changing course by returning to the correct path of intellectual history can providing an objective and thorough ordering of the pre-Qin discourse on *ming*."

24. Ch'ien, Edward T. 1984. "The Conception of Language and the Use of Paradox in Buddhism and Taoism." *Journal of Chinese Philosophy* no. 11:375-399.

    "Both the Buddhists and the Taoists advocate a form of linguistic skepticism, according to which the ultimate reality is mute in the sense of being not only prescriptive but also unsayable." (p. 375)

    (...)

    "To be sure, neither the Buddhists nor the Taoists did away with language entirely. To say that the ultimate reality is unsayable is already a form of saying. In fact, Lao Tzu, Chuang Tzu and Virnalakirti all said a good deal more than that. In doing so, however, they were not necessarily contradicting themselves, for, as will be shown in the following, the mode of language that they each used and affirmed not only is consistent with but actually articulates their linguistically skeptical belief that the ultimate reality is ineffable." (p. 376)

25. Chan, Chi-ching. 1998. "The Rhetorical and the Grammatical in Early Chinese Logic." *Tamkang Review* no. 28:31-45.

    Abstract: "Early Chinese logic often seems puzzling because it is deeply rooted in an interplay of rhetoric and grammar. As logic in ancient China was more of persuading kings and dukes than of reasoning in epistemological terms, catching rhetoric seemed to be a short cut to instant fame. The elliptical Chinese syntax and semantic shift in word play often found in the logical texts underlie the perplexity. One of the logicians' strategies is to employ a mutual interference of, in Jakobsonian terms, the metaphorical and metonymical axes, stopping the operation of

each other to create bizarre statements. Another strategy is what Paul de Man would call the rhetoricization of grammar and the grammatization of rhetoric, which leaves the reader dangling between a literal and figural reading of the logical texts. New lights should be shed on early Chinese logic if one tries to look at it not in strictly logical, but in rhetorical and grammatical, terms."

26. Chang, Chih-wei. 1998. "The Road Not Taken: The Convergence/Divergence of Logic and Rhetoric in the Mohist "Xiaoqu"." *Tamkang Review* no. 28:77-94.

    Abstract: "Modern scholarship on *Mozi* has established an interpretative tradition of equating *Mobian* with logic. The present study takes issue with this tradition, criticizing its failure to locate the tension between logic and rhetoric in the Mohist art of disputation.

    Indeed, when modern scholars draw a parallel between the Mohist practice of debate and Western logic, they generally do not take into account the tension between logic and rhetoric, either in the West or in *Mobian*. Overlooking this tension, Hu Shi thus reads the "Xiaoqu" chapter in *Mozi* as a treatise on logic.

    Drawing upon the history of logic and rhetoric's development in the West, the present paper attempts to reveal Hu's bias in emphasizing the elements of logic in his explication of "Xiaoqu." To counterbalance Hu's reading of "Xiaoqu" in logical terms, this paper further highlights the rhetorical function of *pi, mou, yuan, tui*, four strategies of argument discussed in "Xiaoqu." *Pi, mou, yuan, tui* are actually four methods of analogy that take advantage of superficial resemblance to influence one's judgment of the argument's logical validity. Exploring the convergence and divergence of logic and rhetoric in the Mohist "Xiaoqu," it is hoped that we can arrive at a better understanding of Mobian."

27. Chang, Han-liang. 1998. "Controversy over Language: Towards Pre-Qin Semiotics." *Tamkang Review* no. 28:1-22.

Abstract: "Semiotic thinking in general can be born when people become aware of the discrepancy and tension among different uses of language. This awareness and its expression are often enacted dramatically in the controversy of discourse.

The discursive polemics in Pre-Qin China centers around the contention of logic and rhetoric, quite similar to the fortune of the trivium in the medieval West.

Traditionally known as the Great Debate on Name and Substance, the controversy should be understood as a phenomenon of language pragmatics.

Those who participate in the Debate fail to communicate with one another because there is a discrepancy between encoding and decoding. Their polemics helps to create a textual space that includes the hidden agenda of semiotics."

28. ———. 2003. "The Paradox of Learning and the Elenchos: Plato's *Meno*, Augustine's *De Magistro*, and Gongsunlong's *Jianbailun*." In *Comparative Literature in the Cross-cultural Context*, edited by Yue, Dalyun and Qian, Linsen, 185-201. Nanjing: Yilin Press.

    "Under the assumption that the elenchos is a universal strategy of argumentation, this paper proposes to study three ancient dialogues, two in Western classical antiquity, one in Pre-Qin China. Of the three texts, Plato's *Meno* and Augustine's *De Magistro* are already separated by a temporal gap of almost eight hundred years, but they can be united by the common theme of paradox of teaching/learning and the dialogic structure in which disputation is performed. As to Gongsunlong's *Dialogue on Hardness and Whiteness* (hereinafter referred to as *Jianbai*), it can be linked mysteriously to the two Western texts from both an epistemological and a pragmatic point of view." (p. 185)

29. ———. 2007. "Persuasion in Pre-Quin China. The Great Debate Revisited." In *Traditions of Controversy*, edited by Dascal, Marcelo and Chang, Han-Liang, 85-100. Amsterdam: John Benjamins.

"This essay attempts to present a major controversy in classical Chinese intellectual history, commonly called the Great Debate on *ming* (name) and *shi* (substance), and to interpret that debate in the light of the contention between logic and rhetoric, similar to the one that has characterized Western philosophy since Plato's early dialogue *The Gorgias*. The English rendition of the "Great Debate", being at once accurate but imperfect, is so popular that its source is hardly traceable. The added qualification of "great" suggests the importance of the issue, but the word debate unfortunately fails to transmit the double denotation of "differentiation" and "debate", imposed on the homophone by modern usage.(1) Thanks to contemporary scholars like Chmielewski (1962–1969), Graham (1989), Defoort (1997), Chang [Han-liangh] (1998, 2003), Lu (1998), Reding (2004), Cui (2004), we have become aware of the contention of logic and rhetoric and, to a lesser extent, the relation between logic and grammar suggested by these ancient texts." (p. 85)

(1) The Chinese word for *bian* in its original form is double denotative; it means at once debate and distinction, but two different words (graphic forms or graphemic signifiers) are used for the two senses (signifieds) in modern Chinese. However, the semantic differentiation and identification denoted by the original form are important to our understanding of the complex relationship between semantics and pragmatics, i.e., clarifying nuances of meaning and engaging in debate.

(2) Whilst Aristotle begins his *The Art of Rhetoric* with the statement "Rhetoric is the counterpart of dialectic" ([*The Art of Rhetoric*] 1991: 66), he subsumes the enthymeme or "rhetorical demonstration" under dialectic and stresses its difference from "logical syllogisms" (68, [Topics]).

References

Cui, Q. 2004. *Mojia luoji yu yalishiduode luoji bijiao yanjiu* (Comparative Research on Mohist and Aristotelian Logic). Beijing: Renmin chubanshe.

[For the other references see this bibliography]

30. Chao, Yuen Ren. 1946. "The Logical Structure of Chinese Words." *Language* no. 22:4-13.

    Presidential address, read at the regional meeting of the Linguistic Society of America in New York, December 31, 1945.

    Reprinted in: Yuen Ren Chao, *Aspects of Chinese Sociolinguistics*, Essays selected and introduced by Anwar S. Dil, Stanford: Stanford University Press, 1976, pp. 260-274.

    "At a previous meeting of this society, I read a paper on Word Conceptions in Chinese. There I dealt chiefly with the size-of-unit problem. I recognized two word-like units in Chinese. One is the monosyllable, which is almost always a morpheme.(2) It is not always a free form, but, partly because it is written with one character, it is very much talked about. It occupies the same social position of being the common linguistic small change of everyday life and is therefore called a 'word' by most of those who speak in English on Chinese.(3) The Chinese name for this is *tz'ŭ*[4]. On the other hand, there is the free form consisting of one, two, or more syllables, which may enter into what we should call syntactical relations with other similar units. Linguistically, this would be much more like what we call a word in other languages than the monosyllable. But it has no everyday name in Chinese,(4) because it is not talked about every day.

    In the present paper, I propose to consider the other aspect of the problem, the identity-of-unit problem: What constitutes one and the same word? Since a large part of this discussion will consist of tertiary statements concerning secondary statements about language, and the monosyllabic *tz'ŭ*[4] will play a major part in such secondary statements, we shall take the *tz'ŭ*[4] as our unit of reference, rather than the syntactical word. Any one who does not accept this use of the word 'word' as applied to Chinese may, wherever the word 'word' occurs, simply substitute the word *tz'ŭ*[4], or rather the*tz'ŭ*[4] '*tz'ŭ*[4]', and will still be able to follow the discussion." (p. 4)

(2) mes, an ancient Chinese morpheme with an initial consonant cluster became a dissyllabic morpheme through the appearance of an extra vowel between the parts of the cluster. But the separate syllables thus resulting usually acquired the status of separate morphemes, with separate meanings. Seec P. A. Boodberg, Some proleptical remarks on the evolution of Archaic Chinese, *Harvard Journal of Asiatic Studies* 2.329-72, esp. 336 ff.

3 Such as Sinologists, missionaries, and Chinese students studying abroad.

4 The learned term for it is tz'ŭ^{2} not related etymologically to tz'ŭ^{4}).

31. ———. 1955. "Notes on Chinese Grammar and Logic." *Philosophy East and West* no. 5:31-41.

Reprinted in: Yuen Ren Chao, *Aspects of Chinese Sociolinguistics*, Essays selected and introduced by Anwar S. Dil, Stanford: Stanford University Press, 1976, pp. 237-249.

"This paper is not concerned with Chinese logic as a part of technical Chinese philosophy, but, rather, with the ways in which some elementary logical notions find expression in the Chinese language. Therefore, I shall not touch upon the numerous paradoxes found in the *Canon of the Way and Virtue* (*Tao-tê Ching*) of Lao Tzŭ, or such questions as to whether the whiteness of a white horse is the same as the whiteness of white snow, as raised by Mencius,(2) or the series of problems with which the school of Mo Tzŭ was much concerned. On the contrary, I shall consider such universal logical constants - apparently universal constants for all human thought-as "and," "or," "all," "if ... then," "not," etc., and ask what forms, especially grammatical forms, they take in Chinese thought and speech. To put it in another way: instead of negation, I shall consider "not"; instead of implication, I shall consider "if ... then"; instead of existence, I shall consider "there is." In short, instead of metalogic and Chinese grammatics, I am primarily concerned here with logical notions and grammatical forms. Terms like *foouding*,(3) "negation";

minqtyi, "proposition"; *chyantyi,* "premise"; *tueiluenn*, "infer (ence)"; etc., are not very well known to many Chinese - not even to those who read and write. On the other hand, all Chinese, whether literate or illiterate, will argue and reason in prose without realizing that they have been doing so all their lives." (p. 31)

32. ———. 1959. "How Chinese Logic Operates." *Anthropological Linguistics*:1-8.

    Reprinted in: Yuen Ren Chao, *Aspects of Chinese Sociolinguistics*, Essays selected and introduced by Anwar S. Dil, Stanford: Stanford University Press 1976, pp. 250-259.

    "Like the logic of other cultures, Chinese logic operates by ways of affirmation and negation, particular and universal assertion, categorical conclusion and hypothetical implication, etc., but unlike the logic of other cultures, Chinese logic must of course operate with the degree of freedom that is possible within the operational possibilities of the Chinese language itself. Thus, while aiming at finding out how Chinese logic operates, we shall probably end up with finding out how logic operates in Chinese. The tool with which, or, what amounts to the same thing, the form in which, Chinese logic operates is the Chinese language. More specifically, the chief operative elements in Chinese are the use of words, especially functional words, word order and hierarchical structure and suprasegmental elements. Since all such elements enter also into non-logical functions of the Chinese language, such as influencing action, expressing and producihg feeling, presenting linguistic objects of beauty, it follows that there is no element of the language which is exclusively concerned with logical operations." (p. 1)

33. Chen, Bo. 2006. "The debate on the yan-yi relation in Chinese philosophy: reconstruction and comments." *Frontiers of Philosophy in China* no. 1:539-560.

    Abstract: "The debate on the yan-yi relation was carried out by Chinese philosophers collectively, and the principles and methods in the debate still belong to a living tradition of Chinese philosophy. From *Yijing* (Book of Changes), *Lunyu* (Analects), Laozi and Zhuangzi to Wang Bi, "yi" which cannot

be expressed fully by *yan* (language), is not only "idea" or "meaning" in the human mind, but is also some kind of ontological existence, which is beyond *yan* and emblematic symbols, and unspeakable. Thus, the debate on the *yan-yi* relation refers firstly to metaphysics, secondly to moral philosophy, and then to epistemology and philosophy of language. Guided by this view, this paper recalls the source of the debate on the *yan-yi* relation to *Yijing* and *Lunyu*, distinguishes four meanings of "yi" in Chinese philosophy, and reconstructs three arguments. These arguments are the "*yan* cannot express *yi* fully" argument, "forget *yan* once you get *yi*" argument, and "*yan* can express *yi* fully" argument. Finally, this paper exposes and comments on those principles, methods and the general tendency shown in the debate from the following five aspects: starting point, value-preference, methodology, texts (papers and books), and influences."

34. ———. 2009. "Xunzi's Politicized and Moralized Philosophy of Language." *Journal of Chinese Philosophy* no. 36:107-139.

    "In "Rectifying Names" (*Zhengming*) and other articles, Xunzi (313–238 BCE)1 developed a systematic theory ofnames, in which we can find some illuminating insights. These insights are still alive in contemporary philosophy of language, and can be used to broaden and deepen our thinking about names as well as about language generally. In this article, I will present Xunzi's theory of names, and compare it to some ancient and contemporary theories, Chinese and Western, and then explore some characteristics of Xunzi's theory, its strengths and its internal limitations." (p. 107)

35. ———. 2014. "Six Groups of Paradoxes in Ancient China: From the Perspective of Comparative Philosophy." *Asian Philosophy* no. 24:363-392.

    Abstract: "This paper divides the sophisms and paradoxes put forth by Chinese thinkers of the pre-Qin period of China (before 221 BCE) into six groups: paradoxes of motion and infinity, paradoxes of class membership, semantic paradoxes, epistemic paradoxes, paradoxes of relativization, other logical contradictions. It focuses on the comparison between the

Chinese items and the counterparts of ancient Greek and even of contemporary Western philosophy, and concludes that there turn out to be many similar elements of philosophy and logic at the beginnings of Chinese and Greek civilizations."

36. Cheng, Chung-ying. 1965. "Inquiries into Classical Chinese Logic." *Philosophy East and West* no. 15:195-216.

    "For the purpose of elucidating the nature of Chinese logic, we may suggest that the goal of study and research in classical Chinese logic should be en visaged as a critical analysis of the explicit logico-methodological issues in Chinese classical discourses, on the one hand, and a synthetic reconstruction of implicit logico-scientific theories, on the other. We may, indeed, conduct our examination in the light of an adequate understanding of modern logic, history, and the philosophy of logic and science. First, let us pose the following important questions: whether or not Chinese philosophers used logic, or reason and arguments, in their discussions of problems; whether the logic (or reason and arguments) thus used differed essentially from that of the West; and, finally, if there is something which can be called Chinese logic, what constitutes its particular features? The first step to adequate replies to these questions consists in testifying to the existence of logical and scientific ideas in classical Chinese writings. The importance of this testimony can scarcely be overstated, because this is where we can collect our evidence and evolve our explanations." (p. 200)

37. ———. 1968. "Logic and Language in Chinese Thought." In *La Philosophie contemporaine. Métaphysique, phénoménologie, langage et structure. Vol. III*, edited by Klibansky, Raymond, 335-347. Firenze: La Nuova Italia.

38. ———. 1971. "Aspects of Classical Chinese Logic." *International Philosophical Quarterly* no. 11:213-235.

    "In the rest of this article I will discuss some of the recent developments under the following topics: (1) the nature and structure of the Chinese language and its significance for Chinese logic and thought, (2) patterns of Chinese reasoning in

early philosophical writings; and (3) the nature and problems of explicit formalization of Chinese logic." (p. 215)

(...)

"Conclusion. In the above, we have discussed, first, the relation of the Chinese grammatical structure to logic and thought in Chinese philosophy, second, the logical modes of reasoning as contained in classical Chinese philosophical writings, and finally, the explicit Chinese logical consciousness and inquiries into forms of reasoning and problems of language in relation to reality and truth. We have seen many aspects

of the relationship of Chinese language to Chinese logic and Chinese thought. Among these, a most important one is that both Chinese logic and Chinese thought have their universal characteristics which

are not contingent on Chinese language, whereas Chinese language, in so far as its grammar is concerned, seems to exhibit the basic points of Chinese philosophy, and indeed can be taken as a concrete illustration

of important Chinese philosophical principles such as that the whole is relevant for, and contributes to, the determination of the part in the whole." (p. 234)

39. ———. 1973. "On the Problem of Subject Structure in Language, with Applications to Late Archaic Chinese." In *Approaches to Natural Language: Proceedings of the 1970 Stanford Workshop on Grammar and Semantics*, edited by Hintikika, Jaakko, Moravcsik, J. M. E. and Suppes, Patrick, 413-434. Dordrecht: Reidel.

"In the analysis of the subject-predicate structure of classical Chinese there is want for adequate and well-defined criteria for determining the various types of subject-predicate structures. This is due to the absence of a general theory to explain the purposes of the analysis.

In this paper I shall start with general consideration of the distinction between subject and predicate and proceed to a relevant application of such distinction to any language. Once

we have made this clear, it is only a corollary to show that subject-predicate structures in Late Archaic Chinese(2) may be systematically illustrated and logically explained.

Specifically, I shall confine myself to the analysis of the subject structure in language while leaving the treatment ofthe predicate structure to a separate article." (p. 413)

(2) The use of the term is due to W. A. C. H. Dobson (1959). [*Late Archaic Chinese*, Toronto].

40. ———. 1975. "On Implication (*tse a*) and Inference (*ku b*) in Chinese Grammar and Chinese Logic." *Journal of Chinese Philosophy* no. 2:225-244.

    Abstract: "This article is intended to explain my discovery of two grammatically independent and yet logically interrelated categories, namely implication and inference, in Chinese language and Chinese logic, as conveyed by the terms tse and ku and the concepts they connote. I intentionally refer to tse and ku either as two forms of logical relationship, or as two concepts, or as two terms or two words for these two forms of logical relationship. The uses of tse and ku as two words can be said to constitute the forms of logical relationship for which they stand. Since the contexts of this article will make clear what I actually refer to, this ambiguity of usage is harmless and will not prevent an understanding of my arguments."

41. ———. 1983. "Kung-sun Lung: White Horse and Other Issues." *Philosophy East and West* no. 33:341-354.

    "This is an up-to-date analysis of Kung-sun Lung's thesis "White horse is not horse" and the underlying class logic. Critique is made of the wrong-headedness of the mass-term interpretation (Hansen) and a shallow understanding of classical Chinese grammar in light of modern logic. Neo-mohist canons on identity, difference, separableness and inseparableness are also analyzed for comparison and contrast."

42. ———. 1987. "Logic and Language in Chinese Philosophy." *Journal of Chinese Philosophy* no. 14:285-307.

"Chinese ontology is formulated in the Chinese language and categorized according to Chinese philosophical interests and orientations. How these interests and orientations differentiate and integrate or relate Chinese ontological theses and views is not only an important historical question but is also a question of logical consequence."(p. 286)

(...)

"Thus an inquiry into language and ontology in Chinese philosophy should naturally reveal distinctions peculiarly to Chinese language, Chinese ontology, and Chinese philosophy, but also promises insights into the nature, function, form and substance of some, if not all, logico-linguistic issues.

First, the basic and dominant conception of language as a matter of naming (of formulating and applying names) in Chinese philosophy will be analyzed to clarify how the various schools of philosophy in the

classical period of China developed from their distinctive evaluations of presenting or realizing ontological truths. Then follows an explanation of the types of ontological theses and positions found in Chinese philosophy.

A clearer understanding will be sought through a series of comparisons and contrasts with contemporary Western positions. Finally, the response of Chinese philosophers to logico-linguistic and ontological issues will be discussed." (p. 287)

43. ———. 1997. "Philosophical Significance of Gongsun Long: A New Interpretation of Theory of "Zhi" as Meaning and Reference." *Journal of Chinese Philosophy* no. 24:139-177.

"Although Gongsun Long (GSL) and the *Mingjia* (School of Names) have been frequently studied in the last two decades in both China and the Western world for the purpose of clarifying and explaining the nature of Chinese language and Chinese logic, there is not a single study which has explained the rise of the school of Names and the motivating impetus behind the advancement of reasons and arguments in the school. The method of such studies is very often a matter of analyzing

Gongsun Long's arguments by using modern logic of classes to show why Gongsun Long can be accepted according to modern standards or to show how it has deviated from modern logic and therefore has to be understood on a different line of logic. There is nothing improper in these approaches but these approaches fail to answer two important questions regarding the writings of Gongsun Long and the School of Names, namely which goals did Gongsun Long and the School of Names want to pursue and how did he and the School of Names come to confront their problems and establish their theses and argue for their validity.

Second, we need to have a full view of Gongsun Long in light of his existing writings and we can not simply draw conclusions on one or two chapters from the five essays attributed to him." (p. 139 a note omitted)

44. ———. 2000. "Classical Chinese Philosophies of Language: Logic and Ontology." In *History of the Language Sciences: An International Handbook on the Evolution of the Study of Language from the Beginnings to the Present. Vol. I*, edited by Auroux, Sylvain, Koerner, E.F.K., Niederehe, Hans-Josef and Versteegh, Kees, 19-35. Berlin: Walter de Gruyter.

Summary: 1. Two aspects of language in early Chinese philosophy; 2. Nature and function of non-substantive words in the Chinese language; 3. Five positions (theories) of names and sayings in Classical Chinese philosophy; 4. The Cunfucian doctrine of *zheng-ming* “rectifying names”; 5. The Daoist doctrine of *wu-ming* “no names”; 6. Nominalistic tendencies in Yinwenzi; 7. Platonistic tendencies in Gongsun Long; 8. Empirical (scientific) realism of names and language in the Neo-Moist Canons (Jing/Shuo); 9. Concluding remarks; 10. Bibliography.

"9. Concluding remarks

In the above I have discussed the ontological import of chinese language and the conception of language in various ontological perspectives developed in Classical Chinese Philosophy.

I distinguished names (*ming*) from sayings (*yan*) which are two basic aspects of chinese language. I also distinguished between ontology in and of language and ontology independent of or without language. I

have shown that for the Confucianists the ontological considerations of names are subject to practical, normative considerations of *yan*. For the Daoists, both names and sayings are abolished for ontological and normative, practical reasons, and an ontology without language is tacitly suggested and presented.

For Yinwenzi and Gongsun Long, the ontological import of names dominates the practical, normative ends of *yan*. Finally, for the Neo-Moists ontological considerations are to be regulated by logical and methodological considerations, and language is to be developed and refined by logic and scientific discovery into a tool for expressing objective truth and objective knowledge." (p. 35)

45. ———. 2003. "Language and Logic." In *Encyclopedia of Chinese Philosophy*, edited by Cua, Antonio S., 343-355. New York: Routledge.

"Conclusion

We have discussed the concept and ontological import of language in various perspectives developed in classical Chinese philosophy. Also, we have distinguished names (*ming*) from "saying" (*yan*)—two aspects of Chinese language—and distinguished ontology in and of language from ontology independent of or without language. For the Confucians, the ontological consideration of names is subject to the practical, normative consideration of *yan*. For the Daoists, both *ming* and *yan* are to be abolished; their reasons are ontological, normative, and practical, and they offer an ontology without language. For Yinwenzi and Gongsun Long, the ontological import of names dominates the practical, normative ends of *yan*. Finally, for the neo-Mohists ontological considerations are to be regulated by logical and methodological considerations, and language is to be developed and refined, through logic and

scientific discovery, into a tool for expressing objective truth and objective knowledge." (p. 354)

46. ———. 2006. "From Donald Davidson's Use of 'Convention T' to Meaning and Truth in Chinese Language." In *Davidson's Philosophy and Chinese Philosophy: Constructive Engagement*, edited by Mou, Bo, 271-308. Leiden: Brill.

    "In this article I shall advance in the first part the Donald Davidson's theory of truth interpretation in terms of the Convention T as originally established by Tarski in his formalization of semantics for finite languages. Davidson has expanded the Tarski's formal-semantic notion of truth interpretation and applies to natural languages in order to show how the meaning of a sentence could be given in terms of truth conditions of the sentence. This is an ingenious move.

    But we wish to ask whether the Davidsonian approach to interpretation of truth in terms of the Tarskian Convention T is sufficient to explain meaning and truth in a living natural language like the Chinese and whether it is itself should be further broadened for both semantic and hermeneutical representation of our understanding reality based on experience. In other words, we shall ask whether an ontological re-interpretation and application of Convention T could serve an important purpose of ontological and cross-ontological understanding that I call onto-hermeneutical understanding.

    In the second part of the article I shall advance five basic principles for understanding meaning and truth in Chinese language in view of Chinese philosophy as a theory of truth." (p. 271-272, notes omitted)

47. ———. 2007. "Reinterpreting Gongsun Longzi and Critical Comments on Other Interpretations." *Journal of Chinese Philosophy* no. 34:537-560.

    "In my earlier works of 1969 and 1970,(16) I have suggested that GSL [Gongsun Longzi] is Platonic in the sense that he is an abstract realist. I have considered white as indicating whiteness and horse as indicating horsehood as they are abstract qualities which are abstracted from real experiences and given a status

of independent status apart from the concrete experience of the world. I may even think that the indeterminate (*budingzhe*) could be an abstraction from all our known determinations.

Now I wish to stress the importance of seeing determinations (as *zhi*) as both naturally arising and epistemological recognized with our conceptions which fit with our experiences in totality and as a totality. In this sense I wish now to take the concrete realist position which means: *There are natural qualities in things which require our experiences and cognition. As to how they are to be characterized and related to each other, we need to use our best brains to find out and construe our language in a manner which preserves coherence of experiences and yet reveals our insights into reality and language use in regard to this reality in different modes of reference (experience) and meaning (theories)*." (p. 548)

(16) See my article “Logic and Language in Chinese Thought,” *Contemporary Philosophy: A Survey* 3 (1969): 335–47. See also my article “Logic and Ontology of Kungsun Lung in the Chi-Wu-Lun,” *Philosophy East and West* 20, no. 2 (1970): 137–54. In the latter I have translated the whole essay of GSL’s Zhiwu Lun into English and then formalize it in the first-order predicate logic with identity for the purpose of showing the

validity of the argument. I have succeeded to show the validity of GSL’s argument.

Many later researchers are lack of research and information for these contributions I have made and proceeded. This in a way shows their study of GSL has not made new discovery which enables them move to the positions which are easily untenable or simply evidence-lacking.

48. ———. 2012. "Preface: Chinese Logic as Threefold: Reference, Meaning and Use." *Journal of Chinese Philosophy* no. 39:325-326.

"I believe therefore there are three layers of Chinese logic, the formal or semiformal logic of truth functions, the semantic logic of fixed usages, and the pragmatic logic of nonfixed usages based on contextual and intentional interpretations. One must

see that whereas the Neo-Moist Canons (including some corrupted parts such as the *Daqu*) make efforts to construct a formal logic of truth functions based on formal understanding of reference and inference, the Neo-Moist Xiaoqu has shown its efforts to establish a semantic logic by revealing different forms of inference and hidden restraining factors for uses of our common concepts or predicates in references, which make a difference to inferences. On the other hand, we have to mention Xunzi as a critical-minded logical philosopher who wishes to develop and establish a semantic-referential logic that functions on fixed relations of reference and meaning based on an objective and yet conventional epistemology of objects and concepts. He would like to repudiate both the semantic logic of Neo-Moists and the pragmatic or otherwise realistic logic of Gongsun Long.

In this present issue on Neo-Moist or later Moist logic, our organizer of the special theme, Professor Yiu-ming Fung, and our expert authors have made their new specific explorations into Chinese logic based on early scholarship and their own insights. I thank each of them for their individual achievements." (p. 326

49. Cheng, Chung-ying, and Swain, Richard H. 1970. "Logic and Ontology in the *Chih Wu Lun* of Kung-Sun Lung Tzu." *Philosophy East and West* no. 20:137-154.

"One of the most disputed texts of classical Chinese philosophy is the *Chih Wu Lun* of Kung-sun Lung. Conflicting translations and interpretations have been offered by Fung Yu-lan,(1) A. C. Graham,(2) Janusz Chmielewski,(3) Wing-tsit Chan,(4) and others. It seems to us that each of these scholars, by concentrating almost exclusively on establishing a meaning for the term *chih*[e], has overlooked the fundamental importance of both the structure of Kung-sun Lung's argument and the meaning of the term *wu*[d]. Taking into account all three of these factors, we hope to show that Kung-sun Lung has presented a tight, logical argument elucidating the nature and function of reference." (p. 137)

(1) Fung Yu-lan, *A History of Chinese Philosophy,* trans. Derk Bodde, 2 vols. (Princeton: Princeton University Press, 1952), I, 205-206, 209-212.

(2) A. C. Graham, "Kung-sun Lung's Essay on Meanings and Things," *Journal of Oriental Studies* 2, no. 2 (Jul. 1955), 282-301.

(3) Janusz Chmielewski", Notes on Early Chinese Logic (I)," *Rocznik Orientalistyczny* 26, no. 1 (1963), 7-22.

(4) Wing-tsit Chan, *A Source Book in Chinese Philosophy* (Princeton: Princeton University Press, 1963), pp. 237-238.

50. Cheng, Zhongtang. 2007. "Logic paradigm in the “Mobian” investigation: From a hermeneutic point of view." *Frontiers of Philosophy in China* no. 2:188-205.

Abstract: "This article describes the logic paradigm in the “Mobian” 墨辩 (the debate theory of the Mohist school) investigation from the point of view of hermeneutics, discloses the relationship between the overinterpretation tradition in China and the logic paradigm in the “Mobian” investigation, observes the overinterpretation of the “Mobian” by the creators and supporters of the logic paradigm from Liang Qichao and Hu Shi to the modernists, including mathematical logicians, and analyzes Shen Youding’s reflections on the logic paradigm in his later life."

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History of Logic

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Bibliography on Language and Logic in Ancient China. Second part Chm-Fun

Studies in English (Chm-Fun)

1. Chmielewski, Janusz. 1962. "Notes on Early Chinese Logic. Part I." *Rocznik Orientalistyczny* no. 26:7-22.

   Reprinted in Chmielewski (2009), pp. 175-190.

   "This paper is a short and preliminary report on a more comprehensive study devoted to various aspects of Chinese logic which I hope to, publish in French. Since the final working up and polishing of the rather extensive French text will require some time - while the results so far arrived at seem rather new, and scholars working in the field of Chinese philosophy and logic may be expected to find some interest in them - I have thought it useful to publish a short account in English before the full version of my study is ready for publication [*]. For technical reasons it has turned out to be necessary to divide the paper into several parts. The first one, presently published, offers a summary of the first three chapters of my study; - dealing chiefly with the Kung-sun Lung tsi. Summaries of chapters dealing with problems concerning the calculus of propositions, the calculus of functions, etc. - as they are represented in the reasonings of the early Chinese thinkers - will successively appear in the subsequent issues of this "Roc:znik". (p. 175 of the reprint)

   (...)

   "The task I have set myself may be briefly stated in the following terms: Without losing sight of the philological and historical background (which, I believe, is always the necessary prerequisite in sinological research) I propose to single out some more or less typical forms of reasoning (whether already interpreted by others, or not) occurring in early Chinese philosophers; to define them from the standpoint and in terms

of elementary symbolic logic; to find out general logical laws and notions underlying them; and, as far as possible, to compare them with the ancient logical theory of the West." (p. 176 of the reprint)

* [The French study was never published]

2. ———. 1963. "Notes on Early Chinese Logic. Part II." *Rocznik Orientalistyczny* no. 26:91-105.

Reprinted in Chmielewski (2009), pp. 191-206.

"IV. On the so-called "Chinese sorites".— The first serious attempt to analyse early Chinese reasoning in one of its most typical forms is due to P. Masson-Oursel, *Esquisse d'une théorie comparée du sorite*, "Revue de Métaphysique et de Morale" XX, Paris 1912, pp. 810-824 (cf. also his *La démonstration confucéenne — Note sur la logique chinoise préboudhique* "Revue de FHistoire des Religions" LXVII, 1913, pp. 49—54, which, in fact, reproduces the first chapter, *Le sorite chinois,* of the *Esquisse*). A good and comparatively short example of the form here in question is, for instance, *Lao-tsi* LIX: 重積德則無不克，無不克則莫知其極，莫.知其資［則］可以有國 "If one repeatedly agglomerates one's Virtue, there is nothing one cannot overcome; if there is nothing one cannot overcome, one knows no bounds; if one knows no bounds, one is able to keep the kingdom'. Masson-Oursel, as is seen from the very title of his study, defines the form as a sorites, although he remarks that "Ce n*est pas, ou du moins, ce n'est pas essentiellement d'un rapport entre idées qu'il s'agit; l'extension ou la compréhension des concepts ne sont pas, ou du moins ne sont pas les seuls principes que régissent ces argumentations ; elles consistent bien plutôt à noter des rapports entre des conditions objectives" (*Esquisse*, p. 810)." (p. 191 of the reprint)

(...)

"Thus, contrary to Masson-Oursel, we are entitled to state that early Chinese philosophers had quite a number of formal means at their disposal and that they actually used various types of reasoning. The so-called sorites, important and typical

as it is, is far from being the only logical form to be met with in early Chinese philosophical thinking.

(...)

Before proceeding to an investigation of both the distinction of the alleged sub-forms ('progressive' and 'regressive') of the 'Chinese sorites' and Bodde's criticism of the form as a whole, it is necessary to analyse the form itself from the standpoint of modern formal logic. On. closer inspection, the alleged 'Chinese sorites' can be proved to belong to the propositional calculus (that is to say, the part of logic operating with whole propositions, or propositional variables, non-analysed into members smaller than a proposition), and it turns out to be based on valid formulae of this calculus. On the other hand, the very notion of sorites is inadequate and misleading in reference to the form under discussion." (p. 193 of the reprint)

References

Derk Bodde, *Types of Reasoning in Li Ssŭ*, in *China's First Unifier*, Leiden: Brill 1938, pp. 223-237 (reprinted with a new Foreword Hong Kong: Hong Kong University Press 1967).

3. ———. 1963. "Notes on Early Chinese Logic. Part III." *Rocznik Orientalistyczny* no. 27:103-121.

Reprinted in Chmielewski (2009), pp. 207-226.

"V. The Mohist *hiao* and some related problems.

The logic of terms (as opposed to the logic of propositions) embraces the calculus of classes and the calculus of functions. After having briefly dealt with the role and the main features of the propositional calculus as actually used in early Chinese reasoning (ch. IV of the present study) and the Chinese theory of classes as represented in the *Kung-sun Lung tsï* (chapters II-III of my study), it is now time to turn to the calculus of functions which - at least in some of its subdivisions - is also not without a specific role in early Chinese logic." (p. 207 of the reprint)

(...)

"It must be said in advance that the calculus of functions as thus delimited does not play any very important role in early Chinese logic. But since traces of it appear to subsist even in the Chinese logical theory (poor as it was) and, on the other hand, are certainly discoverable in some actual reasonings (even if these are neither numerous nor typical), the problem cannot be omitted from the present investigation. By the way, as we shall see later, the analysis of the samples of Chinese material in which the elements of the calculus now in question are involved will at the same time yield marginal results which themselves are not without interest from both the logical and the linguistic point of view." (p. 208 of the reprint)

4. ———. 1965. "Notes on Early Chinese Logic. Part IV." *Rocznik Orientalistyczny* no. 28:87-111.

   Reprinted in Chmielewski (2009), pp. 227-252.

   "VI. An instance of reasoning in *Mo-tsi* 26 and the problem of relationships between language and the logic of funxtions in Chinese.

   As has been shown in the preceding section (see RO XXVII, 1; pp. 103 - 121), there are sufficient reasons to interpret the so-called Mohist hiao as a specific logical formula belonging to the simple calculus of functions, - even if there is in neither *Mo-tsi* nor another Chinese philosophical text any example of reasoning qualified as *hiao* and corresponding to the formula in question. On the other hand, there are in the body of the *Mo-tsi* instances of reasoning logically valid, which can: be adequately analysed (formalised) by means of different and comparatively complicated formulae of the calculus of functions - formulae which have no counterpart in the logical theory of the Mohists.

   In other words: what appears in the logical theory (that is, explicit logic) does not appear in actual practice of philosophical reasoning (implicit logic), and vice versa.

   This seems paradoxical enough, but we must remember that the early Chinese thinkers were much more sophisticated in actual reasoning than in theoretical reflection on logical problems. In their philosophic;al practice they were able

intuitively to reason according to valid formulae (or inferential patterns) which were sometimes astonishingly complicated. At the same time their logical theory, poor as it was, was necessarily limited to much more elementary logical problems which - precisely on account of their simplicity - played little role, if any, in actual philosophical speculation. This, I think, explains the seeming paradox just mentioned." (p. 227 of the reprint)

5. ———. 1965. "Notes on Early Chinese Logic. Part V." *Rocznik Orientalistyczny* no. 29:117-138.

   Reprinted in Chmielewski (2009), pp. 253-274.

   "VII. The principle of double negation, the law of contradiction and some related problems in early Chinese thought.

   First I wish to apologise for a change in the original plan of the present series of Notes. As was previously announced (see RO XXVII, 1, p. 104), the present chapter VII should continue to deal with the calculus of functions in Chinese reasoning. Contrary to this announcement, it has turned out to be necessary to discuss at this point the problem of contradiction in early Chinese logic together with some corollary problems closely associated with this main topic. The present chapter (which will comprise two sections) is devoted to this discussion.

   I shall revert to the analysis of Chinese reasoning involving the calculus of functions (and the calculus of relations in particular) in later chapters." (p. 253 of the reprint)

   (...)

   "The technical Modern Chinese term for 'contradiction' is *mao-tun* (= *rnao shun*) literally 'spear (and) shield ', and it is convenient to start the discussion of the explicit references to (non-)contradiction in pre-Han philosophical texts with a story - better known to linguists and etymologists than historians of Chinese philosophy - which besides being closely connected with our main problem at the same time explains the origin of the unusual Chinese term. In the body of pre-Han literature the passage appears more than once. In the *Han-fei-tsi* it is quoted twice, in ch. 36 (*Nan-i*) and (in a slightly different wording) ch.

40 (*Nan-shï*); moreover, another version of the story has been preserved in *Yang Shï-hün*' s commentary (of the T 'ang period) to the *Ku-liang chuan*, Ai kung, 2nd year, where the story itself is put forward as a quotation from the *Chuang-tsï*. Curiously enough, the passage which is of undeniable logical import and is, in fact, a kind of rather sophisticated definition of contradiction together with the explicit rejection of self-contradictory

statements, has so far remained unnoticed by nearly all historians of Chinese philosophy, both Chinese and Western.

(...)

"In translation:

"In Ch'u there was a man selling shields and spears; he praised (his shields) saying: "(My) shields are so strong that nothing can pierce them". And again he praised his spears saying: "My spears are so sharp that there is nothing they do not pierce". Somebody asked him: "How about your spear piercing your shield?" The man was not able to reply. *Now, a shield which cannot be pierced and a spear for which there is nothing it does not pierce cannot stand at the same time*".

It is clear that the story involves contradictory statements about 'spears and shields', - which latter expression actually came to be used for 'contradiction' in Chinese. But in spite of its intuitive clarity, the passage involves a very specific case of contradiction, yields a fairly complicated formalisation, and certainly gives evidence of the logical keenness of the early Chinese mind." (pp. 272-273 of the reprint, notes omitted)

6. ———. 1966. "Notes on Early Chinese Logic. Part VI." *Rocznik Orientalistyczny* no. 30:31-52.

   Reprinted in Chmielewski (2009), pp. 275-296.

   "VII. The principle of double negation, the law of contradiction and some related problems in early Chinese thought (*Continued*).

   As has been shown in the preceding section, the *Han Fei tsi* story [*] about the weapon-dealer involves a conjunction of

self-contradictory propositions, a conjunction which was explicitly rejected by the compiler of the text (see *RO* XXIX, 2, pp. 136-138). Thus, the story can rightly be considered, first, a good illustration (and one fairly sophisticated at that) of what contradiction is, second, a specific formulation of the principle of non-contradiction." (p. 275 of the reprint)

(...)

"Explicit references to (non-)contradiction made by the Mohist dialecticians and preserved in the 'canonical' chapters (40-43) of the *Mo-tsï* are of a still greater importance, since they, first, are put forward in connection with the practice of dialectic discussion; second, they are concerned with direct contradiction, *(p · p'); and consequently, third, they necessarily involve the problem of excluded middle.

All these points are entirely absent from the *Han Fe tsǐ* story just discussed, and this is perhaps one of the reasons why the story itself has escaped the notice of nearly all historians of Chinese thought, including those pretending to deal with Chinese logic. The Mohist aspect of our problem has, on the contrary, been discussed rather frequently by sinologists, even if not always in adequate terms." (p. 277 of the reprint)

(...)

"In Western sinology, the first statement that the Mohists "recognise the principle of the excluded middle in practice if not in theory" is due to A. C. Graham(6) who - inversely - left out of consideration the law of non-contradiction." (p. 278 of the reprint)

(6) *"Being" in Westem Philosophy compared with shih/lfei and yu/wu in Chinese Philosophy,* "Asia Major", VII, 1- 2, 1959, pp. 79-112. The article is also a contribution to the interpretation of the Mohist 'canonical' chapters, see especially pp. 91- 96.

[*] *The Complete Works of Han Fei Tzŭ,* Translated form the Chinese by W. K. Liao, London: Arthur Probsthain, 1939, Vol. 1, p. 143.

7. ———. 1967. "Linguistic Structure and Two-Valued Logic: the Case of Chinese." In *To Honor Roman Jakobson: Essays on the occasion of his seventieth birthday*, 475-482. The Hague: Mouton.

   "In the present article which is respectfully dedicated to Roman Jakobson I propose to deal at some length with what I consider one of the fundamental problems of the relationships between linguistic structure and logic. The linguistic basis of the article has been deliberately limited to Archaic Chinese (roughly 10th through 3rd cent. B.C.) not only because the writer himself is a sinologist rather than a general linguist, but also for less subjective reasons. Although the problem of the logical aspects of Chinese has been badly mishandled by many philosophically minded traditional sinologists, Chinese is, in fact, a remarkably logical language which perfectly suits our present purpose. It also appears that the results arrived at in relation to Chinese are of no small comparative and general importance." (p. 475, note omitted)

   (...)

   "In sum, from the point of view of two-valued logic Chinese is remarkably logical and presumably is unique among the great langues de civilisation. In this respect it is certainly superior to many Indo-European languages, the logical aspects of which are vitiated by the so-called cumulative negation.(14) These conclusions appear to be rather striking, the more so as Chinese traditionally has been accused of an alleged illogicality (or recently praised for its prelogicality). What use the early Chinese thinkers actually made of their language in their explicit and implicit logic is another matter which lies beyond the scope of the present paper. However, it is perhaps useful to emphasize here that at an early date they arrived at a fairly sophisticated formulation of the principle of non-contradiction and that the dialectical procedure of the Mohists was based on the laws of non-contradiction and of excluded middle." (p. 482, anote omitted)

   (14) Latin appears to be an important exception. It is not without reason that Couvreur's Latin renderings of our Chinese

examples have been cited as both most literal and most adequate. [S. Couvreur, *Les Quatre Livres* (1895)]

8. ———. 1968. "Notes on Early Chinese Logic. Part VII." *Rocznik Orientalistyczny* no. 31:117-136.

   Reprinted in Chmielewski (2009), pp. 297-316.

   "VIII. Some logical aspects of the problem of 'similarity and difference'.

   I briefly alluded to the problem of 'similarity and difference' in connection with a Mohist fragment discussed for another reason in the preceding section, cf. *RO* XXX, 1; p. 42 and footnote 25.[*] In the present chapter I propose to deal at some length with this problem which itself constitutes an important topic of the Mohist dialectics and which is also not without practical implications for the interpretation of some passages in pre-Han texts of non-Mohist origin. As a matter of fact, it may safely be assumed that the notions of 'similarity' (*t'ung*) and 'difference' (*i*) had been widely — but arbitrarily and rather vaguely — used in some philosophical circles, especially among the Taoists and the non-Mohist dialecticians, some time before the compilation of the Mohist 'dialectical chapters', and that the Mohists must have taken these notions from outside their own philosophical tradition(1). Then, in line with their rationalist trend of thought and probably in response to the confusion arising from the use and misuse of these notions by non-Mohist philosophers, the Mohists themselves restated the problem of 'similarity and difference' in their own terms and gave it a prominent place in their dialectical method. Unfortunately, some of the surviving Mohist fragments dealing with (or alluding to) the *tung-i* problem are obscure because of their terseness or corruption (or both) — while others must have been entirely lost from the *textus receptus* (cf. infra, p. 128) — and we are bound to say that the Mohist standpoint together with the specific role of 'similarity and difference' within the whole of the Mohist dialectics cannot be safely reconstructed in detail(2). But on the other hand, some of the fragments concerned, especially those in the 'canonical' chapters, are of such a clarity as to permit us to deal with them in terms of

formalisation. In other words, some of the Mohist ideas about 'similarity and difference' can be safely reconstructed without too much speculation and at the level of formalisation at that, — and these, fragmentary and incomplete as they are, appear to constitute an important Mohist contribution to the elucidation of the notions involved. Furthermore, it appears that the results arrived at through the analysis of the Mohist fragments in question, together with the exegetical notes on the *t'ung-i* problem by some later (pre-T'ang and T'ang) commentators, can throw a new light on the rather obscure non-Mohist passages involving this problem. Accordingly, in the present chapter I am going to deal, first, with the problem of 'similarity and difference' as can be seen in the Mohist fragments (that is, the 'canonical' chapters and, to a lesser extent, the *Ta-ts'ii* chapter of the *Mo-tsi*); second, in connection with the results arrived at in the first part I will try to solve the still controversial problem of Huei Shi's 't'ung-i paradox' recorded in *Chuang-tsi* XXXIII. The discussion of these main topics, however, must be preceded by a few semantic and linguistic considerations on the Chinese terms involved and on the very notions of 'similarity' and 'difference' as well." (pp. 297-298 of the reprint)

(1) There is no mention of or allusion to the *t'ung-i* problem in the extensive body of the *Mo-tsi* except for its (later) dialectical chapters.

(2) Some purely conjectural and far-fetched interpretations of 'similarity and difference' in the Mohist dialectics will be referred to later.

[*] footnote 25: "Fot the time being, cf. the best extant account of the *t'ung-i* problem in GFUng-Bodde, *Ahistory of Chinese Philosophy*, I pp. 262-265)

9. ———. 1969. "Notes on Early Chinese Logic. Part VIII." *Rocznik Orientalistyczny* no. 32:83-103.

Reprinted in Chmielewski (2009), pp. 317-338.

"VIII. Some logical aspects of the problem of 'similarity and difference'(*Continued*).

"The main conclusion of the present discussion is clear: the Mohists must have been at a complete loss if they ever tried to deal with class similarity in a way parallel to the one they so successfully resorted to in the case of class difference, and this time their confusion must have been due not only to the limitations imposed on them by the structural and idiomatic peculiarities of their ordinary language, but also to the logical aspect of the problem itself. This also explains why the second definition of class similarity has been omitted from my previous account. Even if in the case of difference the Mohists emphasised the 'feature aspect' of their problem (and in this case they could do so for both linguistic and logical reasons), their intuitive concept of class similarity mufet necessarily have been connected with the 'identity aspect' rather than the hopelessly confused 'feature aspect' of this particular problem." (pp. 336-337 of the reprint)

10. ———. 1979. "Concerning the Problem of Analogic Reasoning in Ancient China." *Rocznik Orientalistyczny* no. 40:64-78.

    Reprinted in Chmielewski (2009), pp. 339-352.

    Review article of John S. Cikoski, *On Standards of Analogic Reasoning in the Late Chou,* "Journal of Chinese Philosophy" II/3, 1975; pp. 325-357.

    "Probably all sinologists agree that reliance on analogy, whatever this may mean, constitutes one of the salient features of the philosophical thinking of the Chinese. On the other hand, the problem itself has so far not been investigated beyond a few occasional contributions(1), and even the very notion of analogy which is implied in statements about the 'analogical thinking' of the Chinese remains vague. Cikoski's original and stimulating paper is, in fact, the first attempt to deal more thoroughly with analogy and its role in Chinese thought of the Late Chou period, and as such it deserves careful attention. It is most unfortunate that the author's unconventional approach to the problem together with the unnecessarily involved presentation of his contentions make the paper hard reading and are likely to deter many sinologists from giving it the attention it deserves.

The paper has two different levels which should be clearly distinguished. The first of these, which I shall call methodological, is concerned with the author's own mathematical conception of analogy. The second is sinological in the sense that it is intended to constitute an application of the author's theoretical ideas to Chinese source materials. In my opinion, both these levels call for critical remarks.

Roughly one third of the paper deals with the author's conception of analogy, according to which a concept is "the sort of entity called Boolean algebra" (p. 355, footnote 2)(2) and an analogy between concepts is "a homomorphism between Boolean algebras" (*ibid*.). Cikoski also claims "to have demonstrated the mathematical possibility of a calculus of analogies quite independent of, and quite equivalent to, a calculus of propositions" (*ibid*.). As can be seen from these quotations, it would be better for the methodological part of the paper to be reviewed by a professional mathematician rather than a sinologist. It is only fair to emphasize that my remarks concerning the methodological level are merely those of a sinologist who cannot claim competence in what Cikoski calls "a rather abstruse and quite recently-developed branch of modern mathematics" (p. 351)." (pp. 339-340 of the reprint, anote omitted)

(1) Cf., e.g., the chapter *Types of reasoning in Li Ssŭ* in D. Bodde, *Chinas First Unifier*, Leiden, 1938 (pp. 223-232); and D. C. Lau, *On Mencius' use of the method of analogy in argument*, "Asia Major" X/2, 1963, pp. 173-194.

11. ———. 1979. "Quantification Logic and Chinese Grammar." In *A Semiotic Landscape: Proceedings of the First Congress of the International Association for Semiotic Studies, Milan 1974*, edited by Chatman, Seymour, 382-383. The Hague: Mouton.

"As a sequel to my earlier papers concerned with the logical analysis of Chinese, I propose to deal with the problem of how Quantification Logic (QL) operates in Classical Chinese (CC), that is, the written Chinese language of the pre-Christian and early Christian era. For obvious reasons only explicit quantification, that is, actual lexical units which correspond to

a logical quantifier (Q), whether universal (U) or existential (E), and syntactic constructions which contain such explicit Q-terms are considered." (p. 382)

(...)

"Conclusions. The grammatical procedures of quantification in CC constitute a very close 'natural' counterpart to the classical bivalent QL, and an adequate 'quantification grammar' for Chinese must necessarily be based on that part of the logical calculus. This, of course, runs against the traditional opinion that the Chinese language is 'illogical'." (p. 3838)

12. ———. 2009. *Language and Logic in Ancient China: Collected Papers on the Chinese Language and Logic*. Warsaw: Polska Akademia Nauk.

    Edited by Marek Mejor.

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    Language and Logic in Ancient China

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12. Notes on early Chinese logic (VII) (1968) 297;

VIII. Some logical aspects of the problem of ‘similarity and difference’

13. Notes on early Chinese logic (VIII) (1969) 317;

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14. Concerning the problem of analogic reasoning in ancient China [Review article] (1979) 339-352.

"The present volume of the series „Prace Orientalistyczne” contains selected papers on ancient Chinese language and logic by JANUSZ CHMIELEWSKI (1916-1998), an eminent Polish Sinologist and linguist, professor of the University of Warsaw. The selection covers all main contributions of Professor Chmielewski.

All papers are reproduced from the originals published in the journal *Rocznik Orientalistyczny*.

The volume is divided into two parts. In the first part, the Editor gathered five most important papers of Professor

Chmielewski on ancient Chinese language, including his “The typological evolution of the Chinese language” from 1949. In the second part, on ancient Chinese logic, the reader will find the complete set of Professor Chmielewski’s “Notes on early Chinese logic” I-VIII, which won him acclaim of the academia, and, in addition, a paper on the problem of analogic reasoning in ancient China." (From the Editor's Preface)

13. Chong, Chaehyung. 1999. "The Neo-Mohist Conception of "*bian*" (Disputation)." *Journal of Chinese Philosophy* no. 26:1-19.

    Abstract: "In this paper, I challenge previous attempts to allocate Neo-Mohist *bian* into either an art of inference or an art of description. I claim that Neo-Mohist *bian* has both aspects of inference and description. Theories of *lei*[b] (classification, kinds) play a central role in such an interpretation. In this regard, an interpretation emphasizing one aspect without the other fails to catch the real nature of Neo-Mohist *bian*."

    "1. *General Conception of Bian in Ancient China*

    Bian[a] in Classical Chinese literally means both 'fluency in language' and 'discrimination'. Therefore in its ordinary use, it is interchanged with the term *bian*[c] (discrimination). However, in Classical Chinese philosophy especially in the 4th and 3rd centuries B. C., *bian* is a technical term to refer to an art of disputation or argumentation. As the *zhouli*[d] (the rituals of Zhou dynasty), which had been regarded as the received moral system, weakened at that time, most Chinese philosophical schools freely participated in heated disputations in order to defend their respective moral claims and defeat rival claims." (p. 1)

14. ———. 2013. "Xunzi’s Sanhuo (Three Types of Cognitive Delusions)." *Journal of Chinese Philosophy* no. 39:424-435.

    Abstract: "This article explicates Xunzi’s three types of cognitive delusions in *Xunzi’s Zhengming Pian*. The followings are my conclusions: first, general names such as “a white horse,” “a horse,” “a thief,” and “a

man" are thought of as proper nouns because the classic Chinese theory of language concerned pragmatics rather than semantics.

Second, classic Chinese epistemology does not address conceptual (logical) knowledge or knowledge based on argumentation distinguished from the art of description.Third, Gongsun Long believes in an extreme form of one-name-one-thingism. Fourth, Neo-Moists' theory of inference is based on intensional contexts. Fifth, Hui Shi's position presupposes the art of knowing objects before any verbal expression and suggests the arbitrariness in the expressions of known objects. Sixth, Xunzi's logic and semantics are extensional. "

15. Chong, Kim-chong. 2006. "Metaphorical Use versus Metaphorical Essence: Examples from Chinese Philosophy." In *Davidson's Philosophy and Chinese Philosophy: Constructive Engagement*, edited by Mou, Bo, 229-246. Leiden: Brill.

"In the present essay, I shall do the following. First, I develop further thoughts about Davidson's view of metaphor. In one respect, Davidson's conception of metaphor is too narrow. Davidson stresses that a metaphor cannot be paraphrased wholly without remainder.

But this conception is unnecessary to Davidson's position, because it easily leads to an essentialist view of metaphor, one that holds that there must be an inherent meaning to metaphor. At the same time, however, Davidson maintains that the way to understand metaphor is through its use, not through the idea of its meaning. This claim liberates us from the narrow conception, which includes what I shall refer to as essentialist conceptions of metaphor. Thus, the second thing I shall do in this essay is to argue against such essentialist conceptions and their application to the understanding of some aspects of Chinese philosophy. I have already discussed one such conception in my earlier essay on the *Zhuang-Zi* [*], namely, Robert Allinson's.

While I shall briefly repeat what I have said there, the main focus of the present paper will be a more extended discussion of the Lakoff and Johnson model. In particular, I shall discuss the

application of the model by Edward Slingerland to philosophical texts such as the *Zhuang-Zi,* the *Xun-Zi* and the *Analects*." (p. 230)

[*] Chong, Kim-chong (2006), "*Zhuang Zi* and the Nature of Metaphor", *Philosophy East and West* 56:3, pp. 370-391.

16. ———. 2020. "Analogical and Metaphorical Thinking in the *Mencius, Xunzi* and *Zhuangzi*." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 351-367. Cham, Switzerland: Springer.

    "We mentioned D. C. Lau's [*] remarks about the indispensable and wide use of the method of argument by analogy for philosophical problems in the fourth and third centuries BCE in China, to the extent that the Mohist Canons deals with it in some detail. There is therefore a history and a context for debates about these problems.

    We have focused in this essay on debates about human nature and the nature of human agency. Someone unfamiliar with the contexts of debate may not be alert to the arguments, thinking perhaps that a particular writer is only giving a lively description with his analogies. For instance, someone who reads Zhuangzi's fanciful description of the heart-mind in the Qiwulun without an understanding of the Confucian model of the heart-mind as ruler will miss the critical nature of his description. Similarly, there is a critical context for Xunzi's distinction between capacity and ability as seen in the light of Mencius's statements about their equivalence in terms of an organic model of the heart-mind." (p. 367)

    [*] Dim Cheuk Lau, "On Mencius' Use of the Method of Analogy in Argument", *Asia Major*, 10, 1963, pp. 173-194.

17. Chunpo, Zhang, and Jtalong, Zhang. 1997. "Logic and Language in Chinese Philosophy." In *Companion Encyclopedia of Asian Philosophy*, edited by Carr, Brian and Mahalingam, Indira, 562-575. New York: Routledge.

    "To sum up, logical investigations in ancient China achieved excellent results. Chinese logic runs parallel to Greek and to Indian logic, and so is one of the three great traditions of logic

in the world. On the other hand, we must recognize that Chinese logic did not develop after the Warring States Period. *Hetuvidyā* (Indian syllogistic logic) spread to China in the sixth century, but research in *hetuvidyā* declined before long. The underlying causes of the lack of development of Chinese logic were that the feudal rulers enjoyed cultural autocracy, which strangled the development of logic, and that the Chinese written character is not alphabetic so it is difficult to introduce logical variables in Chinese.

Classical logic spread to China in the seventeenth century, and modern logic in 1920. Now there is a contingent of modern logicians in China." (p. 575)

18. Cikoski, John S. 1975. "On Standards of Analogic Reasoning in the Late Chou." *Journal of Chinese Philosophy* no. 2:325-357.

    Abstract: "A theory of analogic reasoning is established in which concepts are equated with boolean algebras and analogies with homomorphisms. The functional equivalence of analogic reasoning thus defined to propositional logic is shown. Chinese philosophers of the late Chou are shown to have been well acquainted with the rules governing the rigorous use of analogic reasoning."

19. Cua, Antonio S. 1985. *Ethical Argumentation: A Study in Hsün Tzu's Moral Epistemology*. Honolulu: University of Hawaii Press.

    "This study is a philosophical reconstruction of an aspect of Hsün Tzu's ethical theory by way of an attempt to set forth a Confucian conception of argumentation. After presenting a profile of the fundamental elements of ethical argumentation (Chapters 1 and 2), I turn to the problems of ethical reasoning and the use of quasi-definitional formulas for explanation of meaning and enunciation of standards for assessing ethical judgments (Chapter 3). The study concludes with a discussion of Hsün Tzu's diagnosis of erroneous ethical beliefs, as exemplified in different types of linguistic confusions (Chapter 4)." (Preface, p. XIII)

    (...)

"Hsün Tzu's essay "Rectifying Terms"[*] (*cheng-ming pen*) is justly considered a work of "great logical interest,"(1) because, in this essay, one finds a remarkably modern concern with such topics as the rationale for having terms, the empirical and pragmatic bases for the classification of terms, the formation of generic and specific terms, the importance of observing established linguistic practices, the necessity of complying with proper standards for the institution and ratification of the uses of language (*chih-ming*), the nature of argumentative discourse (*pien-shuo*), and the problems inherent in successful linguistic communication. A careful examination of some passages in other essays also suggests an awareness of the distinction between deductive, inductive, and analogical inferences." (p. 1, a note omitted)

(1) Fung Yu-lan, *A History of Chinese Philosophy*, trans. Derk Bodde (Princeton: Princeton University Press, 1952), vol. 1, p. 303.

[*] Englsih translation in *Xunzi. The Complete Text*, Translated and with an Introduction by Eric L. Hutton, Princeton: Princeton University Press 2014, pp. Chapter 22: *Correct Naming*, pp. 236-247.

20. D'Ambrosio, Paul J., Kantor, Hans-Rudolf, and Moeller, Hans-Georg. 2018. "Incongruent Names: A Theme in the History of Chinese Philosophy." *Dao: A Journal of Comparative Philosophy* no. 17:305-330.

Abstract: "This essay is meant to shed light on a discourse that spans centuries and includes different voices. To be aware of such trans-textual resonances can add a level of historical understanding to the reading of philosophical texts. Specifically, we intend to demonstrate how the notion of the ineffable Dao 道, prominently expressed in the Daodejing 道德經, informs a long discourse on incongruent names (*ming* 名) in distinction to a mainstream paradigm that demands congruity between names and what they designate. Thereby, we trace the development of the idea of the ineffable Dao quite differently from modern mystical interpretations. We show how, in an early Chinese context, it first gives rise to a

sociopolitical critique of the incongruity underlying socially constructed names in the Zhuangzi 莊子, then to a discourse on the incongruity between moral virtues and names in Xuanxue 玄學philosophy, and eventually to Sengzhao's 僧肇claim that a perceived congruence of names with things does not entail actual congruence between names and reality."

21. Daor, Dan. 1974. *The Yin Wenzi and the Renaissance of Philosophy in Wei-Jin China*, London.

    Unpublished Ph.D thesis available at https://eprints.soas.ac.uk/33991/1/11015786.pdf

    Abstract: "This thesis is an attempt to bring together three main themes: 1.The authorship of the YWz. 2. The renaissance of philosophical activity in Wei-Jin China.And 3. Problems related to the Chinese view of "naming" and the relation of words to things.

    The first part deals exclusively with the dating of the YWz and reaches the conclusion that the beginning of the third century A.D. is the most likely date. Seen against the philosophical background of the period the importance of the YWz is made clear, and the book id shown to be the work of an original and independent philosopher .A comparison is drawn with other books of the time, mainly Wang Bifs LWL, and its theory of "names and shapes" is discussed.This is shown to be a major step in the elucidation of the Confucian dictum on the "correct use of names" and the articulation of the pre-Han "names and actualities" problem.Together with the distinction between names and referers serves to clarify the question of "words and meanings" which leads to an interpretation of Wang Bi's LWL. The third and fourth chapters are translations of the YWz and the LWL respectively."

    YWz = Yin Wenzi

    LWL = Laozi weizhi lilue

22. De Reu, Wim. 2006. "Right Words Seem Wrong: Neglected Paradoxes in Early Chinese Philosophical Texts." *Philosophy East and West* no. 56:281-300.

"Well-known versus Neglected Paradoxes

Almost all well-known early Chinese paradoxes can be found in a mere three chapters of literature. They appear in short lists compiled by intellectual opponents. First, the chapter "Tianxia" (*Under heaven*) of the *Zhuangzi* gives a description of the philosophies of some Warring States thinkers and ends with a discussion of the thought of Hui Shi. The author of this chapter enumerates ten paradoxical statements ascribed to Hui Shi, followed by a list of twenty-one paradoxes used by the *bianzhe* (disputers) in debate with Hui Shi. Further, the chapter "Zhengming" (Rectifying names) of the *Xunzi* presents a threefold classification of paradoxes.

It includes, among others, paradoxes propounded by the Later Mohists as well as by Song Xing, Hui Shi, and Gongsun Long Finally, another chapter of the *Xunzi*, "Bugou" (Nothing indecorous), attributes a short list of five paradoxes to Hui Shi and Deng Xi." (p. 281, Chinese text and notes omitted)

(...)

"There is no reason to suppose that the number of ancient Chinese paradoxes is limited to the statements found in the ready-made lists. Scrutinizing the early philosophical writings, one readily discovers that quite a few paradoxes appear outside these lists. In contrast to their more famous counterparts, these paradoxes are often found embedded in their original contexts. While this contextual information opens the way to a better-founded interpretation, up to now the paradoxes have been marginalized and treated in an unsystematic way that does not take into account the immediate contexts in which the paradoxes are uttered. As a result, these paradoxes constitute a relatively new field of study. The present article makes a first attempt in exploring this field of neglected paradoxes." (p. 282)

23. Dubs, Homer H. 1956. "Y. R. Chao on Chinese Grammar and Logic." *Philosophy East and West* no. 5:167-168.

"Professor Y. R. Chao's "Notes on Chinese Grammar snd Logic" (1) demonstrate to Occidental philosophers that much of their logic is merely a restatement of what is implicit in the grammar

of the Indo-European languages spoken by these logicians. Since the languages spoken in Europe and America are genetically related, all possess fundamentally similar grammatical characteristics. Hence, Occidental logicians, who know only Indo-European languages, have come to think of these grammatical characteristics as necessary in any logical reasoning. If these logicians had also spoken an African or non-Aryan Asiatic language, they might have reached quite different conclusions." (p. 167)

(...)

"The conclusion appears inescapable that language has played a very large part in philosophy, and that the characteristics of Indo-European languages have been determinativein the formation and development of certain features in symbolic logic and in European philosophy, since thinking follows the patterns of speech and its grammar. How, then, can those who speak only Indo-European languages formulate a philosophy that will avail for non-Indo-EuropeaN speaking peoples?" (P. 168)

(1) 1n *Philosophy East and West*, V, No. I (April, 19S5), 31--41.

24. Duyvendak, J. J. L. . 1924. "Hsün-tzŭ on the Rectification of Names." *T'oung Pao* no. 23:221-254.

"The 16th chapter of the work known as *Hsün-tzü* which forms the 22nd book, is called *Cheng-ming- p'ien* "On the rectification of names", or, as it might perhaps be better rendered, "On the correct use of terminology"." (p. 221, Chinese terms omitted)

(...)

Hsün-tzü would not have been a Chinese philosopher, had not ethics held his primary interest. Yet, as one of the few attempts to found a Chinese logic, his chapter deserves our attention. More than once, it seems to me, he surprizes us by remarkable definitions. His view as to the origin and the nature of language, his theory of knowledge, his attempt to establish classifications, to fix individuality, and even the end of the chapter, which shows that only a mind which is free from the

bias of uncontrolled desires can find truth, - and with it, happiness -, are well worthy of consideration. As Hu Shih has pointed out [*], it is a matter of great regret that these beginnings of logic, attempted by *Hsün-tzü*, the Neo-Mohists and some others, have not been continued. The history of Chinese thought might then have been very different from what it is now." (pp. 223-224)

[*] *The Development of the logical method in ancient China.*

[English trnaslation of the Chapter 16, "The rectification of terminology", pp. 224-254]

25. Feng, Cao, and Harroff, Joseph E. 2008. "A Return to Intellectual History: A New Approach to Pre-Qin Discourse on Name." *Frontiers of Philosophy in China* no. 3:213-228.

    Abstract: "Discussions of name {*ming*) during the pre-Qin and Qin-Han period of Chinese history were very active. The concept *ming* at that time can be divided into two categories, one is the ethical-political meaning of the term and the other is the linguistic-logical understanding. The former far exceeds the latter in terms of overall influence on the development of Chinese intellectual history. But it is the latter that has received the most attention in the 20th century, due to the influence of Western logic. This has led to the result of a bias in contemporary studies of *ming*. Changing course by returning to the correct path of intellectual history can providing an objective and thorough ordering of pre-Qin discourse on *ming*."

26. Feng, Youlan (Fung Yu-lan). 1947. *The Spirit of Chinese Philosophy*. London: Kegan Paul, Trench, Trubner & Co.

    First Chinese edition 1947; second edition Boston: Beacon Press 1962.

    Translated by E. R. Hughes.

    Chapter III: *The Dialecticians and Logicians* 45-58.

    "The above is an exposition of what we mean by " transcending shapes and features ".[*] In the history of Chinese philosophy, the first philosophy really of this kind of transcendence was the philosophy of the Logicians [*Ming Chia*, lit. Name School), the

title given to the earliest specialists in logic in the fourth and third centuries B.C.

The Ming Chia logicians followed after the Dialecticians (Pien Che) , of whom the greatest teachers were Hui Shih and Kung-sun Lung." (pp. 47-48).

(...)

"Kung-sun Lung also wrote a *Discussion on Chih* (*Universals*) and Things, His main proposition there was, " There are no things which do not entail universals, but a universal is not universal."

Thus things and universals are opposites. He also said, " Heaven and Earth and what it brings into existence are things. A thing is no more than a thing (i.e. a concrete actuality). It is also no less than a concrete actuality. It has a position." {*Ming Shih Lun*.)

To use the terminology of Western philosophy, things are particulars, having position in space and time. A *chih* is a universal, a thing is a particular. A thing may be analysed into a number of universals. It is a number of universals put together.

But a universal cannot be split up into a number of universals.

Therefore, as was said, " There are no things which are not universals, but a universal is not universal." Examine a universal and it is but one universal. Each universal is separate from any other. This is what is said in Kung-sun Lung's " In the world each stands alone and is true." {Chien Pai Lun.)" (p. 57)

[*] " Shapes and features " is a literal translation of Dr. Fung's Chinese, which, it should be noted, is a common term in Chinese philosophy. One's first impulse was to translate by " the phenomenal ". It may be thought that, as " phenomenal " is antithetical to noumenal this is correct. But there is no such antithesis in Chinese philosophy. Further " shapes and features " has a vivid quality of its own ; and who can tell whether some useful train of thought may not arise from the Western reader being reminded that the world of the phenomenal is a world of shapes and features ? (E. R. Hughes.) Note at p. 45.

27. ———. 1948. *A Short History of Chinese Philosophy*. New York: Macmillan.

Edited by Derk Bodde. Reprinted in *Selected Philosophical Writings of Fung Yu-lan*, Beijing: Foreign Languages Press 1991, pp. 191-567.

Chapter 8: *The School of Name*s 80-92.

"The term *Ming chia* has sometimes been translated as "sophists," and sometimes as "logicians" or "dialecticians." It is true th.at there is some similarity between the *Ming chia* and the sophists, logicians,

and dialecticians, but it is also true that they are not quite the same.

To avoid confusion, it is berter to translate *Ming chia* Iiterally as the Schoof of Names. This translation also helps to bring to the attention of Westerners one of the importanr problems discussed by Chinese philosophy, namely that of the relation between *ming* (the name) and *shih* (the actuality)." (p. 80)

Chapter 11: *The Later Mohists* 118-128.

"In the *Mo-tzu,* there are six chapters (chs. 40-45) which differ in character from the other chapters and possess a special logical interest.

Of these, chapters forty to forty-one arc titled "Canons" and consist of definitions of logical, moral, mathematical, and scientific ideas.

Chapters forty-two to forty-three are titled "Expositions of the Canons," and consist of explanations of the definitions contained in the preceding two chapters. And chapters forty-four and forty-five are titled "Major illustrations" and "Minor Illustrations" respectively.

In them, several topics of logical interest are discussed. TIle general purpose of all six chapters is to uphold the Mohist point of view and refute, in a logical way, ilie arguments of the School of Names. The chapters as a whole are usually known as the "Mohist Canons"."

(...)

"The Mohists as well as some of the Confucianists, on the other hand, were philosophers of common sense. Though the two groups differed in many ways, they agreed with one another in being practicaL

In opposition to the arguments of the School of Names, they developed, almost along similar lines of thought, epistemological and logical theories to defend common sense. These theories appear in the "Mohist Canons" and in the chapter titled "On The Rectification of Names" in the Hsün-tzü, the author of which, as we shall see in chapter thirteen, was one of the greatest Confucianists of the early period." (pp. 118-119)

28. ———. 1952. *A History of Chinese Philosophy: Vol. I. The Period of the Philosophers (from the Beginning to circa 100 b.C.)*. Princeton: Princeton University Press.

Translated by Derk Bodde with introduction, notes, bibliography and index. First Chinese edition 1931; first English edition 1937.

"Save for the present added section, the text of this edition remains unchanged from that of the first edition as published by Henri Vetch in Peiping in 1937." *Revisions and Addtions*, [to the second edition] pp. XXI-XXXIV.

Chapter IX: *Hui Shih, Kung-sun Lung and the Other Dialecticians,* pp. 192-220.

"There was one group of philosophers which was known as the School of Names (*ming chia*) by Han scholars, but which during the Warring States period was generally known as the School of Forms and Names (*hsing ming chia*) or as the ' Dialecticians' (*pien che*).

Thus the *Chuang-tzü* (ch. 12) says: "The Dialecticians speak about the ' separateness of hard and white,' as if these could be hung up on different pegs" (p. 144). Again (ch. 33) : " Through such sayings Hui Shih II made a great show in the world, and taught them to the Dialecticians. The Dialecticians in the world were delighted with them .... Huan T'uan and Kung-sun Lung

were followers of the Dialecticians " (pp. 451-452). These quotations are evidence of the prominence of this philosophic group during the period, and of the general application to it of the term, ' Dialecticians. '

The works of the Dialecticians, with the exception of the partially preserved *Küng-sun Lung-tzü,* have all been lost. What we know to-day about the doctrines of Hui Shih and the other Dialecticians is mostly derived from the paradoxes recorded in Chapter XXXIII of the *Chuang-tzü*. These paradoxes represent only the final conclusions arrived at by the Dialecticians, leaving us with no means of knowing the steps of reasoning by which they reached their conclusions. Logically speaking, one and the same conclusion may be arrived at from different premises, so that if we know only the conclusion, it is impossible to know from which of the many possible premises it was reached. Therefore, a strictly historical study of the paradoxes of Hui Shih and the other Dialecticians is impossible, since we are left wholly free to supply our own premises and explanations for these conclusions, quite independent of the ones which were actually used."

Chapter XI: *The Later Mohist School*, pp. 246-278.

29. Fleming, Jesse. 2009. "A Set Theory Analysis of the Logic of the *Yijing*." *Journal of Chinese Philosophy* no. 36:37-47.

The original version of this article was published in *Journal of Chinese Philosophy* 20, no. 2 (Jun 1993): 133–146

"To many Western academic philosophers, the ancient Chinese text known as the *Yijing* (the *Book of Changes*) is merely a mosaic of images arbitrarily arranged, with no discernible “logic.” The novice student of the *I* often feels he is in a dreamlike world, a maze where ordinary canons of reason do not apply. In order to further the demystification begun long ago by the great German sinologues Richard and Hellmut Wilhelm, we may take as our point of analytic entry into the *I* the question, “In what ways do the *I*’s logical structure and implied logical postulates conform/contribute to modern theories of modal logic, multi-value logic, and set theory?”(1) Our initial methodological premise will be that, as the *I* is a

unique blend of proto-Confucian and proto-Daoist ideas, the logic of the *I* incorporates many of the alogical axioms and assumptions that permeate Daoist thinking. By elaborating on the "Taoistic logic" found in the *I*, and by comparing it with Western set theory, modal logic, and so on we may clarify the profound, but obscure, philosophy of the *I* by identifying some interesting parallels and paradigms shared by the ancient *Yijing* and modern Western philosophy of logic; we may even discover that the *I*'s logical structure offers something new to Western theorists of logic." (p. 37)

(1) Following Wilhelm, I will use "*I*" as the phonetic transliteration of (rather than the common alternative *yi*); also following Wilhelm, I will frequently abbreviate *Yijing* as simply *I*, as this is what the Chinese commentaries themselves do; and finally, I will usually cite the Wilhelm/Baynes translation (with accompanying page reference to the English text published by Princeton University Press, 1978—for ease of reference), unless I think their translation is misleading, in which case I note that the translation is mine.

References

Hellmut Wilhelm, *Heaven, Earth, and Man in The book of Changes: Seven Eranos Lectures*, Seattle: University of Washington Press 1977.

30. Forke, Alfred. 1902. "The Chinese Sophists." *Journal of the North China Branch of the Royal Asiatic Society* no. 34:1-100.

"In the 4th and 3rd centuries B.C. we can distinguish five different schools of thought in China. Their founders are Confucius, the moralist and ritualist, Chuang Tse, the mystic and pantheist, Mê Ti, the philanthropist and optimist, Yang Chu, the Epicurean and pessimist, and the sophists Hui Shih and Kung Sun Lung(1). The two latter schools must have had a very ephemeral existence. They left scarcely a trace behind them(2). Of the three former that of the Mihists [Mohists] for a long time held its own against the orthodox school of Confucius which at last succeeded in supplanting it.

The technical Chinese term for Sophist is pien shih, literally a disputant, a debater, a controversialist." (p. 6)

(...)

"In the interesting catalogue of ancient works contained in the *Han-shu* [Cap. XXX] the sophists are very appropriately classed together with the Dialecticians(3) of which altogether seven are enumerated : Têng Hsi, Yin Wên Tse, Kung Sun Lung Tse, Chêng Kung Shêng, Hui Tse, Huang Kung, and Mao Kung. The works of the three first-named are still extant, the others lost. Of these dialecticians Têng Hsi, Kung Sun Lung, Hui Tse, and perhaps Mao Kung, are looked upon as sophists. Mao Kung is said to have lived contemporaneously with Kung Sun Lung, of whom I am going to speak more in detail, and to have professed very similar views. Of Cheng Kung Shêng and Huang Kung we learn that they flourished about the time of Li Sse, the famous minister of Chin Shih Huang Ti [C. B.C. 208]. Huang Kung was a great scholar in Ch'in and wrote poetry which was incorporated in the Collection of Poetry of the Ch'in dynasty published in the Han dynasty." (p. 8)

(1) 1 *Chuang Tse*, XXIV, 17.

2 On Yang Chu [cf. my paper in the *Transactions of the Peking Oriental Society*, Vol. III, No. 3].

(3) Mayers' rendering of [Manual, p. 343] as the school of writers on official station is not correct. The discussions of the dialecticians have a much wider scope than official station, which, it is true, is very frequently touched upon by them.

31. Fraser, Chris. 2003. "Introduction to Graham, Later Mohist Logic, Ethics and Science." In, XVII-XXXIV. Hong Kong: Chinese University Press.

Introduction to the reprint of 2003.

"A. C Graham's *Later Mohist Logic, Ethics and Science* was a landmark in the study of classical Chinese thought. By far the most thorough, discipJined, and systematic reconstruction and interpretation of the later Mohist texts ever published,

Graham's work opened up new vistas in the study of ancient Chinese philosophy and science." (p. XVII)

(...)

"In praising Graham's many interpretive achievements, I have been focusing on the numerous details of his account lhat are convincing or clearly make so!id contributions to our understanding of the later Mohists.

I have not yet mentioned the most prominem aspect of his interpretive work. his account of the overall aims of the text and the fundamental nature of later Mohist ethics. semantics, logic. and epistemology.* This, unfortunatelv,, must be considered the area in which further study is least likely to corroborate his conclusions." (p. XXIV)

* For a concise, accessible summary of Graham's interpretation, see pp. 137-170 of his *Disputers of the Tao* {Open Court, 1980). much of which is a revised version of *Later Mohist Logic* § 1.1. Students of the canons should note that Graham there modifies his interpretation of Canons A 50 and A 51 {see pp. 142-143 where the canons labeled A 40-41 are in fact A 50-51).

32. ———. 2007. "Language and Ontology in Early Chinese Thought." *Philosophy East and West* no. 57:420-456.

"In *Language and Logic in Ancient China* (1983), Chad Hansen proposes that the semantics of Classical Chinese nouns is similar to that of English mass nouns, a view he calls the "mass noun hypothesis."

(...)

"In this article, I review critical responses to Hansen and present a new critique of my own."

(...)

"Section 2 summarizes the two-core interpretive hypotheses that Hansen presents in chapter 2 of *Language and Logic* and distinguishes them from two distinct, less plausible claims with which they are run together. The next two sections lay the groundwork for my subsequent arguments by explaining the

distinction between word class and word function (section 3) and clarifying key features of mass nouns and their semantics (section 4). Section 5 presents and evaluates Hansen's argument from mass nouns, concluding that it is unsound. Sections 6 and 7 review critical responses to Hansen, attempting to clear up several misunderstandings and clarify where his critics were on the mark and where not. Section 7 also briefly rebuts two competing accounts of the nature of Classical Chinese nouns. Section 8 summarizes the Mohists' and Xunzi's accounts of the relation between things and the kinds to which they belong, showing that the considerations Hansen cites in fact play no role in their theories. Section 9 reviews textual evidence for attributing mereological views to early Chinese thinkers, concluding that the evidence is limited but credible." (pp. 420-421)

33. ———. 2007. "More Mohist Marginalia: A Reply to Makeham on Later Mohist Canon and Explanation B 67." *Journal of Chinese Philosophy and Culture* no. 2:227-259.

    Abstract: "A new interpretation is presented of Mohist Canon and Explanation B 67 that clarifies the grarnrnar and significance of these difficult passages while critiquing and building on previous work by Graham, Hansen, and Makeham. A novel feature of the interpretation is that it reads a pair of verbs in the second sentence of the Explanation putatively, instead of declaratively. A consequence of the interpretation is that on the Mohist theory of disputation (*bian*), it is undecidable whether a fusion (*jiān*) of two things falls within the extension of the term for either constituent of the fusion. The Mohists' view seerns motivated by an irnplicit attitude that, although a fusion of two kinds of things can be regarded as a single object, it nevertheless fundamentally remains a sum of different kinds of objects. Canon and Explanation B 67 thus irnplicitly place a lirnitation on the Mohist's conception of a fusion (*jiān*) and highlight a conceptual gap in their theory of disputation."

34. ———. 2009. "The Mohist School." In *History of Chinese Philosophy*, edited by Mou, Bo, 137-163. New York: Routledge.

"The Mohist school was among the most influential philosophical and social movements of pre-Han China. It was devoted to practicing and promulgating the teachings of a man named Mo Di (墨翟) (fl. ca 430 BCE), who became known as Mo Zi (墨 子), or Master Mo. Mo Zi and his followers were the originators of philosophical argumentation in China." (p. 137)

(...)

"The first two sections of this essay sketch the historical background to and sources for Mohist thought. Section 4 summarizes the ten doctrines that make up the heart of the Mohists' reform agenda. Section 5 describes the fundamental aim and orientation of their social and philosophical project. Sections 6 and 7 introduce their political and ethical theories, while the next two sections give a brief overview of their epistemology, philosophy of language, and logic. The concluding section describes the decline of the Mohist movement during the Qin and Han dynasties. (p. 138)

(...)

"9 Language and Logic

The Mohist *Dialectics* presents a naturalistic semantic theory on which referential relations between general terms and objects are explained by speakers' associating names (*ming*, words or terms) with kinds (*lei*) of similar things. As in the *Analects* of Confucius, the other parts of the Mo-Zi, and the Xun-Zi, theoretical attention focuses on the issue of applying names to things correctly, and not on the structure or truth of sentences. Unlike traditional Western theories of language, such as Lockean conceptualism, the Mohists do not explain the relation between language and the world by appeal to mental ideas or meanings that words stand for. Instead, speakers communicate by mastering practices for distinguishing the referents of names for various things. By virtue of these practices, members of the same language community know that each general term stands for all similar things of a certain kind." (p. 158)

35. ———. 2012. "Truth in Mohist Dialectics." *Journal of Chinese Philosophy* no. 39:351-368.

    Abstract: "The article assesses Chad Hansen's arguments that both early and later Moist texts apply only pragmatic, not semantic, terms of evaluation and treat "appropriate word or language usage," not

    semantic truth. I argue that the early Moist "three standards" are indeed criteria of a general notion of correct *dao* 道(way), not specifically of truth. However, as I explain, their application may include questions of truth. I show in detail how later Moist texts employ terms with the same expressive role as ". . . is true." Thus, *contra* Hansen, the Moists can justifiably be said to have a concept of semantic truth."

36. ———. 2013. "Distinctions, Judgment, and Reasoning in Classical Chinese Thought." *History and Philosophy of Logic* no. 34:1-24.

    Abstract: "The article proposes an account of the prevailing classical Chinese conception of reasoning and argumentation that grounds it in a semantic theory and epistemology centered on drawing distinctions (*biàn*) between the similar and dissimilar kinds of things that do or do not fall within the extension of 'names' (*míng*). The article presents two novel interpretive hypotheses. First, for pre-Hàn Chinese thinkers, the functional role associated with the logical copula is filled by a general notion of similarity or sameness (*tóng*). Second, these thinkers' basic explanation of reasoning is that it is a process of moving from a comparison of whether something is similar to a 'model' or 'standard' (*fˇa*) to a judgment about whether that thing is part of a certain kind (lèi). Classical texts treat judgment as the attitude of predicating a 'name' of something, or, equivalently, of distinguishing whether something is the kind of thing denoted by a certain term. Reasoning is treated as a process of considering how some acts of term predication, or drawing distinctions, normatively commit one to making further, analogous predications or drawing further, analogous distinctions. Inference is thus understood as the act of distinguishing something as a certain kind of thing as a result

of having distinguished it as similar to a relevant ‘model’ or ‘standard’. The article concludes by summarizing the consequences of the proposed account of early Chinese semantic and logical theories for the interpretation of other areas of classical Chinese thought."

37. ———. 2016. "Language and Logic in the Xunzi." In *Dao Companion to the Philosophy of Xunzi*, edited by Hutton, Eric L., 291-321. Dordrecht: Springer.

    "The Xunzi is among our most valuable sources for early Chinese philosophy of language and logic. Xunzi’s views on language and dialectics are of great interest in their own right, but they also form an integral part of his broader ethical, political, epistemological, and metaphysical theories.

    (…)

    Xunzi’s semantic and logical theories are largely consistent with those of the path-breaking Mohist “Dialectics,” (2) suggesting that their shared features, along with those of relevant discussions in the Confucian *Analects* and *The Annals of Lü Buwei*, represent the prevailing, mainstream approach to language and logic in classical China. Xunzi adopts much the same conceptual apparatus as the Mohists but develops and extends it in several respects. His semantic theory in particular complements the Mohist treatment by filling an important explanatory gap concerning the basis for kind distinctions and by helping to resolve certain conceptual puzzles that emerge from Mohist thought. This semantic theory is intertwined with a theory of perception that presents an intriguing counterpart to representational theories familiar from the Western tradition. Xunzi’s views on language and logic present interpretive and justifi catory problems of their own, however, which as we will see are in some respects indicative of fundamental diffi culties in his ethical and political philosophy." (pp. 281-292)

    (2) The Mohist “Dialectics” (“Mo Bian”) are six books of the Mozi that present an extensive treatment of language and logic, among other topics. For detailed discussions, see Graham (1978), Hansen (1992), or Fraser (2005a).

References

Fraser, Chris. 2005a. “Mohist Canons.” The Stanford Encyclopedia of Philosophy , ed. E. Zalta. <http://plato.stanford.edu/archives/spr2011/entries/mohist-canons/

Graham, A.C. 1978. *Later Mohist Logic, Ethics, and Science*. Hong Kong: Chinese University Press.

Hansen, Chad. 1992. *A Daoist Theory of Chinese Thought*. New York: Oxford. (Includes a lengthy chapter on Xunzi, with a detailed discussion of his philosophy of language.)

38. ———. 2016. *The Philosophy of the Mòzǐ: The First Consequentialists*. New York: Columbia University Press.

Chapter 2: *Epistemology and Logic: Drawing Distinctions,* pp. 49-76.

"Mohist epistemology is also of special interest as part of an intriguing network of views on language, mind, and action that constitute a shared background for much classical Chinese thought. This epistemology had a major influence - both as a constructive resource and as a target of criticism - on other classical schools of thought, especially those represented in the *Xúnzǐ*, a collection of Ruist writings, and the *Zhuāngzǐ,* an anthology of Daoist texts.

This chapter presents an interpretation of early Mohist epistemology and logic and explains how their assumptions in these areas shape their ethics and psychology. For brevity, the chapter treats only the "Triads" and "Dialogues."(2)

I argue that Mohist epistemology and logic are built around four core notions: *shì* ("this" or "right") versus *fěi* ("not" or "wrong"), *biàn* (drawing distinctions), and *fǎ* (models). I first introduce these basic notions and then discuss how the Mohists apply them to treat knowledge and reasoning." (p. 50)

39. ———. 2020. "Paradoxes in the School of Names." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 285-307. Cham (Switzerland): Springer.

"Any discussion of early Chinese paradoxes must acknowledge a pair of important caveats. First, since the extant sources provide little or no context for most of the paradoxes, interpretation is often partly conjectural and in some cases highly speculative. Accordingly, I will try to make explicit which aspects of the interpretations presented here seem well grounded and which are open to doubt. Second, unsurprisingly, given the obscurity of the texts, for any one paradox a plurality of divergent interpretations can be found in the literature. Indeed, in the case of Gongsun Long, scholars disagree not only about how to interpret the texts but also about which texts to interpret, some researchers accepting all five discourses attributed to Gongsun Long as authentic pre-Han writings, some rejecting half as apocryphal.

This brief survey cannot attempt to do justice to every significant interpretation of each paradox. Instead, I will try to present a coherent set of reasonably plausible interpretations while using the notes and bibliography to call readers' attention to other important readings." (p. 288)

40. ———. 2020. The Mohist Dialectics.

    Digital supplement to part IV of *The Essential Mòzi˘* (Oxford: Oxford University Press, 2020),

41. ———. 2021. "Realism about Kinds in Later Mohism." *Dao. A Journal of Comparative Philosophy* no. 20:93-114.

    Abstract: "In a recent article in this journal [*], Daniel Stephens argues against Chad Hansen's and Chris Fraser's interpretations of the later Mohists as realists about the ontology of kinds, contending that the Mohist stance is better explained as conventionalist. This essay defends a realist interpretation of later Mohism that I call "similarity realism," the view that human-independent reality fixes the similarities that constitute kinds and thus determines what kinds exist and what their members are. I support this interpretation with a new, detailed account of the Mohist conception of a kind on which kind relations lie in inherent similarities between the intrinsic features of objects. This account distinguishes kind relations from "uniting together" and part-whole relations, both

of which, unlike kind relations, may be determined by convention. I argue that Stephens's critique of realist interpretations fails because it confuses the ontological issue of what determines the existence of kinds with the semantic issue of what fixes the names for kinds."

[*] *Realism and Conventionalism in Later Mohist Semantics*, Dao Vol. 16, 2017, pp. 521–542.

42. ———. 2021. "Representation in Early Chinese Philosophy of Language." *Philosophy East and West* no. 71:57-78.

"For the purposes of this discussion, I will understand linguistic representation as the use of linguistic expressions to stand for objects, situations, or events, "re-presenting" them in the medium of linguistic symbols. Representational content is the property of expressions by which they represent what they do. Representation is intertwined with reference in complex ways. The use of a linguistic expression to refer to something may (partly) determine its representational content, for example, while the content a speech community customarily associates with some linguistic expression may in some contexts determine its reference. The two concepts are distinct, however. Reference is a relation between expressions and objects by which expressions purport to indicate or identify things. This relation provides a means to form linguistic representations, which, as the Mohists would say, "model" things for some audience.

Section 2 below surveys Mohist views about the functions of language as presented in the early Mohist Triads (books 8–37 of the Mozi) and the Mohist Dialogues (books 46–49). The Mohists depict yan 言(statements or utterances) as indeed having a reporting and so probably a representational function. However, the most prominent function of yan for them is its role in guiding conduct. They seem to see reference as fixed at least partly through the use of language to guide action. Speakers who fail to act appropriately in response to utterances demonstrate a failure to grasp the correct reference of the terms they use.

The ensuing section surveys the detailed account of the representational role of language presented in the Later Mohist Canons." (p. 59)

43. Fung, Yiu-ming. 2007. "A Logical Perspective on 'Discourse on White-Horse'." *Journal of Chinese Philosophy* no. 34:515-536.

"With respect to the issue of reference in the book of *Gongsun Longzi*, especially in “Discourse on White-Horse” *(Baima Lun*), there has been no consensus in the field about the logical function of the name, what

kind of reality denoted by the name, and the mode of reference.

However, some of the famous or influential interpretations based on different theoretical considerations for analyzing and explaining the issue in the Discourse can be found in the literature. As I know, there

are at least four representative interpretations which address different opinions on the issue from different perspectives. The first one is Hu Shi’s “Description-Theoretical Interpretation” which seems to be an

application of Bertrand Russell’s theory of definite descriptions, or, more accurately, is an interpretation which is unconsciously based on the theory.The second one is FungYu-lan’s “Realistic Interpretation,” an application of the Platonic “Idea” to the text in a quite consistent way.The third one is Janusz Chmielewski’s “Set-Theoretical Interpretation” which assigns a logician status to Gongsun Long in terms of a

particular notion of set. The last one is Chad Hansen’s “Nominalistic Interpretation,”which is based on a bold hypothesis of mass noun and is considered by him as a replacement of the above three and other

kinds of abstract interpretations.

In the next section I shall discuss the main points of these four old interpretations and demonstrate their theoretical characteristics and difficulties in dealing with the issue inside or outside the Discourse. In

the third section, I shall use the first-order predicate logic to analyze the logical structures of both Gongsun Long's and his opponent's arguments, and then borrow Saul Kripke's and other theorists' direct theory of reference to explain the issue of reference in the Discourse.

Based on these analysis and explanation, I think, I can provide not only a comprehensive and coherent interpretation for the Discourse, but also a solid base for the interpretation and explanation of the remaining chapters in the book of *Gongsun Longzi,* a project of which cannot be done by the old interpretations." (pp. 515-516)

44. ———. 2009. "The School of Names." In *History of Chinese Philosophy*, edited by Mou, Bo, 164-188. New York: Routledge.

"In his treatise entitled 'Lun-Liu-Jia-Yao-Zhi' (論六家要指, On the Essential Ideas of the Six Schools), Sima Tan has classified the thinkers of the preceding centuries into six major schools, including the Yin-Yang school (陰陽 家 Yin-yang-jia), Confucianism (儒家 Ru-jia), Mohism (墨家 Mo-jia), the school of Names (名家 Ming-jia), Legalism (法家 Fa-jia), and Daoism (道德家 Dao-de-jia). In regard to this classification of Sima Tan, modern philologist and historian Hu Shi (胡 適) has rightly demonstrated that it should not be understood as a factual description of reality in history. Nevertheless, I think it is still significant to use this classification as a prescriptive framework to understand the similarities and differences between various thinkers of the pre-Qin China in a sensible and systematic way. A group of thinkers was identified as the school of Names by the scholars of the former Han, but its members had been generally recognized as the school of Forms and Names (刑名之家 Xing-ming-zhi-jia), or as 'sophists', 'disputers', or 'dialecticians' (辯者 Bian-zhe) during the Warring States (戰國 Zhan-guo) period. According to the records in the literature of the Warring States and former Han period, this group includes such main figures as Deng Xi (鄧析), Yin Wen (尹文), Hui Shi (惠施 350–260 BCE), and Gongsun Long (公孫龍 320–250 BCE). With the exception of the partially preserved Gong-Sun-

Long-Zi (公孫龍子), the works of the sophists have all been lost." (p. 164)

45. ———. 2010. "On the Very Idea of Correlative Thinking." *Philosophy Compass* no. 5:296-306.

    Abstract: "This article aims at providing a general picture of the idea of correlative thinking developed by sinologists and philosophers in the field of Chinese and comparative studies, including Marcel Granet, Joseph Needham, A. C. Graham, David Hall and Roger Ames. As a matter of fact, there is no exactly the same view among these scholars when they use the term "correlative thinking" to describe the Chinese mode of thinking; but they all recognize, more or less, the term's implication as "non-logical" or "pre-logical", "non-rational" or "irrational", "intuitive-associative" or "beyond analytic thinking". Based on this presumption, some of them think that there is "irreducibility" from the root level of (correlative) thinking to the upper level of (analytic) thinking or that there is "incommensurability" between correlative and analytic thinking.

    Based on the contemporary philosophy of language and philosophy of mind, especially Donald Davidson's holism of the mental and the principle of charity, I shall argue that the thesis of "prelogical", "illogical" or "non-logical" is self-refuting. I shall also demonstrate that the view of "incommensurability" between correlative and analytic thinking and the thesis of "unanalyzability" of correlative thinking shared by most of these scholars are not well-argued but taken as a primary fact. The conclusion of this article is that there is no thinking by correlation and analogy which cannot be understood in terms of analytic concepts and which can escape from the logical or rational space."

46. ———. 2012. "Introduction: Language and Logic in Later Moism." *Journal of Chinese Philosophy* no. 39:327-332.

    "In this special theme,we have four articles that deal with a set of related topics, that is, definitions,names, truth and reasoning, in later Moism. In terms of philosophical language, different ideas of naming and different definitions of names

and other linguistic entities can be used to express different theses in philosophy." (p. 327)

(...)

"In contrast with the nonanalytic approach in Confucianism and Daoism, later Moism is much more analytic in the sense that the Moists tend to theorize their philosophical arguments with an analytic language. In this special theme, some of the articles will argue that there is a kind of semantic notion of truth and a schematic idea of argument explicitly or implicitly expressed in the text of later Moism.

Moreover, the names and definitions reflectively used in the text also indicate that the language of ancient Chinese philosophy is significantly comparable with that of Western philosophy." (pp. 327-328)

47. ———. 2012. "A Logical Perspective on the Parallelism in Later Moism." *Journal of Chinese Philosophy* no. 39:333-350.

Abstract: "A. C. Graham thinks that the parallelism in the Neo-Moist Canons is about the deduction of sentences. On the contrary, Chad Hansen thinks that they are not plausibly treated as inference of deductive

forms since the later Moists are at pains to show that they can "go wrong." In this article, I shall try to provide a logical analysis and a constructive rather than defeatist interpretation of parallelism in the text. I argue that the Moists tend to express their ideas in the "material mode of speech" to build up their semantic and pragmatic sensibility in philosophical thinking."

48. ———, ed. 2020. *Dao Companion to Chinese Philosophy of Logic*. Cham, Switzerland: Springer.

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"The major aim of this *Dao Companion to Chinese Philosophy of Logic* is to produce a source book for people in the English world to understand the logical thought and logical thinking in China. In this volume, we will comprehensively and analytically introduce the basic logical ideas and theories in Chinese thought for students and scholars who are interested in the field. We also hope it could be helpful for further

studies of Chinese philosophy of logic." (p. 4)

49. ———. 2020. "Logical Thinking in the Gongsun Longzi." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 309-327. Cham, Switzerland: Springer.

    1. Hu Shih's Interpretation and Analysis 309; 2. Fung Yulan's Interpretation and Analysis 314; 3. Janusz Chmielewski's Interpretation and Analysis 317; 4. A New Logico-Philosophical Interpretation 322-326.

    "I think we should elaborate its form as: ~(a = b). This can be proved validly from his premises. Of course, Gongsun Long does not notice very well the distinction between use and mention and thus sometimes uses these words such as "horse," "white" and "white-horse" not to refer to entity but to refer to itself, i.e., to mention the name itself. However, his thesis can be proved to be valid based on his premises whether "white-horse is not horse" means "white-horse is not the same [entity] as horse" or "The name 'white-horse' is not [referring to] the same [thing] as the name 'horse'." The consequence of this arrangement is that the arguments provided by both sides can be formulated in an intelligible way and nothing has to be explained away." (p. 326)

50. ———. 2020. "Introduction: Chinese Philosophy of Logic." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 1-11. Cham, Switzerland: Springer.

    "Comparatists like David Hall and Roger Ames (1995: 230) and Chad Hansen (1985: 492, 1992: 238), are skeptical of the idea that there is a similar kind of logic used or thought by ancient Chinese thinkers. Some others, including Marcel Granet (1934), Joseph Needham (1956: 280), A. C. Graham (in his study of the

thought in Han 漢 dynasty) (1992: 61–2), and also Roger Ames and David Hall (1995: 141), even adopt a thesis of “special mode of thinking” to identify Chinese philosophical thinking. They sometimes use the term “correlative thinking” or “associative thinking” to describe the Chinese mode of thinking. They all recognize, more or less, the term’s implication as “non-logical” or “pre-logical,” “non-rational” or “irrational,” “intuitive-associative” or “beyond analytical thinking.”

(…)

"In contrast, some sinologists and philosophers in the field Chinese philosophy, including Shen Youding 沈有鼎 (1954, reprinted in 1980), Janusz Chmielewski (1962–69, reprinted in 2009), Cheng Chung-ying 成中英 (1965), A. C. Graham (in his study of Later Mohism 墨家) (1978), and Christoph Harbsmeier (1998), have demonstrated that the thinking in most philosophical views and arguments in ancient Chinese philosophy, especially in Later Mohism and the School of Names, is comparable to that in the Western tradition. This view of comparability is counter to the thesis of incommensurability." (pp. 2-3)

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Granet, Marcel. 1934. *La Pensée chinoise*. [Paris: La Renaissance du livre]

Graham, A. C. 1992. *Unreason Within Reason: Essays on the Outskirts of Rationality* La Salle: Open Court. [Chapter 4: *Conceptual Schemes and Linguistic Relativism in Relation to Chinese*, pp. 59-84]

Hall, David and Rogers Ames. 1995. *Anticipating China: Thinking Through the Narratives of Chinese and Western Culture*. Albany: State University of New York Press.

Shen, Youding. 1980. *Logical Study in the Mohist Canons* (Mojing di luoji-xue 墨經的邏輯學). Beijing: Chinese Social Sciences Press. (Reprinted from Shen’s essay of the same title in Guang Ming Daily 光明日報 1954.)

[For the other references see the present bibliography]

51. ———. 2020. "Sentences (Ci 辭, Ju 句) and Propositional Attitudes." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 71-95. Cham, Switzerland: Springer.

    "Although there was no systematic theory of grammar or syntax in ancient China, some philologists or interpreters of ancient classics in the Han 漢 dynasty or earlier did use grammatical devices to recognize or construct meaningful expressions, including full-fledged or condensed sentences. Based on these devices, they were able to identify or make simple sentences or complex sentences for expressing propositional

    attitudes, including expressing beliefs, desires, emotions, judgments and evaluation, etc., in ancient texts. Without using these devices, these scholars cannot understand any meaningful expression in ancient texts and also cannot communicate with each other." (p. 71)

52. ———. 2020. "Reason (*Gu* 故) and Principle (*Li* 理)." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 181-202. Cham, Switzerland: Springer.

    "In addition to the senses mentioned above, there are some other uses of the word [Reason (Gu 故)] with logical significance. One of them is used as a conjunction to connect an expression of a causal factor or an expression of a logical condition (including necessary and sufficient conditions) with an expression of a phenomenon and to treat the former as an explanan and the latter as an explanadum for the whole series of connected sentences. It can be formed as a causal explanation if the explanan is about a causal factor of the explanadum. It can also be formed as a logical explanation if the explanan is about a logical reason of the explanadum. Just like the English words “therefore,” “hence” and “thus,” the Chinese words “gu” and “guyue” 故曰 (so I say that) can be used to make a causal explanation or a logical explanation." (p. 182)

    (...)

"In ancient Chinese texts, the word “li” 理 also have different uses and senses. If it is a verb, it can be used to mean (A) the action of management, adjustment or arrangement.

If it is a noun, it can be used to mean (B) the texture or pattern of a material object such as wood and jade, (C) the property of an object or event, (D) the structure or order of physical events or human affairs, (E) the principle or theory of natural phenomena or human events, and (F) the reasonableness of taking verbal and non-verbal actions." (pp. 187-188)

53. ———. 2020. "Counterfactual Conditionals." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 97-111. Cham, Switzerland: Springer.

"In classical Chinese, I don’t think there is no counterfactual marker or other linguistic device to express counterfactuals which can be used to make counterfactual arguments. In this chapter, I will argue for this point with textual evidence in the coming sections. In this section, I would like to demonstrate that the hypothesis of linguistic relativity together with its consequential thesis of incomparability or incommensurability is

not sustainable." (pp. 99-100)

54. ———. 2020. "Sameness (Tong 同) and Difference (Yi 異)." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 213-231. Cham, Switzerland: Springer.

"In dealing with the topics of *tong* 同 (sameness, similarity or unity) and *yi* 異 (difference, dissimilarity or disunity), Later Mohists’ view is much more sophisticated than other ancient Chinese thinkers’ in the sense that they distinguish different senses of *tong* and *yi,* including the sameness and difference of classes or the similarity and dissimilarity of kinds." (p. 213)

55. ———. 2020. "Reference and Ontology in the Gōngsūn Lóngzi˘." In *The Gongsun Longzi and Other Neglected Texts: Aligning Philosophical and Philological Perspectives*, edited by Suter, Rafael, Indraccolo, Lisa and Behr, Wolfgang, 119-168. Berlin: De Gruyter.

"As a dialectician, Gōngsūn Lóng was famous in his time due to his provocative thesis “white horse is not horse”. As stated in the first chapter of the Gōngsūn Lóngzi˘ 公孫龍子, ‘Collected Notes’ (‘Jìfu˘’ 跡府), “he wished to extend this disputation to rectify names and reality and to spread his influence over the whole world” (欲推是辯以正名實而化天下焉). But his idea of the “rectification of names” (zhèng míng 正名) is basically different from that of the Confucians.

(…)

As I have argued elsewhere,(3) Gōngsūn Lóng’s arguments in ‘An Essay on White Horse’ (‘Báima˘ lùn’ 白馬論) are based on his special theory of reference, which, in turn, is grounded in his special theory of onto-cosmology." (p. 119)

(…)

"To support his arguments for the theses of white horse and hard white, he provides a special theory of reference which is, in turn, supported by a peculiar theory of onto-cosmology. Gōngsūn Lóng’s theories of reference and onto-cosmology in general are revealed in ‘Zhi˘wù lùn’ 指物論 (An Essay on Zhi˘wù), ‘Tōngbiàn lùn’ 通變論 (An Essay on UnderstandingChange), and ‘Míngshí lùn’ 名實論 (An Essay on Names and Reality) and in particular in ‘Jiānbái lùn’ 堅白論 (An Essay on Hard and White). In the remainder of this chapter, I try to give a coherent and comprehensive interpretation and analysis of these essays, which is also consistent with my interpretation and analysis of ‘Báima˘ lùn’." (pp. 121-122)

(3) Yiu-ming Fung 2007: 515–536; see also Yiu-ming Fung, forthcoming, ch. 6.

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Digital Quadrivium Project



History of Logic

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Bibliography on Language and Logic in Ancient China. Third part Gal - Luc

Studies in English (Gal - Luc)

1. Galante, Davide. 2001. "Classical Logic and Chinese Language Structure." *Metalogicon* no. 14:141-170.

   "Is the Classical Logic, with its bivalency, atemporality, connective interdefinability, acceptance of third excluded law, valid for all the languages, or is it worth only inside the Indo-European group which produced it? Given its connection with the language, how much is it influenced from it? In other words, the formal logic is something dealing with the language, or with a language (or group of languages)?

   The link between thought and language is something that cannot be left out of consideration; as it is said, with every new language you get a new soul. But do we get a new logic too?

   In order to answer our question, we have to compare to a language the most different (structure, grammar, phonetic) from the Indo-European languages which discovered and set the formal logic. As we will see later, the Chinese language is perfect for our purpose, being one of the most representative examples of isolating language." (p. 141)

   (...)

   "I hope I have showed, in this work, a comprehensive view on basic concept and functions of Classical Logic in the Chinese writers (and language). I have tried not to force the quotations in order to get what I was looking for, making, at the same time, myself sure not to violate the rigour of Classical logic.

   No one, I suppose, would dare to say that maths is not transcultural for the difference in writing the numbers in different civilizations. The same, I think, is true for what concerns Logic: there's one Logic, expressed in different ways.

Although grammatical structures may vary (that's why I compared to Chinese Language, cfr. introduction) Logic itself looks exactly the same." (p. 168)

2. Garrett, Mary M. 2001. "Language and Logic in China: A Guide for Argumentation Scholars." *OSSA Conference Archive* no. 34:1-6.

   "In this essay I'll be commenting on a book that should be of special interest to scholars who are interested in argumentation and informal logic in non-Western contexts, that being Christoph Harbsmeier's *Language and Logic in China* (Cambridge: Cambridge University Press, 1998). Harbsmeier notes that China deserves special attention as the only non-Indo-European culture that preserves extensive records of argumentation and of reflections on logic, language, and reasoning, and thus deserves serious study.. Harbsmeier comes highly recommended as a guide here; a professor of Chinese at Oslo University who has written on the Chinese language, he is comfortable with symbolic logic and also is familiar with the Classical Greek philosophical tradition. However, even though Harbsmeier announces on p. 1 that one of his central questions will be "What (if any) were the strategies of argumentation and proof employed by the ancient Chinese?" his approach is actually much narrower, and it will help the sinologically innocent reader to understand why this is so." (p. 1)

   (...)

   "Lastly, let me caution potential readers that although this book appeared in 1998, Harbsmeier did not revise the manuscript after he submitted it in 1989. The work is thus less up-to-date than one might expect." (p. 6)

3. Gatta, Timon. 2020. "The Translation of Western Philosophical Terms in Chinese: the case studies of "Logic", "Metaphysics" and "Aesthetics"." In *Dal Medio all'Estremo Oriente / 2: Studi del Dottorato di ricerca in Civiltà dell'Asia e dell'Africa*, edited by Miranda, Marina, 193-219. Roma: Carocci.

4. Geaney, Jane. 1999. "A Critique of A. C. Graham's Reconstruction of the "Neo-Mohist Canons"." *Journal of the*

American Oriental Society no. 119:1-11.

"A. C. Graham's *Later Mohist Logic, Ethics, and Sciences* (1978) is the only Western-language translation of the obscure and textually corrupt chapters of the Mozi that purportedly constitute the foundations of ancient Chinese logic. Graham's presentation and interpretation of this difficult material has been largely accepted by scholars. This article questions the soundness of Graham's reconstruction of these chapters (the so-called "Neo-Mohist Canons"). Upon close examination, problems are revealed in both the structure and the content of the framework Graham uses to interpret the Canons. Without a more reliable framework for interpreting the text, it seems best to remain skeptical about claims that the Canons represent evidence for the study of logic in early China."

5. ———. 2010. "Grounding «Language» in the Senses: What the Eyes and Ears Reveal about *Ming* (Names) in Early Chinese Texts." *Philosophy East and West* no. 60:251-293.

6. ———. 2011. "The Sounds of *Zhèngmíng*: Setting Names Straight in Early Chinese Texts." In *Ethics in Early China: An Anthology*, edited by Fraser, Chris, Robins, Dan and O'Leary, Timothy 125-141. Hong Kong: Hong Kong University Press.

7. ———. 2018. *Language as a Bodily Practice in Early China: a Chinese Grammatology*. Albany: State University of New York Press.

8. ———. 2020. "What Is Ming 名? “Name” Not “Word”." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 15-32. Cham (Switzerland): Springer.

"In this chapter, I survey a broad range of early Chinese texts to undermine the apparent self-evidence of translating ming as a unit of “language” (or “word”) and its correlates as “reality.” While leaving ming untranslated, I show that ming often functions somewhat like the term “name.” Names point to, pick out, or indicate referents, but names do not have “meanings.” That is, whereas words have a conceptual aspect, names do not. Through emphasizing these distinctions between “word” and “name,” my overview of the usage of ming foregrounds features

of early Chinese philosophical discussions that are unusual in relation to the larger history of philosophy of language and logic. Their special significance lies in the nature of both the unit of analysis (ming) and that of its correlates (shi 實, shi 事, xing 形, xing 行, and shen 身)." (p. 17)

9. ———. 2020. "Movement and *Ming* (Names): A Response to “Incongruent Names: A Theme in the History of Chinese Philosophy”." *Dao: A Journal of Comparative Philosophy* no. 19:635-644.
10. ———. 2022. *The Emergence of Word-Meaning in Early China: Normative Models for Words*. Albany: State University of New York Press.
11. Goldin, Paul Rakita. 1999. *Rituals of the Way: The Philosophy of Xunzi*. Chicago and LaSalle: Open Court.

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12. ———. 2017. "Non-deductive Argumentation in Early Chinese Philosophy." In *Between History and Philosophy: Anecdotes in Early China*, edited by van Els, Paul and Queen, Sarah A., 41-62. Albany: State University of New York Press.
13. ———. 2020. *The Art of Chinese Philosophy: Eight Classical Texts and How to Read Them*. Princeton: Princeton University Press.

    Chapter One: Nondeductive Argumentation and the Art of Chinese Philosophy 13-27.
14. Graham, Angus Charles. 1955. "Kung-sun Lung’s Essay on Meanings and Things." *Journal of Oriental Studies* no. 2:282-301.

    "A discussion of Kung-sun Lung's theory of *chih* and *wu* as contained in his essay on *chih* and *wu*. Graham attempts to show that Kung-sun Lung's theory is intelligible, consistent, and philosophical. But his interpretation of "chih" as "meaning" and his related elaboration of Kung-sun Lung's ideas are hardly textually intelligible and perhaps cannot stand philosophical

criticism." Chung-Ying Cheng, Inquiries into Classical Chinese Logic, *Philosophy East andf West*, 15, 1965, p. 211.

15. ———. 1957. "The Composition of the *Gongsuen Long Tzy*." *Asia Major* no. 5:147-183.

    Revised reprint with the title The Composition of the *Kung-Sun Lung Tzŭ* in A. C. Graham, *Studies in Chinese Philosophy and Philosophical Literature*, Singapore: Institute of East Asian Phllosophies, 1986, pp. 126-166.

    "Here Graham attempts to show that only two essays ("Po ma"" and "Chih wu"[ch]) from the *Kung-sun Lung Tzu* are genuine writings of Kung-sun Lung and his contemporary followers, the rest being forgeries written some six centuries later." Chung-Ying Cheng, "Inquiries into Classical Chinese Logic", *Philosophy East andf West*, 15, 1965, p. 211.

16. ———. 1959. "Being in Western Philosophy Compared with *Shih/Fei* and *Yu/Wu* in Chinese Philosophy." *Asia Major* no. 2:79-102.

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18. ———. 1964. "Two Dialogues in the Kung-sun Lung Tsu: “White Horse” and “Left and Right"." *Asia Major* no. 11:128-152.

    Revised reprint with the title A First Reading of the "White Horse" in A. C. Graham, *Studies in Chinese Philosophy and Philosophical Literature*, Singapore: Institute of East Asian Phllosophies, 1986, pp. 167-192.

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20. ———. 1970. "Chuang-tzu's Essay on Seeing Things as Equal." *History of Religions* no. 9:137-159.

21. ———. 1972. "Later Mohist Treatises on Ethics and Logic Reconstructed from the Ta - ch'ü chapter of Mo - tzu." *Asia Major* no. 17:137-189.

22. ———. 1975. "The Concepts of Necessity and the 'A Priori' in Later Mohist Disputation." *Asia Major* no. 19:163-190.

23. ———. 1978. *Later Mohist Logic, Ethics and Science*. Hong Kong: Chinese University Press.

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24. ———. 1979. "The Organization of the Mohist *Canons*." In *Ancient China: Studies in Early Civilization*, edited by Roy, David T. and Tsien, Tsuen-hsuin, 167-179. Seattle: University of Washington Press.

25. ———. 1981. *Chuang tzu: The Inner Chapters*. London: George Allen & Unwin.

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27. ———. 1985. *Divisions in Early Mohism Reflected in the Core Chapters of the Mo-tzu*. Singapore: Institute of East Asian Philosophies Occasional Paper and Monograph Series.

28. ———. 1986. *Yin-Yang and the Nature of Correlative Thinking*. Singapore: Institute of East Asian Philosophies.

29. ———. 1986. "The Disputation of Kung-sun Lung As Argument About Whole and Part." *Philosophy East and West* no. 36:89-106.

    "It is argued that the three genuine remains of the Chinese sophist Kung-sun Lung (c. 300 b. C.), the "White horse," "Pointing things out" and the "Left and right" dialogue, can for the first time be read as consecutive and coherent when

understood in terms, not of class and member, but of whole and part."

30. ———. 1989. *Disputers of the Tao: Philosophical Argument in Ancient China*. La Salle, IL: Open Court.

31. ———. 1989. "The Place of Reason in the Chinese Philosophical Tradition." In *The Legacy of China*, edited by Dawson, Raymon, 28-56. Oxford: Clarendon Press.

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    Reprinted as Chapter 6 in A. C. Graham, *Unreason Within Reason: Essays on the Outskirts of Rationality*, Illinois: La Salle: Open Court 1992, pp. 97-120.

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35. ———. 1992. "Chinese Philosophy of Language." In *Sprachphilosophie / Philosophy of Language / La philosophie du langage*, edited by Dascal, Marcelo, Gerhardus, Dietfried, Lorenz, Kuno and Meggle, Georg, 94-104. Berlin: de Gruyter.

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41. ———. 1991. "Against the Greying of Confucius: Responses to Gregor Paul and Michael Martin." *Journal of Chinese Philosophy* no. 18:333-347.
42. ———. 1998. *Thinking from the Han: Self, Truth, and Transcendence in Chinese and Western Culture*. Albany: State University of New York Press.

    Part II: "Truth" as a Test Case of Cultural Comparison, pp. 103-186.
43. Han, Xiaoqiang. 2009. "Maybe There Are No Subject-Predicate Sentences in Chinese." *Dao: A Journal of Comparative Philosophy* no. 8:277-287.
44. ———. 2012. "The Happy Fish of the Disputers." *Asian Philosophy* no. 22:239-256.

    Abstract: "The happy fish episode from the outer chapters of the *Zhuangzi* poses enormous difficulty for interpreters. While it may appear to surprisingly resemble the dialectic in Western philosophy, any attempt to analyse it in terms of the patterns of

inference familiar to the West is often frustrated by the ostensible queerness that defies such treatment. The following examination of the dialogue in the episode is intended to address the difficulty and to provide a reasoned explanation for both the surface resemblance and apparent queerness. I suggest that the dialogue becomes perfectly intelligible, if it is read against the backdrop of the disputations practiced in ancient China. My contention is that the real purpose of the dialogue is to expose the fundamental unreliability of the logic of the disputers by means of the logic itself."

45. Hans-Georg, Möller. 2000. "Zhuangzi's Fishnet Allegory: A Text-Critical Analysis." *Journal of Chinese Philosophy* no. 27:489-502.

46. Hansen, Chad. 1975. "Ancient Chinese Theories of Language." *Journal of Chinese Philosophy* no. 2:245-283.

    "Four presupposed philosophical attitudes toward language are taken to characterize the major Schools of the pre-Han period. These are: 1) emotivism, 2) distinction marking -- the view that language and names, in their descriptive function, divide reality (or the Tao) into parts roughly analogous to distributive individuals, 3) conventionalism, and 4) behavioral nominalism -- that most or all "ordinary" thinking consists of entertaining names or strings of names (sentences). No clear reference to abstract ideas, classes, senses, platonic universals, etc., is found in this period nor is any necessary in understanding and interpreting the major thinkers of the period."

47. ———. 1976. "Mass Nouns and "A white horse is not a horse"." *Philosophy East and West* no. 26 (2):189-209.

    "The most famous paradox in Chinese philosophy, Kung-sun Lung's "White horse not horse" has been taken as evidence of Platonism, Aristotelian essentialism, class logic, etc., in ancient Chinese thought. I argue that a nominalistic interpretation utilizing the notion of "stuffs" (mass objects) is a more plausible explanation of the dialogue. It is more coherent internally, more consistent with Kung-sun Lung's other dialogues, and the tradition of Chinese thought which is usually regarded as nominalistic. The interpretation is also strongly suggested by

striking parallels between all Chinese classificatory nouns and English mass nouns."

48. ———. 1981. "Linguistic Skepticism in the *Lao Tzu*." *Philosophy East and West* no. 31:321-336.

49. ———. 1983. *Language and Logic in Ancient China*. Ann Arbor: University of Michigan Press.

50. ———. 1985. "Chinese Language, Chinese Philosophy and "Truth"." *Journal of Asian Studies* no. 44:491-519.

51. ———. 1987. "Classical Chinese Philosophy as Linguistic Analysis." *Journal of Chinese Philosophy* no. 14:309-330.

52. ———. 1989. "Mo-Tzu: Language and Utlitarianism." *Journal of Chinese Philosophy* no. 16:355-380.

53. ———. 1992. *A Daoist Theory of Chinese Thought: A Philosophical Interpretation*. Oxford: Oxford University Press.

54. ———. 1993. "Chinese Ideographs and Western Ideas." *The Journal of Asian Studies* no. 52:373-399.

55. ———. 2001. "How Chinese Thought “Shapes” Western Thought." In *The Proceedings of the Twentieth World Congress of Philosophy: Vol. 12 Intecultural Philosophy*, edited by Dawson, Stephen and Iwasawa, Tomoko, 25-40. Charlottesville, Virginia: Philosophy Documentation Center.

    Abstract: "I begin this paper with some autobiographical reflections of my own journey in Chinese languages and philosophy not only in order to demonstrate how Chinese philosophy can change one’s attitudes toward Western philosophy, but also to suggest that the shift in philosophical perspective that occurs—when viewed through a Chinese lens—is reasonable.

    The second half of this paper consists of interpretative hypotheses about the content of Chinese philosophy vis-à-vis the West. I reflect more specifically how the different structure of the Chinese language seems to have worked in Chinese philosophical reflection and contrast that with the way intentional idioms did in Western philosophy. Looking mainly

at theory of language, the key similarity between the two traditions is expressed in the current “pragmatic” view that “meaning” is irreducibly normative. The differences that attend to this formulation between Chinese and Western thought will also be discussed."

56. ———. 2003. "Mohism: Later (Mo Jia, Mo Chia)." In *Encyclopedia of Chinese Philosophy*, edited by Cua, Antonio S., 461-469. New York: Routledge.

    "We use “later Mohists” to refer to the wing of the school of Mozi whose central work is known as the Mohist Canon. This and two later writings make up Chapters 40–45 of the Mozi. Some accounts also refer to these thinkers as neo-Mohists or dialectical Mohists.

    They focused on theory of language, though their writings also contain fragments on ethics and embryonic scientific reflections on economics, geometry, and optics.

    Traditional scholars sometimes include them in a pseudo school called the “school of names”—a cluster of thinkers who analyzed names (*ming*) in conflicting ways. Their reconstructed motivations reflect three differing trends in social political thought: Confucianism, Mohism, and Daoism. The usual additional members of this school included Gongsun Long and Hui Shi.

    The later Mohist Canon was continuously extant in library collections. However, a freak textual accident rendered it virtually unintelligible, and traditional Confucian orthodoxy effectively lost all access to its content. Its importance came to light only in comparatively modern times. Rescuing the text rekindled a long-lost interest in Chinese theories of language and revealed hitherto unappreciated links with the thought of Xunzi, Laozi, and Zhuangzi. Confucian orthodoxy, however, still tends to treat their sophisticated linguistic theories as “un-Chinese.” (p. 461)

57. ———. 2003. "The Relatively Happy Fish." *Asian Philosophy: An International Journal of the Philosophical Traditions of the East* no. 12:145-164.

Abstract: "Zhuangzi and Hui Shi's discussion about whether Zhuangzi knows 'fish's happiness' is a Daoist staple. The interpretations, however, portray it as humorous miscommunication between a mystic and a logician. I argue for a fine inferential analysis that explains the argument in a way that informs Zhuangzi philosophical lament at Hui Shi's passing. It also reverses the dominant image of the two thinkers. Zhuangzi emerges as the superior dialectician, the clearer, more analytic epistemologist. Hui Shi's arguments betray his tendency (manifest elsewhere) to misstate the conclusions of their shared relativism leading him but not Zhuangzi to intuitive mysticism."

58. ———. 2003. "Philosophy of Language." In *Encyclopedia of Chinese Philosophy*, edited by Cua, Antonio S., 569-575. New York: Routledge.

"Theory of language is a key part of classical Chinese thought. It provided the crucial insights that informed the original, indigenous philosophy of China. It shaped discussions of metaphysics, moral psychology, normative and applied ethics, and political theory. Classical debates about language produced progressively more tenable theories whose surprising distinctiveness reflects features of Chinese language.

Partly because these pre-Han theories of language represent a high-water mark and the most rigorously developed thought, this article will focus only on them.

Comparatively crude linguistic theory characterized the philosophical "dark age" that followed. The break in the transmission of reflective analysis accompanied a substitution of superstitious and manipulative religious cosmology for philosophy. A countervailing trend produced a scholastic Confucianism that dominated Chinese thinking until early modern times."

(...)

"The original Chinese theories have many interesting background assumptions about language. First, they seldom

remarked on the use of written characters, probably regarding these as a normal way of writing.

Their use did not incline writers to draw strong distinctions between writing and speaking. Key terms like ming (names) and *yan* (language, words) seem to function much as our English translations do, i.e., referring to abstract types of which both written or spoken items are tokens. Modern Chinese distinguishes between *wen* (literature) and hua (speech)." (è. 569)

59. ———. 2007. "Prolegomena to Future Solutions to 'White-Horse not Horse'." *Journal of Chinese Philosophy* no. 34:473-491.

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61. ———. 1991. "The Mass Noun Hypothesis and the Part-Whole Analysis of the White Horse Dialogue." In *Chinese Texts and Philosophical Contexts: Essays dedicated to Angus C. Graham*, edited by Rosemont Jr., Henry, 49-66. La Salle: Open Court.

62. ———. 1998. *Science and Civilisation in China. Volume 7 Part I: Language and Logic*. Cambridge: Cambridge University Press.

    General Editor: Joseph Needham.

63. ———. 2009. "On the Very Notions of Language and of the Chinese Language." *Histoire Épistémologie Langage* no. 31:143-161.

64. ———. 2011. "A Reading of the Guōdiàn 郭店 Manuscript Yu˘cóng 語叢1 as a Masterpiece of Early Chinese Analytic Philosophy and Conceptual Analysis." *Studies in Logic* no. 4:3-56.

65. Hearne, James William. 1976. "A Critical Note on the Cheng-Swain Interpretation of the *Chih Wu Lun*." *Philosophy East and West* no. 26:225-228.

66. ———. 1980. *Classical Chinese as an Instrument of Deduction*, University of California, Riverside.

    Unpublished Ph.D thesis available at Pro Quest Dissertation Express ref. number 8024984.

67. ———. 1985. "Formal Treatments of the Chih Wu Lun." *Journal of Chinese Philosophy* no. 12:419-427.

68. Ho, Chien-hsing. 2013. "One Name, Infinite Meanings: Jizang's Thought on Meaning and Reference." *Journal of Chinese Philosophy* no. 39:436-452.

69. ———. 2020. "Paradoxical Language in Chan Buddhism." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 389-404. Cham, Switzerland: Springer.

    "Chinese Chan or Zen Buddhism is renowned for its improvisational, atypical, and perplexing use of words. In particular, the tradition's encounter dialogues, which took place between Chan masters and their interlocutors and are recorded in its *koan* ("public case") literature, abound in puzzling, astonishing, and paradoxical ways of speaking. In this chapter, we are concerned with Chan's use of paradoxical language.

    In philosophical parlance, a linguistic paradox comprises the confluence of opposite or incongruent concepts in a way that runs counter to our common sense and ordinary rational thinking.1 One naturally wonders about Chan masters' rationales for their use of paradox. There are also concerns about whether the use violates the logical law of noncontradiction to the effect that nothing can be both P and not-P all over in the same way at the same time." (p. 389)

70. Hou, Richard W. T., and Wang, Linton. 2020. "When the Other-Mind Skepticism Encounters the Happy Fish." *The Philosophical Forum* no. 51:127-142.

    Abstract: "In this paper, we reconstruct the debate between Zhuangzi 莊子 and Hui Shi 惠施 that took place on the bridge over the Hao River 濠水 as a substantive debate concerning the epistemic other-mind skepticism according to which no one

mind knows the mental states of the other. We demonstrate how this reconstruction leads to substantive conclusions of the viability of Hui Shi's position in particular and of the other-mind skepticism in general. This demonstration is accomplished by means of the contemporary philosophical development regarding, for example, whether asserting a proposition implies that the asserter knows the proposition, whether the closure principle of epistemic logic should be held, and whether knowing something is a mental state. We hold that this debate's resolution is substantively entangled with contemporary philosophical concerns."

71. Hu, Shih. 1922. *The Development of the Logical Method in Ancient China*. Shangai: Oriental Book Company.

    Second edition: New York, Paragon Book Reprint Corp., 1963.

72. Huang, Chu-Ren. 2015. "Notes on Chinese grammar and ontology: the endurant-perdurant dichotomy and Mandarin D-M compounds." *Lingua Sinica* no. 1:1-22.

    Abstract: "Y. R. Chao's (1955) 'Notes on Chinese Grammar and Logic' illustrated how logical relations are encoded in Chinese Grammar and his Chinese grammar (Chao 1968) introduced the grammatical category of Measure (M) in Determiner-Measure (D-M) Compounds. Subsequent studies of Chinese typically adopt the general linguistic term of classifier (Aikenvald 2003) and either refer to Chao's M as a classifier (e.g. Li and Thompson 1981) or assume that it can be further subdivided into two categories: classifiers and measure words (Tai 1994). Many later studies tried to account for the classifiers/measure words contrast via semantic or syntactic tests without reaching a definite conclusion. This paper adopts and merges two lines of Chao's research to show that the ontological concept of endurant vs. perdurant is elegantly instantiated in Chinese grammar, and by the category of M in particular. By doing so I hope to follow Y. R. Chao's (1955) giant leap in studying logical relations in Chinese and to take the further step of exploring the significance of the Chinese language for ontological studies, including issues such as

whether Quality should be ontologically dependent on entities or instead subsumed by them."

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Li, Charles N, and Sandra A Thompson. 1981. Mandarin Chinese: A functional reference grammar. Berkeley: University of California Press.

Tai, James H-Y. 1994. Chinese classifier systems and human categorization. In In honor of William S.-Y. Wang: Interdisciplinary

studies on language and language change, ed. Matthew Y Chen and Ovid JL Tzeng, 479–494. Taipei: Pyramid Press.

73. Im, Manyul. 2007. "Horse-Parts, White-Parts, and Naming: Semantics, Ontology and Compound Terms in the White Horse Dialogue." *Dao: A Journal of Comparative Philosophy* no. 6:167-185.

74. Indraccolo, Lisa. 2009. *Gongsun Long and the Gongsun Longzi: authorship and textual variation in a multilayered text*, Università Ca' Foscari Venezia.

Unpublished dissertation.

Abstract: "The present work aims at shading new light on the structure and content of the Gongsun Longzi, focusing in particular on the so-called “original chapters”, those who are considered more truthful to an hypothetical original formulation – written and/or oral – of the topics discussed, the *Baima Lun* and the *Zhiwu Lun*. After taking into consideration the pseudo-historical figure of the putative author, the persuader Gongsun Long, an analysis of the overall structure of the text is provided, comprehending an accurate study of

textual variants existing between the two most ancients versions available of the received text (the *Shuofu* and the *Daozang* edition). Finally, an exhaustive treatment of the philosophical contents of the *Baima Lun* and *Zhiwu Lun*, accompanied with a commented translation, concludes the work."

75. ———. 2016. "The "White Horse", the "Three-Legged Chicken", and Other Paradoxes in Classical Chinese Literature." *Antiquorum Philosophia: A International Journal* no. 10:67-88.

    "According to pre-imperial and early imperial Classical Chinese received literature (ca. 4th cent. b.c.e. - 2nd cent. c.e.), paradoxes and language jokes seem to have been widespread in early Chinese rhetorical practice. Such stratagems are part of a rich shared repertoire mastered by the persuaders of the time that also includes narrative anecdotes, didactic stories, maxims, and authoritative quotes drawn from the most revered texts of antiquity. These diferent kinds of materials mostly had a rhetorical function. They were conveniently quoted to illustrate or strengthen a particular point in a discussion, or to allude obliquely to an implicit message or moral teaching by establishing meaningful connections between the tradition and the contemporary situation in an analogical way.

    Despite the apparent success paradoxical statements enjoyed at the time, only a handful have been preserved and handed down. Some of the most famous arguments that have been transmitted are discussed at length in individual texts that later came to be included in the Gongsun Longzi 公孫龍子(Master Gongsun Long), a composite collection of heterogeneous materials including dialogues and short treatises. However, in most cases Classical Chinese paradoxes survive only in the form of dry and rather enigmatic lists of obscure sentences or ‘theses’ deprived of any further extra-textual information, nor any proper explanation. These materials are mostly – though not exclusively – associated with a group of thinkers, (in)famous for being skilled in the art of rhetoric, the so-called Logicians." (p. 67)

76. ———. 2017. "The ‘White Horse is Not Horse’ Debate." *Philosophy Compass* no. 12:1-11.

    Abstract: "The so-called “white horse is not horse” (bái maˇ fēi maˇ 白馬非馬) debate, or “white horse” (bái maˇ白馬) dialogical argument, is beyond doubt the most famous case of argumentation (biàn辯) in the history of Classical Chinese philosophy. The somewhat disorienting statement at the center of this debate is discussed at length by two anonymous fictive characters, a persuader and their opponent, in the ‘Báimaˇ lùn’ 白馬論(Disquisition on White and Horse). The ‘Báimaˇ lùn’ usually appears as the first chapter in the received text Gōngsūn Lóngziˇ 公孫龍子(Master Gongsun Long). The Gōngsūn Lóngziˇ is a composite collection of heterogeneous materials in six chapters.

    The collection includes an anecdotal preface, three partially incomplete and/or corrupted dialogues, and two short and extremely intricate treatises. In particular, the dialogues included in the collection are structured in a fairly similar way and focus on what have been defined as paradoxes or sophisms belonging to the repertoire of a rather loose group of thinkers, the so-called Logicians or Chinese “Sophists” (míngjiā名家, literally “experts on names”), allegedly active during the Warring States period (475–221 B.C.E.)."

77. ———. 2020. "Argumentation (Bian 辯)." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 171-180. Cham, Switzerland: Springer.

    "In Classical Chinese polemico-philosophical texts, argumentation is often understood as one of the two poles in a pair of binary opposites together with its dialectical counterpart, the technique of persuasion (shui 說).(3) Despite the fact that no proper handbook nor manual on Classical Chinese rhetoric has been handed down, it is still possible to claim with a certain degree of certainty that argumentation and persuasion are two opposite, though complementary and

closely interconnected skills that a persuader has to acquire and master as part of their repertoire." (p. 172)

(3) Crump 1964, esp. 6–7, 100; Kroll 1985–86: 126.

References

Crump, James I., Jr. 1964. 戰國策 Intrigues: Studies of the Chan-kuo Ts'e. Ann Arbor: The University of Michigan Press.

Kroll, Jurij L. 1985–86. "Disputation in Ancient Chinese Culture." Early China 11–12: 119–145.

78. Jiang, Xinyan. 1992. "The Law of Non-Contradiction and Chinese Philosophy." *History and Philosophy of Logic* no. 13:1-14.

79. ———. 2013. "Chinese Dialectical Thinking—the Yin Yang Model." *Philosophy Compass* no. 8:438-446.

    Abstract: "The yin yang model of thinking is most essential to the Chinese cosmology, ontology and outlook on life. This paper is a systematic discussion of such a dialectical way of thinking and its significance.

    It starts with investigating the origin and the meaning of terms "yin" and "yang", and explains the later developed yin yang doctrine; it then shows how greatly and profoundly the yin yang model of thinking has influenced Chinese philosophy and Chinese character. It concludes that Chinese naturalistic, dialectical, and optimistic attitudes toward the world and life are all based on the yin yang model of thinking and that the yin yang doctrine is the starting point for anyone to understand Chinese people and their philosophies."

    The author's name for this article was mistakenly printed as "Xinyan Xinyan" when it was published.

80. Jiang, Xiangdong. 2020. "A New Interpretation of 'Baimalun' (Discourse on White and Horse)." In *The Gongsun Longzi and Other Neglected Texts: Aligning Philosophical and Philological Perspectives*, edited by Suter, Rafael, Indraccolo, Lisa and Behr, Wolfgang, 289-308. Berlin: De Gruyter.

"The lack of a theory of knowledge or epistemology in traditional Chinese culture has resulted in a severely inadequate understanding of the pre-Qín “School of Names” (míngjiā 名家) for over two millennia. In view of this shortcoming, I try to reinterpret the Gōngsūn Lóngzi˘ 公孫龍子 precisely from the perspective of a theory of knowledge. The scope of the present chapter is limited to the discussion of ‘Báima˘lùn’ (Discourse on White and Horse; henceforth BML): the first part consists of an annotation of the original text, the second part concentrates on its theoretical gist, and the third part presents my comments and evaluation of other scholars’ interpretations." (p. 289, a note omitted)

81. Jiang, Xinyan. 2020. "Contradiction." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 129-142. Cham, Switzerland: Springer.

"In ancient Chinese philosophy, although the law of non-contradiction is acknowledged in some way by some Chinese philosophers such as Han Fei 韓非and Moists,(7) the majority of Chinese thinkers seem to even have never paid attention to it, not alone treated it as the most basic principle of logic. Moreover, some paradoxical propositions that well fit “s is P and not-P” are asserted and even taken for granted by some Chinese philosophers." (p. 130)

(...)

"Although, from a pure logical point of view, “s cannot be P and not-P” is true, it is an abstraction that does not take the context of the utterance and multidimension of things into consideration. On the contrary, a proposition like “s is P and not-P,” though paradoxical, reflects reality better since dialectical relations present in everything and everywhere. In short, Chinese dialectical thinking not onlyviolates none of laws of Aristotelian formal logic such as that of non-contradiction, but also captures and highlights real dialectical relations in the universe and life that the latter does not." (p. 131)

(7) Some scholars have argued that the law of non-contradiction has been explicitly recognized and formulated in

classical Chinese philosophical writing. For more details, see Cheng 1971: 226–27.

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Cheng, Chung-ying. 1971. “Aspects of Classical Chinese Logic.” In *International Philosophical Quarterly* 11.2: 213–235.

82. Jin, Chunlan. 2020. *Textual Patterns of the Eight-Part Essays and Logic in Ancient Chinese Texts*. Singapore: Springer.

83. Johnston, Ian. 2000. "Choosing the Greater and Choosing The Lesser. A Translation and Analysis of the *Daqu* and *Xiaoqu* Chapters of the Mozi." *Journal of Chinese Philosophy* no. 27:375-407.

    Da Qu = “Big Selection”; Xiao Qu = “Small Selection”.

84. ———. 2004. "The *Gongsun Longzi*: A Translation and an Analysis of Its Relationship to Later Mohist Writings." *Journal of Chinese Philosophy* no. 31:271-295.

85. Johnston, Ian, and Wang, Ping, eds. 2019. *The Mingjia & Related Texts: Bilingual Edition*. Hong Kong: The Chinese University of Hong Kong Press.

    Translated and Annotated by Ian Johnston and Wang Ping.

86. ———. 2020. "Notes on the Relationship between the Gōngsūn Lóngzi˘ and the Dialectical Chapters of the Mòzi˘." In *The Gongsun Longzi and Other Neglected Texts: Aligning Philosophical and Philological Perspectives*, edited by Suter, Rafael, Indraccolo, Lisa and Behr, Wolfgang, 45-85. Berlin: De Gruyter.

    "The Gōngsūn Lóngzi˘ (*GSLZ*) is the only surviving pre-Qín text attributed to a member of the Míngjiā 名家 (“School of Names”), as defined by Sīma˘ Qiān 司馬 遷n the Shi˘jì 史記nd subsequently catalogued in the bibliographical chapter of the Hàn Shū 漢書.(1) Following A. C. Graham’s 1957 paper, the view that approximately two and two-thirds of the five non-biographical chapters in the *GSLZ* are later forgeries has become widely accepted in the West, but it seems to have gained little or no traction among Chinese scholars.(2) The

dialectical chapters of the Mòzi˘ 墨子 (40–45, namely ‘Canons’ and ‘Explanations’ A and B,

and the Greater and Lesser Choosings) contain a substantial amount of material on the issues examined in the *GSLZ* and related matters." (p. 45)

(…)

"The aim of the present chapter is to summarize past and current views on the relationship between the two texts, focusing particularly on the work of the four Chinese scholars referred to above. After a brief consideration of the chronology of the Míngjiā in the pre-Qín 秦period and of the terms Míngjiā and Xíngmíngjiā 刑/形名家, each of the chapters of the *GSLZ* will be dealt with in turn, looking at corresponding material in the Later Mohist chapters. The order of the *GSLZ* chapters will follow that given by Cheng Chung-ying.(4)" (pp. 45-46, a note omitted)

(1) Shi˘jì [*Records of the Grand Historian*] 130, vol. 10: 3288–3292; Hàn Shū [*Book of Han*] 30, vol. 6: 1736 –1737.

(2) See Féng 2000: 8–24 and Wang Ping and Ian Johnston, “The Gongsun Longzi: A Historical Overview” in this volume.

(4) See Cheng 1997.

References

Cheng, Chung-ying (1997): “The Philosophical Significance of Gongsun Long: A New Interpretation of Theory of Zhi as Meaning and Reference”. *Journal of Chinese Philosophy* 24.2: 139–177.

Féng Yàomíng 馮耀明 [Fung Yiu-ming] (2000): Gōngsūn Lóngzi˘公孫龍子. Táiběi臺北: Sānmín Chūba˘nshè 三民出版社.

87. Kao, Kung-yi, and Obenchain, Diane. 1975. "Kung-sun Lung's Chih Wu Lun and Semantics of Reference and Predication." *Journal of Chinese Philosophy* no. 2:285-324.

88. Kroll, Jurij L. 1985-86. "Disputation in Ancient Chinese Culture." *Early China* no. 11-12:118-145.

Abstract: "The Warring States, Ch'in, and Han periods witnessed a remarkable growth in the influence of the arts of disputation and rhetoric on the lives of the ancient Chinese. Disputation affected the form and content of philosophical arguments, provided common forms for communication between various thinkers and schools of thought, and, mainly during the Han dynasty, contributed to the processes of ideological synthesis. Along with rhetoric (as represented in the *Chan-kuo ts'e*) , disputation also helped define the style and nature of a wide variety of other literary endeavors, especially the *Fu* and historiographical works of Han times. Debate and argumentation came to play a central role in how the society and government of the time resolved difficulties and determined proper policy. In what follows I both chart the course of this development and outline some of its causes." (p. 118, notes omitted)

89. Kurtz, Joachim. 2001. "Coming to Terms with 'Logic': The Naturalization of an Occidental Notion in China." In *New Term for New Ideas. Western Knowledge and Lexical Change in Late Imperial China*, edited by Lackner, Michael, Amelung, Iwo and Kurtz, Joachim, 147-176. Leiden: Brill.

    Also published in: Susan Deacy, Alexandra Villing (eds.), *Athena in the Classical World*, Leiden: Brill 2001, pp. 147-176.

90. ———. 2010. "Matching Names and Actualities: Translation and the Discovery of "Chinese Logic"." In *Mapping Meanings. The Field of New Learning in Late Qing China*, edited by Lackner, Michael and Vittinghoff, Natascha, 471-505. Leiden: Brill.

91. ———. 2011. *The Discovery of Chinese Logic*. Leiden: Brill.

92. Kwan, Tze-wan. 2011. "Abstract Concept Formation in Archaic Chinese Script Forms Some Humboldtian Perspectives." *Philosophy East and West* no. 61:409-452.

93. Lai, Karyn L. 2008. *An Introduction to Chinese Philosophy*. Casmbridge: Cambridge University Press.

    Chapter 4: Early Mohist Philosophy 55-70; Chapter 7: The *Mingjia* and the Later Mohists 111-141.

94. Lai, Whalen. 1980. "Further Developments of the Two Truths Theory in China: the Ch'eng-shih-lun Tradition and Chou Yung's 'San-tsung-lun'." *Philosophy East and West* no. 30:139-161.

"Instead of the classical two truths theory of Nagarjuna, Chinese Buddhists came up with three truths: reality as real, as empty and as both (i.e., middle). The essay, one in a series, traces the origin to Chou Yung's essay on three Schools (of two truths). There, Chou set up a School that failed to negate provisional reality (the real-ist), the School that succeeded (the empty-ist), the School that realized the real as the empty (the middle-ist). All later theorists, Chih-tsang, Chi-tsang and Chih-i were indebted to this essay painstakingly reconstructed here."

95. ———. 1995. "White Horse not Horse: Making Sense of a Negative Logic." *Asian Philosophy: An International Journal of the Philosophical Traditions of the East* no. 5:59-74.

96. ———. 1997. "Kung-sun Lung on the Point of Pointing: The Moral Rhetoric of Names." *Asian Philosophy: An International Journal of the Philosophical Traditions of the East* no. 7:47 – 58.

97. ———. 2003. "Gongsun Long (Kung-sun Lung)." In *Encyclopedia of Chinese Philosophy*, edited by Cua, Antonio S., 270-271. New York: Routledge.

"Gongsun Long (b. 380 B.C.E.) is considered a member of the school of names. A logician or sophist, he is best-known for a theoretical essay called “Pointing and Thing” and for his thesis “white horse is not horse.”

Xunzi (fl. 298–238) accused him of abusing names to the extent of creating havoc: since a horse with the color white is very much a horse, Gongsun was twisting words and flying in the face of what is obvious when he said that it is not. A number of modern scholars, however, have come to Gongsun Long’s defense." (p. 270)

(...)

"In classical China, logical debates on name and reality were also ethical debates. Logic aside, Gongsun Long has a moral agenda. Coming after Yang Zhu and Mozi, he sided more with Yang and less with Mozi.

He safeguards the sanctity of the self by showing how each of us (as X) is distinct and valuable by virtue of not being like any other (any non-X). He doubts the reality of the Mohist “whole”; we cannot point to the whole. Thus we find him preaching “nonaggression” (against any party), but not “universal love” (for all).

The reason is that to love X and benefit X, one must not love and not benefit a non-X. Since loving all leaves none not to love, loving all amounts to benefiting none. In this, Gongsun Long was the reverse of Hui Shi, the other logician, who sided with the whole and extended Mohist love to its maximum, to loving all things generously." (p. 271)

98. ———. 2003. "Hui Shi (Hui Shih)." In *Encyclopedia of Chinese Philosophy*, edited by Cua, Antonio S., 309-311. New York: Routledge.

"Hui Shi (380–305 B.C.E.), one of the two major logicians of the school of names, was the chief minister to King Hui of Wei. Ideologically, Hui was the reverse of the logician Gongsun Long but was a like-minded friend of Zhuangzi, who mourned when Hui died.

Whereas Gongsun Long was known for “separating hard and white,” Hui Shi was remembered for “equalizing semblance and dissemblance.” Gongsun had uncovered very clear, logical differences (X is not like non-X); Hui Shi would reverse or erase them. As scholars of names (*ming*), they had both rejected the correspondence theory of language, which assumes that the name “horse” describes the animal horse (i.e., is a sign serving as a direct reference); instead, they chose to explore a sign pointing to or networking with other signs (intralinguistic sense). But Gongsun Long came up with a good logic of sense, while Hui Shi exposed that as the “non-sense” of logic." (p. 309)

99. Lange, Marc. 1989. "Hui Shih's Logical Theory of Descriptions: A Philosophical Reconstruction of Hui Shih's Ten Enigmatic Arguments." *Monumenta Serica. Journal of Oriental Studies* no. 38:95-114.

100. Lau, Dim Cheuk. 1953. "Some Logical Problems in Ancient China." *Proceedings of the Aristotelian Society* no. 53:189-204.

101. ———. 1963. "On Mencius' Use of the Method of Analogy in Argument." *Asia Major* no. 10:173-194.

    Reprinted as Appendix 5 in *Mencius,* Translated with an Introduction and Notes by D. C. Lau, Revised edition London: Penguin 2003, pp. 253-263. (Original edition 1970).

102. Leong, Wai Ch'un. 2015. "The Semantic Concept of Truth in Pre-Han Chinese Philosophy." *Dao: A Journal of Comparative Philosophy* no. 14:55-74.

103. Leslie, Donald. 1964. *Argument by Contradiction in Pre-Buddhist Chinese Reasoning*. Canberra: Australian National University.

    "The author shows that the Taoists, the Confucians, and the Mohists in the pre-Chin period used the principle of contradiction and the principle of the excluded middle in their philosophical writings." Chung-Ying Cheng, Inquiries into Classical Chinese Logic, *Philosophy East andf West*, 15, 1965, p. 213.

104. Li, Chenyang. 1999. *The Tao Encounters the West: Explorations in Comparative Philosophy*. Albany: State University of New York Press.

    Chapter 3: Chapters Language: Pragmatic versus Semantic, pp. 63-87.

105. ———. 2021. "Truth in Chinese Philosophy. A Commentary on Bo Mou's Semantic-Truth Approaches in Chinese Philosophy." *Comparative Philosophy* no. 12:134-146.

    "Studies of Chinese philosophy have been overwhelmingly on ethics and social philosophy. Bo Mou's book is significant because it is squarely on semantic truth, a topic which has

seldomly been brought up in studying Chinese philosophy (Mou 2019).

That alone makes his book worthy of our attention. Mou's book contains many insights and breaks new grounds for further study. His pluralist account of semantic truth in Chinese philosophy is highly original and pioneering in the field. Here I will not

attempt to make a comprehensive review or assessment of this important book. Instead, I focus on two points, for the sake of further explorations on the topic. The first is on the general topic of truth in Chinese philosophy. While I do not deny that there is

semantic truth in Chinese philosophy, I believe the main orientation of Chinese philosophy on truth is pragmatic, in that the concept of truth is understood and functions in the context of the human condition; the nature and the value of truth lies with its

service for the good life. Second, I will offer an alternative to Bo Mou's characterization of Xun Zi's concept of truth and show why Mou cannot dismiss a broadly characterized pragmatic interpretation of Xun Zi's epistemology. In this commentary, I will try to quote Mou's relevant passages in their entirety to ensure as much accuracy as possible in presenting his argument" (p. 134)

References

Mou, Bo (2019), *Semantic-Truth Approaches in Chinese Philosophy: A Unifying Pluralist Account* (New York/London: Lexington Books).

106. Li, Xiankun. 1998. "Why Gonsung Long (Kungsun Long) Said "White horse in not horse"." In *In the World of Signs. Essays in Honour of Professor Jerzy Pelc*, edited by Jadacki, Jacek Juliusz and Strawinski, Witold, 215-220. Amsterdam: Rodopi.

"From ther above discussion, we can make the following conclusions:

(a) Gongsun Long's theory is a theory of semiosis. He observed the differences among symbols that are used in the process of human speech. So the problems he discussed are matters of metalanguage, not object language.

(b) Gongsun Long's use of the word FEI „is not" can only be interpreted as set equality, which corresponds to the English phrase „is not equal to". It does not indicate subset-superset relationship between sets.

(c) Gongsun Long was the first scholar in ancient China to use analytic methods fully to treat linguistic and philosophical phenomena. His proposition „White horse is not horse" is not a petty intellectual game that goes against common sense. On the contrary, it is a very insightful theoretical discovery.

We may achieve a better understanding of Gongsun Long's arguments by looking at his works as a whole (only six texts have been preserved). In his other texts, he explicitly stated the purpose of his work: through this kind of discussion, he intended to clarify the issues on the relationship between words and the things that are represented by those words. He believed that everything would be in place if they were named appropriately. He asked people to pay attention to this name-substance relationship and be cautious in naming things. In „A Discourse on White Horse", he exemplified his idea by analyzing the relationship between „horse" and „white horse" in great depth. In so doing, he made a great contribution to his own time." (pp. 219-220)

107. Li, Yu. 2015. What is *N P*? - Interpretation of a Chinese paradox white horse is not horse. *Arxiv.org*: 1-9.

Abstract: "The notion of *nondeterminism* has disappeared from the current definition of *N P*, which has led to ambiguities in understanding *N P*, and caused fundamental diculties in studying the relation *P versus N P*. In this paper, we question the equivalence of the two definitions of *N P* the one defining *N P* as the class of problems solvable by a nondeterministic Turing machine in polynomial time, and the other defining *N P* as the class of problems verifiable by a deterministic Turing machine in polynomial time, and reveal cognitive biases in this

equivalence. Inspired from a famous Chinese paradox white horse is not horse, we further analyze these cognitive biases. The work shows that these cognitive biases arise from the confusion between different levels of nondeterminism and determinism, due to the lack of understanding about the essence of nondeterminism. Therefore, we argue that fundamental diffculties in understanding *P* versus *N P* lie firstly at cognition level, then logic level."

Sigla: *N P* = Nondeterministic Polynomial time.

108. Lin, Chung-I. 2011. "Xunzi as a Semantic Inferentialist: Zhengmin, Bian-Shuo and Dao-Li." *Dao. A Journal of Comparative Philosophy* no. 10:311-340.

    Abstract: "This essay argues that the idea of name-rectification (*zheng ming* 正名) in the *Xunzi* can be properly reconstructed as revealing a normative pragmatic semantic theme that linguistic contents embody, and are embedded in, the normative, justificatory

    network, or pattern, of *dao li* 道理 (proper routes/patterns of norm) which, in turn, is constituted and manifested by social inferential justificatory practices of *bian shuo* 辯說 (dialectical justification/explanation)."

109. Linderborg, Otto. 2021. "Patterns of Reasoning Shared Across Cultural Divides: Normative Arguments in the Classical Age of Greece and the Warring States Period of China." *Orientalia Suecana* no. 70:89-104.

    Abstract: "In this paper, a selection of arguments encountered in a pair of canonical classical Greek and Chinese literary and philosophical works are analyzed and compared. The works in which the passages selected for analysis occur are the *Histories* of Herodotus and the *Fei Gong* section in the *Mozi*. The present research focuses on three respective passages in these canonical classical Greek and Chinese works containing early examples of normative argumentation of an internally critical kind (‘internal critique’). So-called deontic logic is then applied in order to formally analyze the argumentative content of the selected sections. It is shown that each of the Herodotean and

Mohist examples of internal critique may be assigned a formally equivalent Chinese *vis-à-vis* Greek partner. Based on these similarities, the question of the origins of internal critique in the ancient Greek and Chinese cultural spheres is reconsidered."

110. Liou, Kia-hway. 1965. "The Configuration of Chinese Reasoning." *Diogenes* no. 13:66-96.

    Translated by Nora McKeon.

111. Liu, Chuang. 2003. "Ming-Jia (the Logicians) and Zeno: A Comparative Study." In *Comparative Approaches to Chinese Philosophy*, edited by Mou, Bo, 297-306. Aldershot: Ashgate.

112. Liu, Fenrong, and Seligman, Jeremy, eds. 2015. *History of Logic in China. 5 Questions*. Copenhagen: Automatic Press / VIP.

113. Liu, Fenrong, Seligman, Jeremy, and van Bentham, Johan. 2012. Models of Reasoning in Ancient China. *eprints repository software*: 1-25.

114. Liu, Fenrong, Seligman, Jeremy, and van Benthem, Johan. 2011. "The History of Logic in China: An introduction." *Studies in Logic* no. 4:1-2.

115. Liu, Fenrong, Seligman, Jeremy, and Zhai, Jincheng, eds. 2024. *Handbook of Logical Thought in China*. Berlin: Springer.

    To be published in 2024.

    "The Handbook aims to provide a comprehensive review of research on logical thought in China by both Chinese and non-Chinese scholars. It highlights and summarizes important areas of controversy and general agreement, while giving prime importance to clarity of exposition. The title covers Chinese thought on reasoning and argumentation, the influence of non-Chinese logic on Chinese thought, and the systematic aspects of reasoning other than the classical canon of 'logic' texts. By bringing together different perspectives, it seeks to provide a multifaceted and comprehensive presentation on this rich and sometimes perplexing phenomenon."

116. Liu, Fenrong, and Yang, Wujing. 2010. "A Brief History of Chinese Logic." *Journal of the Indian Council of Philosophical Research* no. 27:101-123.

117. Liu, Fenrong, and Zhang, Jialong. 2008. A Note on Mohist Logic. 1-25.

    Available on line on Academia.edu.

    Abstract: "The paper is an exploration of the old Chinese texts called the *Mohist Canons* from a modern logical perspective. We mainly explain what the Mohists have contributed to logic in the following aspects: Theory on names, structures of propositions, patterns of reasoning, and theories on disputation and paradoxes. A comparative perspective is taken throughout the investigation. We compare Mohist logic and Western traditional and modern logic. We provide our new interpretations of the issues discussed in the *Canons* by applying the modern logical theories."

118. Liu, Fenrong, and Zhang, Jalong. 2010. "New Perspectives on Moist Logic." *Journal of Chinese Philosophy* no. 37:605-621.

119. Liu, Shu-hsien. 1974. "The Use of Analogy and Symblism in Traditional Chinese Philosophy." *Journal of Chinese Philosophy* no. 1:313-338.

    "When we review the Chinese history of philosophy, we find that the Chinese did not develop any formal systems of logic. There was a conspicuous lack of discussion of forms of inference, as the Chinese failed to develop anything either like an Aristotelian syllogism or a Nyaya syllogism. The so-called Logicians(1) in ancient China were really dialecticians like the Greek Sophists who were being looked down upon by serious scholars, as Chuang Tzu said of them, “They are able to subdue other people’s mouths, but cannot win their hearts.”(2) This situation, however, does not mean that the Chinese did not pay any attention to the problem of methodology. It is precisely because they were convinced that empty talks would lead us nowhere so they decided to concentrate their effort on finding appropriate expressions for their experience of reality.

This explains why they made such extensive use of analogies and symbolisms, as these were regarded as the only effective means to approach the Way (*Tao*), or rather Ultimate Reality understood in a dynamic sense.

In this article, I would like to contend that as a general trend the Chinese are moving away from an analogical way of thinking toward a symbolic way of thinking through metaphorical expressions. In the following I shall try to outline this development and discuss its significance on the Chinese way of doing philosophy." (p. 313)

(1) Wing-tsit Chan (trans. and comp.), *A Source Book in Chinese Philosophy*, Princeton University Press, Princeton, 1963, pp. 232-243. Hereafter will be referred to as Chan, *Source Book*.

(2) *Ibid*. p. 233.

120. Liu, Tisheng. 2020. "A New Interpretation of the Gongsun Longzi's 'Zhiwu lun' (Discourse on Pointings and Things) and 'Mingshi lun' (Discourse on Names and Actualities)." In *The Gongsun Longzi and Other Neglected Texts: Aligning Philosophical and Philological Perspectives*, edited by Suter, Rafael, Indraccolo, Lisa and Behr, Wolfgang, 241-288. Berlin: De Gruyter.

"The 'Zhi ˇ wù lùn' 指物論chapter of the Gōngsūn Lóngzi ˇ 公孫龍子 is arguably one of the most difficult pre-imperial Chinese texts. The obvious reason for its inaccessibility is its repetitive structure. The central terms, zhi ˇ 指 (which literally means 'finger', but also, in a verbal reading, 'to point') and wù 物 ('thing'), together make up for roughly one-quarter of the entire word count. As the treatise itself does not provide any definition for these crucial terms, there have been a great number of extremely divergent interpretations of the meaning of the term zhi ˇ and an abundance of proposals on its relationship to wù. In spite of this sheer variation of interpretations, there are still more or less clear lines along which they can be classified. The most basic distinction I suggest here is between traditional Chinese approaches and

analyses by modern scholars inspired by Western methods. Traditional interpretations attempt to arrive at an analysis of the terms and their relationship on the basis of the inherited pre-Qín masters literature, and thus resort to an autochthonous hermeneutical approach.

What I call “Western” interpretations, by contrast, base their analyses on relevant theoretical literature from outside China, e.g. on Marxist theories. Since the May Fourth Movement in the late 1910s and the subsequent impact of Western theories, the latter approach has become the dominant interpretive framework. Within both of these broadly defined groups, one can further distinguish various smaller trends with specific features." (p. 241)

121. Lloyd, Geoffrey E.R. 2007. "Towards a Taxonomy of Controversies and Controversiality: Ancient Greece and China." In *Traditions of Controversy*, edited by Dascal, Marcelo and Chang, Han-Liang, 3-15. Amsterdam: John Benjamins.

"Following up Marcelo Dascal’s emphasis on the importance of controversy as the locus of critical activity and innovation, and building on his triadic classification of polemics into “discussion”, “dispute” and “controversy” (Dascal 1998b), I shall raise a number of questions concerning the specificities of the controversies for which we have evidence in ancient Greece and China. What typically were the controversies and disputes about? Between whom were they held? Who were the participants, who constituted the audiences, and what are the relations between those two groups? How do the contenders come to agree, if and when they do, to their resolution? What, in the final analysis, is at stake, and for whom?

There are important similarities, as well as differences, between the controversies and disputes of ancient Greece and China, and (as I argued already in Lloyd 1996) these already tell against any simple thesis of a global psychological contrast between adversarial Greeks and irenic Chinese. Rather, an exploration of the patterns of controversies in these two cultures can throw important light on the implicit and explicit

values characteristic of the societies in question and so also on the different ways in which science developed in each." (p. 3)

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Dascal, M. 1998b. “The study of controversies and the theory and history of science”. *Science in Context* 11: 147–154.

Lloyd, G.E.R. 1996. *Adversaries and Authorities: Investigations into Ancient Greek and Chinese Science*. Cambridge: Cambridge University Press.

122. López-Astorga, Miguel. 2021. "School of Names and mental possibilities: Is a white horse a horse?" *Studii de lingvistică* no. 11:167-175.

Abstract: "According to the ‘white horse’ paradox, a horse that is white is not a horse: it is a white horse, but not a horse. Though logical arguments can be adduced in support of the proposition, people tend to reject the paradox. Individuals often regard a white horse as a horse and therefore usually ignore the arguments from logic. This paper attempts an explanation of their behaviour. The theory of mental models offers a cognitive explanation for the habitual rejection of the paradox. Within this framework, the key is the way that people reason – a way that does not necessarily coincide with logic."

123. Loy, Hui-chieh. 2003. "Analects 13.3 and the Doctrine of "Corrcting Names"." *Monumenta Serica. Journal of Oriental Studies* no. 51:19-36.

124. ———. 2020. "Correcting Names in Early Confucianism." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 329-349. Cham, Switzerland: Springer.

"According to a widely held conventional wisdom, the doctrine of *zhèngmíng* 正名, “rectification of names”, or perhaps “correcting names”, appears to be central to the tradition that springs from the thought of Confucius (Kǒngzǐ 孔子). But whether *zhèngmíng* really is central to early Confucianism, what the doctrine itself amounts to remains the subject of continuing controversy.(1) This paper aims to present an account of the *zhèngmíng* doctrine in Early (i.e., Pre-Imperial)

Confucianism, especially as it is presented in the *Analects* (Lúnyu ˇ 論語), and secondarily, the “zhèngmíng” essay of the Xúnzi ˇ (荀子).

(1) useful collation of traditional opinions on *zhèngmíng* in the *Analects* can be found in Liu Zhenghao 劉正浩 1978. See also Makeham 2003: 333–340. Hu Shih 胡適 is likely the source of the modern conventional wisdom—for him, Confucius saw *zhèngmíng* as “the heart of the problem of social and political reformation,” while “the reform of society” as itself, the “central problem of Confucius”, thus implying that *zhèngmíng* is central to the thought of Confucius (Hu 1963: 22). This notion, however, probably has much to do with Hu’s idiosyncratic concerns rather than completely based upon an accurate assessment of the tradition.

References

Hu, Shih胡適. 1963. The Development of the Logical Method in Ancient China. 2nd ed. New York: Paragon Book Reprint Corp. (Study of Early Chinese Philosophy the author of which is a major twentieth century Chinese thinker in his own right.)

Liu, Zhenghao 劉正浩. 1978. “An Examination of Kongzi’s zhèngmíng.” *Journal of the Kongzi-Mengzi Society* 孔孟學報. 36: 157–168. (Useful survey of the traditional opinions on the doctrine of “Correcting Names”.)

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125. Lu, Xing. 1998. *Rhetoric in Ancient China, Fifth to Third Century, B.C.E.: A Comparison with Classical Greek Rhetoric*. Columbia, SC: University of South Carolina Press.

126. Lucas, Thierry. 1993. "Hui Shih and Kung Sun Lung: An Approach from Contemporary Logic." *Journal of Chinese Philosophy* no. 20:211-255.

"Semantical instruments of contemporary logic are applied to the analysis of Hui Shih's "Ten propositions" and Kung Sun

Lung's discourses "On the white horse", "On hard and white", "On indices and things". The notion of logical interpretation is used to clarify the structure of Hui Shih's argument; coupled with the notion of sorted language, it also allows us to show the logical coherence and common structure of Kung Sun Lung's three discourses."

127. ———. 2005. "Later Mohist Logic, *Lei,* Classes and Sorts." *Journal of Chinese Philosophy* no. 32:349-366.

128. ———. 2010. "The Logic of Mohist Reasonings; Leis and Structured Sorts." *Universitas: Monthly Review of Philosophy and Culture (Taipei)* no. 37:65-93.

    Abstract: "It is well-known that some Mohist reasonings of the final portion of the Xiao qu 〈小取〉 are paradoxical: “a robber is a man, but to kill a robber is not to kill a man”. In this paper, we analyze and formalize the different groups of Mohist reasonings using concepts of contemporary western logic: classes, sorts, structured sorts as they appear in the mathematical theory of categories. We solve those paradoxes by using sorts and more generally arrive at the conclusion that those reasonings are based on structured sorts, a notion which, in our opinion, is fundamental to clarify the notion of lei (類)."

129. ———. 2011. "Basic Concepts of Mohist Logic." *Studies in Logic* no. 4:82-108.

    Abstract: "The following text has been presented with minor modifications to the colloquium “The History of Logic in China” which took place in Amsterdam on November 24-26, 2010. It will briefly recall the historical and intellectual context of later Mohist Logic and will mainly discuss its basic logical concepts in relation with contemporary logic: disputation; name, object and their relation; proposition; “lèi” (class or sort or kind); inference. Other notions such as a priori, necessary and sufficient condition, quantification, necessity, time, space, infinity, ... will also be mentioned."

130. ———. 2012. "Why White Horses are not Horses and Other Chinese Puzzles." *Logique et Analyse* no. 55:185-203.

"The aim of this paper is on the one hand to remind the Western reader some aporias of Chinese antiquity, and on the other hand to show that a logic of sorts or of types similar to that which has been proposed to explain the relation between categories (in the mathematical sense of the term) and logic brings much light on these aporias. This should be contrasted with older traditional explanations using conventional syllogistics or feeling satisfied with too simple explanations such as the confusion between inclusion and identity. The article is based on preceding papers of mine (see [LUC], [LUCa], [LUCb]), but stresses the basic unity of the solutions which I proposed there, a unity which is probably not apparent to the casual reader and which is shown here by sketching a very simple formal system and its semantics. I apologize for overlappings with some of my previous publications, but it seemed to me that the present paper would be unreadable if I just presented the final part without repeating the basic motivations."

References

[LUC] Lucas Thierry, "Hui Shih and Kong Sun Lung: an approach from contemporary logic", *Journal of Chinese Philosophy*, 20(2), 1993, pp. 21 1-255.

[LUCa] Lucas Thierry, "Later Mohist Logic, Lei, Classes and Sorts", *Journal of Chinese Philosophy*, vol. 32, no 3, 2005, pp. 349-365.

[LUCb] Lucas Thierry, "The Logic of Mohist reasonings; Leis and structured sorts", *Universitas: Monthly Review of Philosophy and Culture* (Taipei, Taiwan, R.O.C.), vol. 37, no 8, 2010, pp. 65-93.

131. ———. 2012. "Definitions in the Upper Part of the Moist Canons." *Journal of Chinese Philosophy* no. 39:386-403.

Abstract: "The purpose of this article is to evaluate the Moist Canons from the point of view of logic, as a system of definitions.We concentrate more specifically on the formal organization of the upper part of the Moist Canons.This method leads us to a globally positive evaluation of the system

of definitions but also to the less expected conclusion that a few very basic concepts are undefined and form the background of the Moist concrete, realist, and pragmatic philosophical system: *ran*, to be so; *de*, to obtain; *ming*, illumination; *zuo*, to initiate; and *wei*, to act."

132. ———. 2013. "Parallelism in the Early Moist Texts." *Frontiers of Philosophy in China* no. 8:289-308.

    Abstract: "Parallelism is present everywhere in the early Moist texts: at the syntactic level, at the semantic level, between sentences, between sets of sentences, between argumentative structures. The present article gives many examples of the phenomenon: parallelism of insistence, insistence from top to bottom, insistence from bottom to top, parallelism with symmetry, parallelism involving negation, subcontraries and negation at deeper levels, parallelism of the argumentative structures. Logic is particularly applied to the study of parallelism involving negation. From the point of view of argumentation, it is shown that many of those constructions have an important role in supporting arguments such as: arguments of generalization, *a fortiori* arguments, arguments of exemplarity, consequentialist arguments, arguments by comparison. This study draws the attention to the importance of argumentation in the study of Moism and gives a new light on the argument by parallelism (*mou*) in the "Xiaoqu": It is a natural extension of what we call "parallelism involving negation," already very common in the early Moist texts."

133. ———. 2018. "Limits of Logic in Moism." *Journal of Chinese Philosophy* no. 45:239-251.

    Abstract: "We are trying to answer the following question, using the distinctions of contemporary logic: why did the Moists stop at some points on their otherwise remarkable way to logic? We argue that they did not explicitly discover negation because of their insistence on linguistic parallelism; they did not recognize logical conjunction nor logical disjunction because of juxtaposition or prefixation; they did not identify the notion of sufficient condition; negation of quantifiers was treated as a problem of extension; their notion of proposition

was limited; they discovered some intensionality phenomena but did not explore them very deeply; they insisted more on argumentation than on logic. However our exploration of these limitations shows that the Moists had discovered many logical phenomena and that their attention to the structure of the proposition and to their parallelism reveals a real interest in formal methods."

134. ———. 2020. "Definitions in Pre-Qin Texts." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 233-249. Cham, Switzerland: Springer.

"With these preliminaries at hand, we will track definitions in a few typical pre-Qin texts and judge them by looking at some of the characteristics which we have hinted at. For the ease of the reader, we present them under four headings, which are natural from a logical point of view:

1. syntactic questions: Is the definition clearly announced as such? What is the background language and the background theory? Is the definition clear? Is it compact enough?

2. semantic questions: Is the definition adequate? Is it complete?

3. relation of the definition with other definitions: Is the definition part of a system of definitions? Is that system free of vicious circles?

4. pragmatic questions: What is the purpose of the definition?

In relation with the last question, it is good to remind the reader that pre-Qin thinkers were mainly motivated by ethical and political questions. However, language was an important part of their reflections, in a complex sense, depending from author to author, for which the reader can consult (Willman 2018)." (pp. 235-236)

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Willman, Marshall. 2018. “Logic and Language in Early Chinese Philosophy”. In Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2018 Edition). URL =

https://plato.stanford.edu/archives/win2018/entries/chinese-logic-language/

135. ———. 2020. "The Logical Style of Confucius' *Analects*." *Frontiers of Philosophy in China* no. 15:167-197.

Abstract: "Considered from a logical point of view, Confucius' *Analects* contain many implicit forms of reasoning and argumentation. This is shown first by analyzing the phenomenon of parallelism: direct parallelism is often a way of hinting at a general assertion, whereas anti-parallelism hides dilemmas, generalizations and modal notions of "moral preference." *The Analects* also have various types of conditionals, ranging from material implications, to modalized implications, and counterfactual conditionals, which are the germs of implicit reasoning, concluding with a moral recommendation. Analogies are particularly abundant and a presentation of three examples suggests that, beyond their explicative role, they also involve moral recommendations. The implicit logic of *The Analects* requires an active, albeit unconscious participation of the reader, which could be an important element in explaining the enduring influence of the text."

136. ———. 2020. "Logical Thought in Mohism and Later Mohism." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 253-283. Cham, Switzerland: Springer.

137. ———. 2020. "Logically Significant Words in the *Gōngsūn Lóngzi*ˇ." In *The Gongsun Longzi and Other Neglected Texts: Aligning Philosophical and Philological Perspectives*, edited by Suter, Rafael, Indraccolo, Lisa and Behr, Wolfgang, 313-346. Berlin: De Gruyter.

"The "School of Names" (Míngjiā 名家) has brought logical considerations into the field of Chinese philosophy. The present contribution aims to give a 'measure' of the 'logicity' of the texts, more particularly of the texts of the Gōngsūn Lóngziˇ 公孫龍子. The chapter looks at some logically significant words, such as yoˇu 有, wú 無, kě 可, fēi 非, bù 不, gù 故, and suoˇ yiˇ 所以, trying to make the analysis as objective as possible. To

accomplish this, I pay special attention to the occurrences of these words: their numbers, their immediate contexts, and their non-controversial variations of meaning. I am confident that this type of inquiry brings out some features of the logical structure of the texts of the Gōngsūn Lóngzi˘ and demonstrates their similarities and differences. It is hoped that this approach will help to confirm, invalidate, or at least qualify the hypothesis of their different origins." (p. 313)

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History of Logic

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2. Makeham, John. 1989. "The *Chien-pai* Sophism: Alive and Well." *Philosophy East and West* no. 39:75-81.
3. ———. 1989. "Mohist Marginalia: A New Interpretation and Translation of Canon and Explanation B 67 in the Neo-Mohist Summa." *Papers on Far Eastern History* no. 39:167-176.
4. ———. 1990. "Mohist Marginalia'—Addenda and Corrigenda." *Papers on Far Eastern History* no. 42:125-130.
5. ———. 1991. "Names, Actualities, and the Emergence of Essentialist Theories of Naming in Classical Chinese Thought." *Philosophy East and West* no. 41:341-363.

   "In this paper the author advances the thesis that by the late Third century b.C., discussions of the name and actuality/object, *iming-shid*, relationship by classical Chinese thinkers evidence a shift from nominalist theories of naming to essentialist theories of naming. According to the former, it is man who arbitrarily or conventionally determines which *imingd* should be applied to which *ishid*. According to the latter, there is a proper or correct correspondence between a given *imingd* and a given *ishid*, determined, variously, by what is ordained by 'heaven' or by what is 'naturally so'/'so of itself' (*izirand*)."
6. ———. 1994. *Name and Actuality in Early Chinese Thought*. Albany: State University of New York Press.
7. ———. 2003. "Names, School of (*Ming Jia, Ming Chia*)." In *Encyclopedia of Chinese Philosophy*, edited by Cua, Antonio S.,

491-497. New York: Routledge.

"The members of the ming jia (mingjia), or “school of names”—like the ancient Greek sophists after whom they are sometimes called (they are also, variously, called dialecticians, nominalists, and logicians)—were not an actual school of thinkers bound by a common philosophy or having a common founder. Rather, they were individual thinkers who have been retrospectively identified as a school by virtue of a perceived common eristic approach to disputation or discrimination (*bian*).

It was for their skills in disputation that in pre-Qin times they were sometimes known as *bian zhe*, “those who argue out alternatives.” The Mohist Summa explains proper disputation in the following terms:

One calling it “ox” and one calling it “not ox”; this is to contend over “that.” This being the case, they are not both appropriate. Since they are not both appropriate, one is necessarily appropriate. (Explanation A.74)" (p. 491)

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    "This is a relatively short and concise presentation of various pre-Chin philosophical views on the problems of knowledge and their interrelationships. " Chung-Ying Cheng, Inquiries into Classical Chinese Logic, *Philosophy East andf West*, 15, 1965, p. 214.
11. Meyer, Andrew Seth. 2017. "The Frontier between Chen and Cai: Anecdote, Narrative, and Philosophical Argumentation in Early China." In *Between History and Philosophy: Anecdotes*

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13. Meynard, Thierry. 2019. "What the “Failure” of Aristotelian Logic in Seventeenth Century China Teaches Us Today: A Case Study of the Mingli Tan " *Frontiers of Philosophy in China* no. 14.

    Abstract: "The Mingli Tan is recognized as the first Chinese-language treatise introducing Western logic in China. First published in the final years of the Ming dynasty, the work was presented to Emperor Kangxi in 1683. Despite its sophisticated thought and innovation, the work failed to gain support among intellectuals and court officials. By analyzing the objectives of the Mingli Tan in tandem with its companion work, the Coimbra commentary, this paper explores some of the important philosophical, pedagogical, and historical reasons that can help to explain this failure. Through this historical failure, we can gain some insights about the nature of logic and its current position in China."

14. Ming, Thomas, and Aaron, Lai. 2016. "Fixing the White Horse Discourse: Zhuangzi’s Proof of “A White Horse Is not a Horse”." *Philosophy East and West* no. 66:271-289.

15. Moller, Hans-Georg. 1997. "The Chinese Theory of Forms and Names ("*Xingming Zhi Xue*") and Its Relation to "Philosophy of Signs"." *Journal of Chinese Philosophy* no. 24:179-190.

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17. Mou, Bo. 1998. "An Analysis of the Ideographic Nature and Structure of the Hexagram in "Yijing": From the Perspective of Philosophy of Language." *Journal of Chinese Philosophy* no. 25:305-320.

"I present an analysis of the ideographic nature and semantic structure of the hexagrams of the "Yijing" ("the book of changes") from the perspective of the philosophy of language. My purpose is twofold: first, i take this as a good case for analysis leading to an understanding of the ideographic semantic structure of an ideographic language like Chinese; second, I take this understanding as a significant aspect in comprehending the "Yijing" philosophy. In the paper, I first examine the ideographic construction of the hexagrams, then suggest an interpretation of the triple ideographic semantic structure, and finally discuss the denotational meaning of the hexagrams in terms of a collective-noun hypothesis."

18. ———. 1999. "The Structure of the Chinese Language and Ontological Insights: A Collective-Noun Hypothesis." *Philosophy East and West* no. 49:45-62.

    "Through a comparative case analysis regarding the Chinese language, it is discussed how the structure and functions of a natural language would bear upon the ways in which some philosophical problems are posed and some ontological insights shaped. Disagreeing with Chad Hansen's mass-noun hypothesis, a collective-noun hypothesis is argued for: (1) the denotational semantics and relevant grammatical features of Chinese nouns are like those of collective nouns; (2) their implicit ontology is a mereological ontology of collection-of-individuals with both part-whole and member-class structure; and (3) encouraged and shaped by the folk semantics of Chinese nouns, classical Chinese theorists of language take this kind of mereological nominalism for granted."

19. ———. 2006. "Chinese Philosophy: Language and Logic." In *Encyclopedia of Philosophy*, edited by Borchert, Donald M., 202-215. Chicago: Thomson-Gale/Macmillan Reference.

20. ———. 2007. "A Double-Reference Account: Gongsun Long's "White-horse-not-horse" Thesis." *Journal of Chinese Philosophy* no. 34:493-513.

21. ———. 2007. "Introduction: Methodological Notyes." *Journal of Chinese Philosophy* no. 34:465-470.

Abstract: "The theme of this special issue is to discuss Gongsun Long's "whitehorse-not-horse (*bai ma fei ma*)" thesis and his relevant thoughts in view of their relevance and significance to contemporary philosophy.

This introduction consists of two parts. In the first part, I will briefly introduce the basic views of four contributors' distinct accounts of Gongsun Long's thesis and arguments; I then will briefly explain the engaged approaches adopted by this volume. In the second part, I shall draw readers' attention to the two emphases as a whole and their related methodological orientations and reflective purposes. My focus is on the second part when making some methodological notes concerning the reflective examination of Gongsun Long's philosophy and its relevance and significance to contemporary philosophy."

22. ———. 2009. *Substantive Perspectivism: An Essay on Philosophical Concern with Truth*. Dordrecht: Springer.

    Chapter 5: *A Cross-Tradition Examination – Philosophical Concern with Truth in Classical Daoism*, pp. 125-158.

23. ———. 2016. "How the Validity of the Parallel Inference is Possible: From the Ancient Mohist Diagnose to a Modern Logical Treatment of Its Semantic-Syntactic Structure." *History and Philosophy of Logic* no. 37:301-324.

24. ———, ed. 2018. *Philosophy of Language, Chinese Language, Chinese Philosophy: Constructive Engagement*. Leiden: Brill.

25. ———. 2020. "How Gōngsūn Lóng's Double-Reference Thought in His "White Horse Not Horse" Argumentation Can Engage with Fregean and Kripkean Approaches to the Issue of Reference." In *The Gongsun Longzi and Other Neglected Texts: Aligning Philosophical and Philological Perspectives*, edited by Suter, Rafael, Indraccolo, Lisa and Behr, Wolfgang, 169-204. Berlin: De Gruyter.

    "The purpose of this chapter is to explore how Gōngsūn Lóng's double-reference approach in his argument in support of the "white horse not horse" (bái maˇ fēi maˇ 白馬非馬) thesis (which I will refer to below as the "white horse not horse" argumentation, for short) can contribute to our understanding

and treatment of the issue of how reference is possible. It will engage with two approaches which are representative of the discussion of this problem in contemporary philosophy of language, namely the Lockean-Fregean and the Millian-Kripkean approaches. My basic view is this: first, it is philosophically significant that, through his “white horse not horse” argumentation, Gōngsūn Lóng applies the double-reference character of a referring name in the (declarative) subjectpredicate sentential context of what I call “the basic employment of language” to the effect that something is said of an object; second, his double-reference thought4 allows us to engage with the two major approaches to reference in contemporary philosophy of language. It shows how the convincing aspects of both can be brought together, while other issues neglected by both can be constructively complemented.

This chapter will address the issue as follows: In part 1, I will present a double-reference account of Gōngsūn Lóng’s “white horse not horse” thesis. In part 2, I will explain how a double-reference account of Gōngsūn Lóng’s “white horse not horse” thesis can complement current approaches to reference and enhance our understanding of how reference is possible." (pp. 169-170, notes omitted)

26. ———. 2020. "Naming, Reference and Truth." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 33-70. Cham, Switzerland: Springer.

"With the foregoing notes, my strategy is this. First, in Sect. 1, I will explain several basic points as revealed by the rich resources in the classical text *Gong-Sun-Long-Zi*, focusing on the relevant points in the “*Bai-Ma-Lun*” [*The White Horse Dialogue*], “*Zhi-Wu-Lun*” ["Discourse on Pointings and Things", chapter 3 of *Gong-Sun-Long-Zi*] and “*Ming-Shi-Lun*” ["Discourse on Names and Actualities", chapter 6 of *Gong-Sun-Long-Zi*]. Second, in Sect. 2, I will analyze how, essentially in line with Gongsun Long’s relevant point in the *“Bai-Ma-Lun*”, the Later Mohists significantly show their semantic sensitivity to the due identities of the referents in reasoning, as primarily suggested in the Later Mohist text *Xiao-Qu*) [the “Small Selection” of the Mozi], Third, in Sect. 3, I will look at how,

essentially in line with Gongsun Long's general point on the due-place actuality in the "*Ming-Shi-Lun*", Confucius' account of name rectification (as suggested in the *Analects*) together with Xun Zi's and Wang Chong's further developments addresses the issue of reference in moral reality. Fourth, in Sect. 4, I will explain how Lao Zi makes interesting and engaging points concerning the relationship between language engagement and the ultimate concern and between the "speakable" and the "unspeakable" as suggested in the *Dao-De-Jing*. Fifth, in Sect. 5, I will briefly examine a relatively recent debate on the relation of the structure of Chinese nouns to Chinese thought from the referential point of view: I will focus on how the mass-noun-semantics part of Hansen's mass-noun hypothesis are challenged by some competing accounts in view of the referential relation between Chinese nouns and referents. Sixth, in Sect 6, I will address the intrinsic connection between the two basic semantic notions, reference and truth and briefly explain to what extent the content of this essay on the issue of reference is intrinsically related to an account of how (semantic) truth is possible in any intellectual inquiries into "how things are", generally speaking, and in logic, specifically speaking." (p. 36)

27. Mou, Zongsan. 2015. *Nineteen Lectures on Chinese Philosophy: A Brief Outline of Chinese Philosophy and the Issues It Entails*. San José (CA): Foundation for the Study of Chinese philosophy and Culture.

    Translated by Esther C. Shu.

    Lecture Ten: The Pre-Quin School of Names: A Summary of Its Character and Content.

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29. Paul, Gregor. 1991. "Reflections on the Usage of the Terms 'Logic' and 'Logical'." *Journal of Chinese Philosophy* no. 18:73-87.

30. ———. 1992. "Against Wanton Distortion: A Rejoinder to David Hall's and Roger Ames' Criticism of My Reflections on Logic and Confucius." *Journal of Chinese Philosophy* no. 19:119-122.

31. ———. 1993. "Equivalent Axioms of Aristotelian, or Traditional European, and Later Mohist Logic: An Argument in Favor of the Universality of Logic and Rationality." In *Epistemological Issues in Classical Chinese Philosophy*, edited by Lenk, Hans and Paul, Gregor, 119-135. Albany: State University of New York Press.

32. Perleberg, Max. 1952. *The Work of Kung-sun Lung-tzu = Kung-sun Lung-tzu, with a translation from the parallel Chinese original text, critical and exegetical notes, punctuation and literal translation, the Chinese commentary, prolegomena, and index*. Hongkong: Local printing Press.

    Reprint: Westport, Conn., Hyperion Press, 1973.

33. Pogonowski, Jerzy. 2010. "Remarks on Ancient Chinese Logic." In *Logic in Religious Discourse*, edited by Schumann, Andrew. Frankfurt: Ontos Verlag.

34. Qiao, Liqing, and Min, Shangchao. 2009. "A Study on Confucius' Views on Language Functions." *Polyglossia: the Asia-Pacific's voice in language and language teaching*:69-75.

    Abstract: "Confucius, one of the most important educationalists, thinkers and philosophers in the Chinese history, has great impacts on Chinese people's life and is gaining increasing popularity worldwide. A great number of researches into the thoughts of Confucius have been conducted at home and abroad, most of which are from the perspectives of philosophy, culture, religion, etc. But his views on language, especially on the role of language in social life, have not been paid due attention to. This paper aims to examine thoroughly Confucius' thoughts on language functions and make a comparison between Confucius' views on language functions and some western theories of language functions. We find that language functions mainly fall into three categories including communicative function, ethical function and political function. We also find that both Confucius and Western scholars share

the view that language bears a close relationship with politics while they still hold some different opinions. Confucius places more emphasis on a higher and more specific level of language functions while western scholars focus more on the general and objective level."

35. Qin, Shurang. 2019. "A New Theory of the Historical Development of Chinese Logic in the Pre-Qin Era 先秦邏輯新論." *Dao: A Journal of Comparative Philosophy* no. 18:313-317.
36. Qingtian, Cui. 2005. "Processes and Methods in Researching the History of Chinese Logic." *Asian and African Studies* no. 9:15-25.
37. ———. 2021. "Researching the History of Chinese Logic. The Role of Wen Gongyi in the Establishment of New Methodologies." *Asian Studies* no. 9:105-120.
38. Qingtian, Cui, and Xiaogung, Zhang. 2005. "Chinese Logical Analogism." *Asian and African Studies* no. 9:14-24.
39. Raphals, Lisa. 1998. "On Hui Shi." In *Wandering at Ease in the Zhuangzi*, edited by Ames, Roger T., 143-161. Albany: State University of New York Press.
40. Reding, Jean-Paul. 1986. "Greek and Chinese Categories: A Reexamination of the Problem of Linguistic Relativism." *Philosophy East and West* no. 36:349-374.

    Reprinted in: J. P. Reding, *Comparative Essays in Early Greek and Chinese R ational Thinking*, Aldershot: Ashgate 2004, pp. 65-92.
41. ———. 1986. "Analogical Reasoning in Early Chinese Philosophy." *Asiatische Studien = Études asiatiques* no. 40:40-56.
42. ———. 2002. "Gongsun Long on What Is Not: Steps Toward the Deciphering of the *Zhiwulun*." *Philosophy East and West* no. 52:190-206.

    "The *Zhiwulun,* chapter 3 of the *Gongsunlongzi,* attributed to the Sophist Gongsun Long (third century B.C.), is generally

interpreted as a theoretical treatise on the relations between words and things. A new reading proceeds from the hypothesis that the *Zhiwulun,* like the *White Horse Treatise, is* another logical puzzle. Its theme is the problem of pointing out things that do not exist in the world or, put in modern terms, the problem of negative existentials. The *Zhiwulun* is a dilemma whose purpose is to show that the pointing that points at things that do not exist points without pointing."

43. ———. 2004. *Comparative Essays in Early Greek and Chinese Rational Thinking*. Aldershot: Ashgate.

    Contents: Acknowledgements VII; Introduction 1; 1. 'Contradiction is Impossible' 17; 2. The Origin of Logic in China 31; 3. Philosophy and Geometry in Early China 49; 4. Greek and Chinese Categories 65; 5. Words for Atoms - Atoms for Words: Comparative

    Considerations on the Origins of Atomism in Ancient Greece and on the Absence of Atomism in Ancient China 93; 6. Light and the Mirror in Greece and China: Elements of Comparative Metaphorology 127; 7. 'To Be' in Greece and China 167; ('hinese Characters and Texts 195; Bibliography 207; Index 223-229.

    Acknowledgements: 1. '"Contradiction is Impossible"' is a previously unpublished contribution; 2. 'The Origin of Logic in China' is an original contribution. Part of its research material goes back to an earlier paper that appeared in *Études Asiatiques* 40/1 (1986), 40-56, under the title 'Analogical Reasoning in Early Chinese Philosophy'; 3. 'Philosophy and Geometry in Early China' is a completely rewritten and expanded version of a paper that appeared in *Études Asiatiques* 47/4 (1993), 623-44, under the title 'Les philosophes-geometres de la Chine ancienne' (in French); 4 'Greek and Chinese Categories' appeared first in *Philosophy East and West* 36/4 (1986), 349-74. The present version is updated, corrected and enlarged; 5. 'Words for Atoms - Atoms for Words: Comparative Considerations on the origins of Atomism in Ancient Greece and on the Absence of Atomism in Ancient China' is a previously unpublished contribution. It originated as a series of lectures ('Warum gibt es keinen Atomismus im alten

China?') delivered at the University of Zurich in 1990/91. An earlier version of it was presented at the conference ‘Thinking through Comparisons’ in Eugene, Oregon (May 1998); 6. 'Light and the Mirror in Greece and China: Elements of Comparative Metaphorology’ was first presented at the Asian Studies Annual Meeting in Honolulu, Hawaii (April 1996), and also later in the same year at the annual meeting of the ‘Societeromande de philosophic’ at Rolle, Switzerland (June 1996). A shorter and less technical French version has appeared in the Revue de theologie et de philosophie 129 (1997), 1-30, under the title ‘L’utilisation philosophique de la métaphore en Grece et en Chine. Vers une metaphorologie comparee’ (in French). The present version has not been published before; 7. ' "To Be” in Greece and China’ is a previously unpublished contribution.

44. Ren, Yuan, and Lui, Yuyu. 2019. "A Pro-Realist Account of Gongsun Long’s “White Horse Dialogue”." *Philosophy East and West* no. 69:464-483.

45. Resnik, Michael David. 1968. "Logic and Scientific Methodology in the Writings of Mencius." *International Philosophical Quarterly* no. 8:212-230.

46. Reu, Wim de. 2006. "Right Words Seem Wrong: Neglected Paradoxes in Early Chinese Philosophical Texts." *Philosophy East and West* no. 56:281-300.

47. Rieman, Fred. 1977. "On Linguistic Skepticism in Wittgenstein and Kung-sun Lung." *Philosophy East and West* no. 27:183-193.

48. ———. 1980. "Kung-Sun Lung, Designated Things and Logic." *Philosophy East and West* no. 30:305-319.

49. ———. 1981. "Kung-sun, White Horses and Logic." *Philosophy East and West* no. 31:415-447.

50. Robins, Dan. 2000. "Mass Nouns and Count Nouns in Classical Chinese." *Early China* no. 25:147-184.

51. ———. 2010. "The Later Mohists and Logic." *History and Philosophy of Logic* no. 31:247-285.

Abstract: "This article is a study of the Later Mohists' 'Lesser Selection (*Xia˘oqu˘*)', which, more than any other early Chinese text, seems to engage in the study of logic. I focus on a procedure that the Mohists called *mo´u* . Arguments by mo´u are grounded in linguistic parallelism, implying perhaps that the Mohists were on the way to a formal analysis of argumentation. However, their main aim was to head off arguments by *mo´u* that targeted their own doctrines, and if their argument succeeds then it entails that linguistic parallelism can never ground a cogent argument. In a way, this committed them to the view that formal logic cannot work, but the fact that they did not pursue this line of investigation was by no means inevitable. One consequence of this study is that the Later Mohists conducted their logical work by studying the behaviour of terms and verb phrases, and did not identify the sentence as a significant linguistic unit. This tends to confirm Chad Hansen's generalisation that early Chinese philosophers did not posit sentences or other sentence-like entities such as propositions, beliefs, or laws. Focusing on subsentential expressions did not stop the Mohists from addressing genuinely logical issues, but it may help explain the fact that they never developed a conception of logical structure. This study includes the complete Chinese text of the 'Lesser Selection' and a translation in English."

52. ———. 2012. "Names, Cranes, and the Later Moists." *Journal of Chinese Philosophy* no. 39:369-385.

53. Rosemont Jr., Henry. 1974. "On representing Abstractions in Archaic Chinese." *Philosophy East and West* no. 24:71-88.

54. ———. 1992. "Remarks on the Quasi-Syllogism." *Philosophy East and West* no. 42:31-35.

55. Rošker, Jana S. 2011. "The theoretical shift in the Wei Jin period and the birth of the structural semantic (名理)." In *The Yields of Transition: Literature, Art and Philosophy in Early Medieval China*, edited by Rošker, Jana S. and Suhadolnik, Nataša Vampelj, 9-28. Newcastle upon Tyne: Cambridge Scholars Publishing.

56. ———. 2014. "Specific Features of Chinese Logic: Analogies and the Problem of Structural Relations in Confucian and Mohist Discourses." *Synthesis Philosophica* no. 57:23-40.

Abstract: "The article follows the presumption according to which analogical inferences in Chinese tradition followed a structure that connected all elements within a particular kind. This structure functioned as the basic element of analogies. Another crucial characteristic of classical Chinese analogies is the method of combining meanings. The composition of classical Chinese sentences tends towards the intrinsic connection among the individual parts of the sentence, and rarely applies morphological signs. This particular feature of the Chinese language also influenced the prevailing methods of thought that manifested themselves

in the processes of inferences, based upon proximity, similarity and identity. Focusing uponearly Confucian and Mohist philosophy, the author shows how and why these methods could lead to the creation of a specifically Chinese type of analogism.""

57. ———. 2015. "Classical Chinese Logic." *Philosophy Compass* no. 19:301-309.

Abstract: "The present article provides an introduction to classical Chinese logic, a term which refers to ancient discourses that were developed before the arrival of significant external inf luences and which flourished in China until the first unification of China, during the Qin Dynasty (221 BC). Taking as its premise that logic implies both universal and culturally conditioned elements, the author describes the historical background of Chinese logic, the main schools of Chinese logical thought, the current state of research in this area and the crucial concepts and methods applied in classical Chinese logic. The close link between

Chinese logic and the Chinese language is also stressed."

58. ———. 2017. "Structural Relations and Analogies in Classical Chinese Logic." *Philosophy East and West* no. 677:841-863.

"The present article aims to expose some aspects of the specific features of classical Chinese analogisms. First, it exposes the supposition that this type of analogism did not focus exclusively on forms without considering their content, that is, that it was linguistically and semantically determined. Second, it also aims to show that classical Chinese analogies are based on structural relations between the objects in question,

which constitute the similarity of two types (or kinds) of things that share certain attributes. This article additionally sheds light on the question of how and why the structure underlying these relations represents a semantic and axiological referential framework that functions as the methodological foundation of the tight connection between logic and ethics in ancient China." (p. 841)

59. ———. 2021. *Interpreting Chinese Philosophy: A New Methodology*. New York: Bloomsbury Academic.

    Chapter 3: *Chinese Logic as a Basis of Classical Chinese Theory*, pp. 73-99.

    "3.1 Semantic Nature of Chinese Logic

    In China, logical reasoning was closely connected to language, especially with respect to semantic issues and was determined by its tight relation to ethics (e.g., Mozi s.d., Jing xia, 155). However, this does not mean that in classical texts which are not immediately identifiable with metaphysical and ethical discourses there were not also forms of logical and methodological thought.

    Although Chinese philosophy developed in connection with ethical ideas and metaphysical concepts, there was a close relationship between moral and metaphysical thought, on the one hand, and logical reasoning, on the other.(3)

    Classical Chinese logical thought never neither elaborated any explicitly systematic and comprehensive formulation of the laws of reason nor produced a coherent system of symbolism for abstract reasoning. Prior to the eighteenth and early nineteenth centuries, Chinese thinkers had rarely encountered a systematic and well-formulated logical work. But as Cheng

Chung-Ying (1965, 196) points out, this does not mean that classical Chinese thought lacked logical depth or consistency." (p. 74)

(...)

"3.2 Chinese Analogies

The present chapter aims to expose some aspects of the specific features of classical Chinese analogisms, which form a very important thought pattern prevailing in the entire Chinese intellectual tradition.(27)

Firstly, I would like to reveal that this type of analogism did not focus exclusively on forms without considering their content, that is, that it was linguistically and semantically determined. Secondly, it also aims to show that the classical Chinese analogies are based upon structural relations between the objects in question, which constitute the similarity of two types (or kinds) of things that share certain attributes. This chapter additionally sheds light upon the question of how and why the structure underlying these relations represents a semantic and axiological referential framework that functions as the methodological foundation of the tight connection between logic and ethics in ancient China." (p. 83)

(3) The reasons for the decline of the latter in early medieval China are multiple and linked mainly to complex historical events and processes that shaped specific social conditions that proved to be unfavorable for the evolution of scientific thought and methodologies.

(27) This chapter includes a reworked version of my article “Structural Relations and Analogies in Classical Chinese Logic,” which was originally published in *Philosophy East & West*, Vol. 67, No. 3 (2017), 841–3.

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Cheng, Chung-Ying. 1965. “Inquiries into Classical Chinese Logic.” Philosophy East and West 15(3–4): 195–216.

60. ———. 2022. "Comparing Logical Paradoxes through the Method of Sublation: Hui Shi, Zeno and the “Flying Arrow

Problem”." *Asian Studies* no. X (XXVI):299-312.

Abstract: "This article addresses some basic methodological problems in the field of transcultural post-comparative studies of ancient logic by comparing the famous flying arrow paradox of Hui Shi (370–c. 310 BCE) with an apparently similar paradox attributed to Zeno of Elea (495–430 BCE). The article proceeds from a general introduction to the basic framework of semantically determined classical Chinese logic, to an illumination of Hui Shi’s specific contributions to the field, and finally to a preliminary explanation that emerges from a contrastive analysis of Zeno’s and Hui Shi’s respective views on the problem of motion and stasis as manifested in their corresponding paradoxes. The contrastive analysis, based on an exposition of some basic problems in the field of transcultural methodology and a description of the so-called sublation method, points to the importance of considering different paradigms and frames of reference in identifying differences between apparently similar theses."

61. ———. 2022. "*Asian Studies* and the History of Chinese Logic: A Long and Fruitful Journey." *Asian Studies* no. X (XXVI):7-10.

    "Chinese logic has always been the focus of interest of this journal in the field of Chinese thought and philosophy.

    (...)

    This special issue outlines the process of the introduction of logic in 20th century China. It describes the institutional as well as the conceptual and theoretical dimensions of this process, and presents the work of numerous eminent intellectuals who devoted their lives to promoting and introducing a public discourse of logic during this period. It also presents the Chinese institutional background that enabled the development of logic in China, such as academies, university departments, journals, and academic societies." (p. 7)

62. Roth, Harold D. 2003. *A Companion to Angus C. Graham's Chuang Tzu. The Innner Chapters*. Honolulu: University of Hawai's Press.

63. Saunders, Frank. 2014. "Semantics without Truth in Later Mohist Philosophy of Language." *Dao: A Journal of Comparative Philosophy* no. 13:215-229.

64. Schaberg, David. 2002. "The Logic of Signs in Early Chinese Rhetoric." In *Early China /Ancient Greece: Thinking through Comparisons*, edited by Shankman, Steven and Durrant, Stephen W., 155-186. Albany: State University of New York Press.

65. Schilling, Dennis. 2020. "Place as a Category in the 'Treatise on Name and Reality' (Míngshí lùn名實論)." In *The Gongsun Longzi and Other Neglected Texts: Aligning Philosophical and Philological Perspectives*, edited by Suter, Rafael, Indraccolo, Lisa and Behr, Wolfgang, 207-239. Berlin: De Gruyter.

    "The 'Treatise on Name and Reality' (Míngshí lùn 名實論, hereafter the Treatise)(1) opens with a categorical schema that aims to expose the principle of "rectifying names" (zhèng míng 正名) – that is, the correct usage of names. The application of these conditions for designations becomes the subject of further treatment in the subsequent passages. The schema first introduces the categories "to be a 'thing'" (wù 物, here denoting to the name 'thing') and "to be solid" (shí 實), then presents the category "to be in a place" (wèi 位), and finally leads to the judgment "to be right" (zhèng 正).

    [Chinese texct omitted]

    [1] 'Heaven' and 'earth' and what is born by them inside are 'things'.

    [2] [The name] 'thing' is solid as [it applies the name] 'thing' [to] what is [named] 'thing' and does not go beyond that.

    [3] A 'solid' (i.e. the name applied to the object) is in a place as [it] fills out what is [named to be] filled out without leaving a void inside.

    [4a] [Names] that step out where they [should] be placed do not constitute a place.

[4b] [Names] that are placed where they [should] be placed are right.

A very short, general summary of these four statements could proceed as follows: Names are related to things. Naming things makes names ‘solid’, as they become visible and recognizable for us in objects. And finally, naming places objects in positions relative to other positions, which enables us to evaluate their realization. ‘Names’ and ‘naming’ (míng 名) are the overall topic of the schema even though the word míng is not mentioned directly. Yet names appear in different forms in reality at the same time: a name can be a designation (‘thing’), an expression of meaning (‘solid’), and an assignment (‘place’). These forms are interrelated, and the schema exposes their various relations. I use the term ‘category’ to refer to these relations, since they are constitutive for making a predication (wèi謂)." (pp. 208-209, some notes omitted)

(1) The ‘Treatise about Name and Reality’ (Míngshí lùn 名實論; abbreviated as MSL in the footnotes) belongs to the transmitted corpus of the Gōngsūn Lóngzi˘ 公孫龍子(abbreviated as GSLZ).

66. Schleichert, Hubert. 1993. "Gong-sun Long on the Semantics of ‘World’." In *Epistemological Issues in Classical Chinese Philosophy*, edited by Lenk, Hans and Paul, Gregor, 113-117. Albany: State University of New York Press.

67. She, Shiqin. 2022. "Critique of “Judgment” in Gongsun Long’s “Zhiwu Lun”—A Comparative Reading in the Light of Hölderlin’s “Judgment and Being”." *Asian Studies* no. X (XXVI):269-298.

Abstract: "This paper has attempted to characterize “Zhiwu lun” as the presentation of the incapacity of object-oriented knowledge to represent the realm of “things”, highlighting Gongsun Long’s epistemological and ontological value beyond a logical one. This paper proposes that only based upon this assumption does “Zhiwu lun” allow a thorough interpretation of “Mingshi lun”, whereby the intuitive function of “names” provides a better solution to the cognitive limits imposed by object-oriented (self-)consciousness. Methodologically, this

paper mainly considers the Heidelberg School's interpretation of Hölderlin's critique of

judgment in "Judgment and Being" to be both a complementary justification and reconstruction of the implicit structures of Gongsun Long's view. This paper has presupposed the interpretation of Gongsun Long's key concept of 指 as "judgment" in Hölderlin's sense, in contrast to "things" (物) and "name" (名), then verified this hypothesis, as well as the relationships amongst these translations, by a close textual analysis and new translation of "Zhiwu lun"."

68. Shi, Ningzhong. 2010. "Proposition, Definition and Inference in Ancient Chinese Philosophy." *Frontiers of Philosophy in China* no. 5:414-431.

69. Smith, Huston. 1980. "Western and Comparative Perspectives on Truth." *Philosophy East and West* no. 30:425-437.

    Abstract: "My article consists of four parts. Beginning with the comparative side of our symposium theme, I divide this into a temporal, historical comparison (Part I) and a geographical, spatial comparison(Part II). In Part III, I turn expressly to our Western handling of the truth issue, reserving Part IV for pulling these various strands together."

70. Solomon, Bernard S. 1969. "The Assumptions of Hui-Tzu." *Monumenta Serica. Journal of Oriental Studies* no. 28:1-40.

71. ———. 1981. "Kung-Sun Lung Tzu 公孫籠子 IV and VI." *Monumenta Serica. Journal of Oriental Studies* no. 35:235-273.

72. ———. 2012. *On the School of Names in Ancient China*. Sankt Augustn: Institut Monumenta Serica.

73. Staal, Frits. 1979. "Oriental Ideas on the Origin of Language." *Journal of the American Oriental Society* no. 99:1-14.

74. Stephens, Daniel. 2017. "Realism and Conventionalism in Later Mohist Semantics." *Dao. A Journal of Comparative Philosophy* no. 16:521-542.

Abstract: "In this essay, I argue in favor of a novel interpretation of the semantic theory that can be found in the Later Mohist writings. Recent interpretations by Chad Hansen and Chris Fraser cast the Later Mohist theory as a realist theory; this includes attributing to the Later Mohists what we can call “kind-realism,” the idea that there is some correct scheme of kind-terms that carves the world at its joints. While I agree with Hansen and Fraser that the Later Mohist theory is realist in various ways, I offer challenges to their kind-realist interpretations, and argue instead for a kind-conventionalist interpretation on which there is no fixed, correct set of kinds, leaving schemes of kind terms to be determined by conventional decisions that occur during disputation (bian 辯)."

75. Stevenson, Frank. 1991. "Meaning is not Meaning: World, Thing, and Difference in Kung-sun Lung’s Chih Wu Lun." *Tamkang Review* no. 21:297-322.

76. ———. 1991. "South Has (No) Limits: Relative and Absolute Meaning in Hui Shi’s Ten Points." *Tamkang Review* no. 21:325-346.

77. Sun, Siao-Fang. 1963. "Chuang-Tzu's Theory of Truth." *Philosophy East and West* no. 3 (2):137-146.

78. Sun, Weimin. 2009. "Chinese Logic and the Absence of Theoretical Sciences in Ancient China." *Dao. A Journal of Comparative Philosophy* no. 8:403-423.

    Abstract: "In this essay, I examine the nature of Chinese logic and Chinese sciences in the history of China. I conclude that Chinese logic is essentially analogical, and that the Chinese did not have theoretical sciences. I then connect these together and explain why the Chinese failed to develop theoretical sciences, even though they enjoyed an advanced civilization and great scientific and technological innovations. This is because a deductive system of logic is necessary for the development of theoretical sciences, and analogical logic cannot provide the deductive connections between a theory and empirical observations required by a theoretical science. This also offers a more satisfactory answer to the long-standing Needham Problem."

79. Sun, Zhongyuan. 2007. "Meta-research in Chinese logic." *Frontiers of Philosophy in China* no. 2:50-69.

Abstract: "This paper discusses the topics, goals, values and methods of Chinese logic. It holds that the goal of the research in Chinese logic is to reveal its structure, content, rules, and essential character, as well as to reveal both similarities and differences between Chinese and foreign logic. The value of the research is to carry forward and develop the outstanding heritage of Chinese logic. Its method is to annotate original works of Chinese ancient logic with the tools of modern language and logic in order to reveal both the particular nature and the universal qualities of Chinese logic. The method also explores the differences and similarities between Chinese and foreign logic. In recent years, research in Chinese logic has developed considerably; it has also logged many important achievements.

But there are many different views about the complexity and long-term goals of the research. Future research will build on the merits of different kinds of logic, promote Chinese logic, and increase communication between Chinese logic and foreign logic."

80. Sun, Zhenbin. 2013. "Cracking the white horse puzzle." *Journal of East-West Thought* no. 3:97-106.

81. ———. 2015. *Language, Discourse, and Praxis in Ancient China*. Dordrecht: Springer.

82. Sun, Zhiqiang, and Liu, Fenrong. 2020. "The Inference Pattern *Mou* in Mohist logic - A Monotonicity Reasoning View." *Roczniki Filozoficzne* no. 68:257-270.

83. Sung, Z. D. 1934. *The Symbols of Yi King or The Symbols of the Chinese Logic of Changes*. Shangai: The China Modern Education Co.

84. Suter, Rafael. 2020. "Buddhist Murmurs? – Another Look at the Composition of the Gongsun Longzi." In *The Gongsun Longzi and Other Neglected Texts: Aligning Philosophical and*

Philological Perspectives, edited by Suter, Rafael, Indraccolo, Lisa and Behr, Wolfgang, 429-558. Berlin: De Gruyter.

"This chapter follows the research of A. C. Graham (1919–1991) and Shěn Yo ̌udi ̌ng 沈有鼎 (1908–1993) on the textual history of the Gōngsūn Lóngzi ̌ 公孫龍子(hereafter GSLZ). After a few introductory remarks in the first section, the second section illustrates the secondary nature of the GSLZ by giving a concise overview of the various ways its compilers drew on the "dialectical chapters" of the Mòzi ̌ (Mohist 'Canons'). In the third section, I gather evidence for the medieval renaissance of Mohist dialectics, which was closely associated with the figure of Gōngsūn Lóng from its beginning, in order to suggest that it was in the light of this renewed interest in language and argument that the extant GSLZ was composed.

If the GSLZ is indeed as late as this, its compilation would coincide with a period during which Buddhist scholastics enjoyed increasing influence in China. Thus the main part of the chapter is dedicated to disclosing traces of a Buddhist impact on the argument, structure, and compilation of the GSLZ, or some of its parts." (p. 429)

85. Suter, Rafael, Indraccolo, Lisa, and Behr, Wolfgang, eds. 2020. *The Gongsun Longzi and Other Neglected Texts: Aligning Philosophical and Philological Perspectives*. Berlin: De Gruyter.

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86. ———. 2020. "The Gōngsūn Lóngzi˘ and Other Neglected Texts – Aligning Philosophical and Philological Perspectives: An Introduction." In *The Gongsun Longzi and Other Neglected*

Texts: Aligning Philosophical and Philological Perspectives, edited by Suter, Rafael, Indraccolo, Lisa and Behr, Wolfgang, 1-19. Berlin: De Gruyter.

"The Gōngsūn Lóngzi˘ 公孫龍子(Master Gongsun Long) is traditionally attributed to the so-called “School of Names”. It stands out in the intellectual landscape of early China due to its marked interest in the relation between language and reality and its overall neglect of moral and political issues that are usually so characteristic of the thought of its time. Since the late nineteenth century, this philosophical orientation has invited modern scholars to study the text from the perspective of academic disciplines such as logic and philosophy. To the present day, most of the – increasing, yet still comparatively scarce – publications on the text appear in journals on Chinese and comparative philosophy, and thus continue this tendency." (p. 1)

(...)

"The contributions to this volume are grouped thematically, according to the three broad categories of history, philosophy, and philology. It goes without saying that their boundaries are not clear-cut, nor are the categories themselves mutually exclusive or uncontested in a sinological context. They are merely descriptive and serve the practical purpose of facilitating the reader’s orientation." (p. 11, a note omitted)

87. Sypniewski, Bernard Paul. 2001. "Notes Comparing Aristotelian Reasoning with that of the Early Confucian School." *Journal of Chinese Philosophy* no. 28:257–274.

88. Tanak, Koji. 2004. "The Limit of Language in Daoism." *Asian Philosophy* no. 14:191-205.

    Abstract: "The paper is concerned with the development of the paradoxical theme of Daoism. Based on Chad Hansen’s interpretation of Daoism and Chinese philosophy in general, it traces the history of Daoism by following their treatment of the limit of language. The Daoists seem to have noticed that there is a limit to what language can do and that the limit of language is paradoxical. The ‘theoretical’ treatment of the paradox of the

limit of language matures as Daoism develops. Yet the Daoists seem to have noticed that the limit of language and its paradoxical nature cannot be overcome. At the end, we are left with the paradoxes of the Daoists. In this paper, we jump into the abyss of the Daoists' paradoxes from which there is no escape. But the Daoists' paradoxes are fun!"

89. Tanaka, Koji. 2011. "Inference in the *Mengzi* 1A: 7." *Journal of Chinese Philosophy* no. 38:444-454.

90. Tang, Paul C. L. 1997. "On the Special Logic Thesis in Chinese Philosophy." *Metaphilosophy* no. 28:371-384.

91. Tang, Paul C. L., and Schwartz, Robert David. 1988. "The Limits of Language: Wittgenstein's *Tractatus Logico-Philosophicus* and Lao Tzu's *Tao Te Ching*." *Journal of Chinese Philosophy* no. 15:15-34.

92. Tavor, Ori. 2014. "Naming/Power: Linguistic Engineering and the Construction of Discourse in Early China." *Asian Philosophy: An International Journal of the Philosophical Traditions of the East* no. 24:313-329.

93. Teng, Norman Y. 2006. "The Relatively Happy Fish Revisited." *Asian Philosophy* no. 16:39-47.

    Abstract: "The anecdote of Zhuangzi and Hui Shi's brief discussion on a bridge above the Hao river gives us a nice piece of reasoning in ancient Chinese texts that may serve as a platform for a productive philosophical exchange between the East and the West. The present study examines Hansen's inferential analysis of Zhuangzi and Hui Shi's discussion in this spirit. It is argued that Hansen's analysis founders. To do justice to both Hui Shi and Zhuangzi, the present study proposes that we apply the logic developed in the later Mohist text, the *Lesser Pick*, to an analysis of their discussion. The re-analysis shows that the intricate dialectic of the reasoning in which Zhuangzi and Hui Shi engage, neatly accords with the pattern of discourse expounded in the *Lesser Pick,* and gives us global insight into Zhuangzi's final statement in the anecdote, which is notoriously recondite, or confusing."

94. Thompson, Kirill Ole. 1995. "When a "White Horse" Is Not a "Horse"." *Philosophy East and West* no. 45 (4):481-499.

"Is the White Horse Paradox just a sleight of hand, or is it indicative of some truths about words, language, and logic? The paradox underscores some differences in the significance and implications of terms when considered in the context of mention rather than use. Moreover, the paradox shows that insights into how words and phrases operate in language can be gained by considering them in the context of mention. The paradox also causes us to think of the instrumental value of words, as opposed to thinking of their roles just in referring and in judgments and inferences."

95. Tiles, Mary, and Yuan, Jinmei. 2004. "Could the Aristotelian Square of Opposition Be Translated into Chinese?" *Dao: A Journal of Comparative Philosophy* no. 4:137-149.

96. ———. 2016. "Recognizing the Existence of Chinese Logic." *International Communication of Chinese Culture* no. 3:305-323.

97. Trauzettel, Rolf. 1999. "A Sophism by the Ancient Philosopher Gongsun Long: Jest, Satire, Irony--or is there a Deeper Significance?" *Journal of Chinese Philosophy* no. 26:21-35.

98. Van Norden, Bryan W. 1993. "Hansen on Hsün-Tzu." *Journal of Chinese Philosophy* no. 20:365-382.

99. ———. 2011. *Introduction to Classical Chinese Philosophy*. Indianapolis: Hackett.

Chapter 4: Mohist Consequentialism 51-68; Chapter 7: Language and Paradox in the "School of Names" 102-119.

100. Vierheller, Ernst-Joachim. 1993. "Object Language and Meta-Language in the Gongsun Long Zi." *Journal of Chinese Philosophy* no. 20:181-209.

"The Gongsun Long Zi is a text of the ancient Chinese School of Logicians. An attempt is made to provide a coherent interpretation of the logical content of the chapter "bBi ma lun". The analysis based on a new look on the logical function of

the negated copula "Fei" yields a reading of the text as being directed toward elucidating the distinction of meta-/object-language and of extension/intension of a concept. This fact could enhance the appreciation of the level of language analysis reached at an early premodern state of Chinese philosophy. "

101. ———. 2011. "Language and Logic in the *Zhuangzi:* Traces of the *Gongsun Longzi*." *Oriens Extremus* no. 50:29-46.

102. Vierheller, Ernst Joachim. 2020. "Gōngsūn Lóng and the Zhuāngzi˘: On Classifying (Declassifying) Things Zhi˘ (Qí) Wù Lùn 指〔齊〕物論." In *The Gongsun Longzi and Other Neglected Texts: Aligning Philosophical and Philological Perspectives*, edited by Suter, Rafael, Indraccolo, Lisa and Behr, Wolfgang, 399-428. Berlin: De Gruyter.

    "In the collection of texts dealing with the logic of language and compiled under the name of the logician Gōngsūn Lóng 公孫龍 (c. 320–250 BCE), one of the chapters is 'Zhi˘ wù lùn' 指物論, which roughly translates as: "On Classifying Things". The text opens with an enigmatic statement which literally says: "No thing is not a finger, but a finger is not a finger" (物莫非指而指非指). This statement has been the object of many studies which aim to establish its meaning. Another text of approximately the same era, 'Qíwù lùn' 齊物論, which roughly translates as: "On Equalizing Things", is the second chapter of the Taoist anthology Zhuāngzi˘ 莊子, compiled under the name of Zhuāng Zhōu 莊周(c. 370–285 BCE). In this text, the statement quoted above is not only alluded to, but actually applied to support a line of argument. This chapter shows how the author of the Zhuāngzi˘ is making use of the statement from the Gōngsūn Lóngzi˘ and establishes the meaning he attributes to it. Given the two texts' proximity in time, the interpretation thus arrived at may have a sufficient measure of authority to add a conclusive perspective to the study of the text of the Gōngsūn Lóngzi˘, of which an annotated translation is provided as an appendix." (p. 399)

103. Volkov, Alexei K. 1992. "Analogical Reasoning in Ancient China: Some Examples." *Extrême-Orient Extrême-Occident* no.

14:15-48.

104. ———. 2020. "Analogy." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 143-160. Cham, Switzerland: Springer.

105. Vrhovski, Jan. 2020. "From Mohism to the school of names, from pragmatism to materialist dialectics: Chinese interpretations of Gongsun Longzi as a text and source of Chinese logic, 1919–1937." *International Communication of Chinese Culture* no. 7:511-538.

    Abstract: "This article aims at providing a general overview of the development of interpretational discourse on *Gongsun Longzi* (公孫龍子) as a text in Chinese logic in the timeframe between the May Fourth events in 1919 and the outbreak of the Sino-Japanese war in 1937. In my attempt to highlight the main interpretational approaches to the text and philosophy of Gongsun Long (公孫龍, 320 BC-250 BC) I will, on one hand, focus on the question whether or how the Western philosophies and notions of logic, such as for instance that of pragmatism, analytic philosophy and dialectical materialism, influenced the above-mentioned interpretations. On the other hand, aside from its contextual evolution I will also try to cast some new light on the main milestones of its textual re-emergence and development in the early Republican period."

106. Vrubliaiskaité, Aušra. 2014. "Language in Zhuangzi. How to Say Without Saying." *International Journal of Area Studies* no. 9:75-90.

107. Wang, Kexi. 2005. "The ancient Chinese and Informal Logic in Ancient China." *Asian and African Studies* no. 9:55-67.

108. Wang, Lu. 1997. "Logic in China." In *Structures and Norms in Science: Volume Two of the Tenth International Congress of Logic, Methodology and Philosophy of Science, Florence, August 1995*, edited by Dalla Chiara, Maria Luisa, Doets, Kees, Mundici, Daniele and van Bentham, Johan, 463-472. Dordrecht: Kluwer.

    On the history of logic see Section III, pp. 468-471.

"Since China is historically one of the three sources of logic, the history of Chinese logic is a very important subject. It is generally recognized that the "Mo-Jing" (Mohist Canon) logic is the high point in the development of logic in ancient China. So research into the history of Chinese logic is mainly that of "Mo-Jing". There have been a great number of books and papers published in this field over the past twenty years. In my view it can be divided in two periods: before and after the end of the eighties. In the first period great effort was devoted to sorting out the material, digging out the logical problems, and making scientific assessments. In the second period, a reflection is made on the conclusions of the first period, including sharp criticism. In order to make

the introduction easier, I will concentrate on the argumentation in this field.

"Mo-Jing" logic is said to be the first scientific and complete system of logic in ancient China, to be as good as Aristotle's logic, and to have achievements comparable to that in Greek Antiquity, etc. There are also some people querying these points of view. There are two problems here. One is about the interpretation of Mo-Jing logic; the other is about the comparison between Mo-Jing logic and Aristotle's logic." (pp. 468-469)

109. Wang, Ping, and Johnston, Ian. 2020. "The Gōngsūn Lóngzi˘: A Historical Overview." In *The Gongsun Longzi and Other Neglected Texts: Aligning Philosophical and Philological Perspectives*, edited by Suter, Rafael, Indraccolo, Lisa and Behr, Wolfgang, 25-44. Berlin: De Gruyter.

"The Gōngsūn Lóngzi˘ 公孫龍子(GSLZ), attributed to the late Warring States scholar Gōngsūn Lóng公孫龍(330–242 BCE, hereafter GSL), is one of the more remarkable works in the history of early Chinese literature. As it has been preserved in the Dàozàng 道藏(DZ, Daoist Canon), it is a short text comprising five brief essays or arguments plus an introduction, presumed to be a later addition. There is, we would argue, an overall thread identifiable in the five essays; it is an examination of the relationship between names (míng 名) and

entities (shí 實, actuality/reality) with the purpose of establishing the correct relationship between the two – the program of zhèng míng正名. This is taken to be the central and defining interest of the Míngjiā (名家) or “School of Names”. In pursuing this central interest, the GSLZ necessarily touches upon some of the ontological and epistemological ramifications of such an endeavor. Along with the other works of the School and related texts,1 it is comparable in focus to aspects of the more or less contemporary

“Organon” of Aristotle and some of the Stoic writings on logic, now lost." (p. 25)

(1) The writings of the “School of Names” and important related texts (including the Later Mohist dialectical chapters, the ‘Qíwù Lùn’ 齊物論in the Zhuāngzi˘ 莊子, and the ‘Zhèng Míng’ 正名 chapter in the Xúnzi˘荀子) have been collected and translated in Johnston/Wang 2019.

Refeences

Johnston, Ian / Wang, Ping (2019): *The Mingjia and Related Texts*. Hong Kong: The Chinese University Press.

110. Wang, Yueqing, Bao, Qinggang, and Guan, Guoxing. 2020. *History of Chinese Philosophy Through Its Key Terms*. Nanjing: Nanjing University Press.

Name and Corresponding Object (mingshi, 名实), pp. 307-315.

"Name and corresponding object are a key conceptual pair in traditional Chinese philosophy.

Name means designation and concept. Corresponding object means reality, things and affairs or the object situation of the thing or affair. The relationship between name and corresponding object is roughly equivalent to the concept and the objective reality that the concept reflects. In Chinese philosophy, the issue of name and corresponding object contains the following four main contents. One, that which the name is based on, two, the rule for producing names, three, the categorization of names and four, the relationship between

names and corresponding object. With regard to the relationship between names and reality, it can be further divided into question of whether the name or the object came first. This means whether the name determines the object or vice versa, as well as whether names accurately reflect reality, that is, whether names and objects can correspond with each other."

Language and Meaning (yanyi, 言意). pp. 413-424.

"“Yanyi” is a key concept is Chinese epistemology. “Yan” refers to one’s words (言辞), nouns (名词), concept (概念), exposition and argument (论说) and writings (著述). In traditional Chinese philosophy, “yi” contains two dimensions of meaning, one means intention and the other means ideal (理想), the argument of a speech or essay (义理) and purpose (宗旨). When the two terms are united, “yi” refers to idea, argument and purpose. Key to the concept of “yanyi” is the relationship between “yan” and “yi,” and this relationship differed throughout different historical epochs and at the hands of different philosophers. Due to their different understandings of “yanyi,” therewere also differences in their understanding of the relationship between “yan” and “yi.”"

111. Wang, Zuoli. 2010. "New Investigations in the School of Names." *Asian and African Studies* no. 14:85-101.

112. Wenzel, Christian Helmut. 2007. "Chinese Language, Chinese Mind?" In *Cultures. Conflict - Analysis - Dialogue*, edited by Kanzian, Christian and Runggaldier, Edmund, 295-314. Frankfurt: Ontos Verlag.

    Proceedings of the 29th International Wittgenstein Symposium 2006, Kirchberg am Wechsel, Austria.

    "This article focuses on two questions. One is about the so-called Sapir-Whorf hypothesis, which says that language plays a role in how we perceive and understand the world. To put it strongly: Language determines thought. The other question is more specific. It is about the Chinese language. Is Chinese, with its grammar and its writing system, fundamentally different

from Western languages such as Greek, Latin, German, Spanish or English? And does this difference account for cultural differences in perception and understanding? We all live in one world. But individually and culturally, we also live in different worlds. One easily notices this when one lives abroad. What is the role of language in this? What is its influence on perception, thought and culture? I am interested in influences that are due not just to vocabulary (which should be obvious), but, more fundamentally and systematically, to grammar and writing system. Words can easily be added to a language, one by one and step by step, and they do indeed reflect thought and culture. But grammar goes deeper. In what ways it reflects thought and culture is a more difficult but more interesting question, so it seems to me."

113. Williams, John R. 2018. "Two Paradigmatic Strategies for Reading Zhuang Zi's "Happy Fish" Vignette as Philosophy: Guo Xiang's and Wang Fuzhi's Approaches." *Comparative Philosophy* no. 9:93-104.

    Abstract: "One of the most beloved passages in the Zhuang-Zi text is a dialogue between Hui Zi and Zhuang Zi at the end of the “Qiu-shui”chapter. While this is one of many vignettes involving Hui Zi and Zhuang Zi in the text, this particular vignette has recently drawn attention in Chinese and comparative philosophy circles. The most basic question concerning these studies is whether or not the passage represents a substantial philosophical dispute, or instead idle chitchat between two friends. This vignette has not only received much attention as of late, but commentators from at least Guo Xiang onward have taken the conversation as substantial rather than merely charming. Of the traditional readings that take the passage as substantial, there are two main strategies for taking Zhuang Zi as “winning” a substantial dispute: (1) One that argues Zhuang Zi is undermining Hui Zi’s position without offering a positive position, and (2) another that argues that Zhuang Zi is undermining Hui Zi’s position by offering a positive position. Guo Xiang’s “official commentary” is paradigmatic of the first “negative” strategy, while Wang Fuzhi’s reading is paradigmatic of the second “positive”

strategy. The goal in the present article is to present these two strategies for reading the passage by translating and analyzing Guo's and Wang's annotations, thereby showing how the passage might be and has been taken as more than frivolous chitchat."

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"Zhuangzi: A New Translation of the Sayings of Master Zhuang as Interpreted by Guo Xiang", translated and with an Introduction by Richard John Lynn, New York: Columbia University Press 2022.

114. Willman, Marshall D. 2008. "Searle, *de re* Belief and the Chinese Language." In *Searle's Philosophy and Chinese Philosophy: Constructive Engagement*, edited by Mou, Bo, 247-263. Leiden: Brill.

115. ———. 2010. "Logical Analysis and Later Mohist Logic: Some Comparative Reflections." *Comparative Philosophy* no. 1:53-77.

Abstract: "Any philosophical method that treats the analysis of the meaning of a sentence or expression in terms of a decomposition into a set of conceptually basic constituent parts must do some theoretical work to explain the puzzles of intensionality. This is because intensional phenomena appear to violate the principle of compositionality, and the assumption of compositionality is the principal justification for thinking that an analysis will reveal the real semantical import of a sentence or expression through a method of decomposition.

Accordingly, a natural strategy for dealing with intensionality is to argue that it is really just an isolable, aberrant class of linguistic phenomena that poses no general threat to the thesis that meaning is basically compositional. On the other hand, the later Mohists give us good reason to reject this view. What we learn from them is that there may be basic limitations in any analytical technique that presupposes that meaning is perspicuously represented only when it has been fully decomposed into its constituent parts. The purpose of this paper is to (a) explain why the Mohists found the issue of

intensionality to be so important in their investigations of language, and (b) defend the view that Mohist insights reveal basic limitations in any technique of analysis that is uncritically applied with a decompositional approach in mind, as are those that are often pursued in the West in the context of more general epistemological and metaphysical programs."

116. Wong, David B. 2002. "Reasons and Analogical Reasoning in Mengzi." In *Essays on the Moral Philosophy of Mengzi*, edited by Liu, Xiusheng and Ivanhoe, Philip J., 187-220. Indianapolis: Hackett.

117. Wu, Joseph S. 1969. "Chinese Language and Chinese Thought." *Philosophy East and West* no. 19 (4):423-434.

    "The main task of this paper is an exposition of some subtle common traits of Chinese thought through an examination of some major characteristics of the Chinese language. First, the author presents the main structures of the Chinese written characters and some notable syntactical features of the classical Chinese. Second, he exposes some essential characteristics of Chinese thinking as revealed by the nature of the language. In the conclusion, he justifies the thesis that the Chinese language is a language for poetry."

118. Xie, Yun. 2019. "Argument by Analogy in Ancient China." *Argumentation* no. 33:323-347.

    Abstract: "Argument by analogy has long been regarded as the characteristic way of arguing in ancient Chinese culture. Classic Chinese philosophers not only prefer to use analogy to argue for their own views, but also take efforts to theorize it in a systematic way. This paper aims to provide a careful study on the relevant ideas in ancient China in order to reconstruct the ancient Chinese theory of argument by analogy,

    and then to reveal some of its distinctive features through a comparison with the Western counterpart account as developed by Aristotle. It is indicated that in ancient China analogical argument was conceived primarily as a way of arguing based on classification, with a unique mechanism of taking and giving according to kind.

On that basis, it is argued that although such a characterization captures the logical structure of analogical argument in a similar way to Aristotle, the ancient Chinese theory stresses the foundational role of a particular notion of kind, thus makes the construction and application of analogical arguments become highly flexible and context-sensitive. Moreover, it is also contended that in ancient China the rationale of analogical arguments is explained from a general perspective of kind, relying upon the universal knowledge pertaining to the forming of kinds. Then it is further revealed that, unlike Aristotle who emphasizes the causal links between attributes in the physical world, ancient Chinese thinkers justify analogical argument by appealing to some normative metaphysical and epistemological principles."

119. Xu, Xeqian. 1997. "The Unique Features of Hui Shi's Thought: A Comparative Study Between Hui Shi and Other Pre-Quin Philosophers." *Journal of Chinese Philosophy* no. 24:231-253.

120. Yan, Xiaofeng. 2001. "Disputes Over Words and Meanings in the History of Chinese Philosophy." *Contemporary Chinese Thought* no. 32:18-31.

121. Yang, Wujin. 2011. "Valid Reasoning in Ancient China from the Perspective of Modern Logic." *Studies in Logic* no. 4:115-125.

122. ———. 2020. "Reasoning (Pi 譬, Mou 侔, Yuan 援, Tui 推)." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 161-169. Cham, Switzerland: Springer.

123. Yang, Wujin, and Zhang, Wanqiang. 2020. "Classes (Lei 類) and Individuals." In *Dao Companion to Chinese Philosophy of Logic*, edited by Fung, Yiu-ming, 203-212. Cham, Switzerland: Springer.

124. Yang, Xiaomei. 2019. "How Do We Make Sense of the Thesis “Bai (White) Ma (Horse) Fei (Is Not) Ma (Horse)"?" *Dao. A Journal of Comparative Philosophy* no. 18:163-181.

    Abstract: "In this article, I introduce a new interpretation of the puzzling thesis “bai 白 (white) ma 馬 (horse) fei 非 (is not) ma 馬 (horse)” argued by Gongsun Long 公孫龍 in his essay “On

White Horse (Bai Ma Lun 白馬論).” I argue that previous interpretations, which can be grouped under the name of “attribute-object interpretations,” are not satisfactory, and that the thesis on the new interpretation is not about attributes or objects, but about names. My argument focuses on the disagreement over inseparability of white (shou bai zhi zheng 守白之爭) between Gongsun Long and his interlocutor in the text of “On White Horse.” On my interpretation or the name interpretation, the disagreement is about whether constituents of a syntactically complex or multi-term name are separable or have their contextually independent meanings. Gongsun Long’s thesis makes perfect sense on my interpretation, and is supported by the text and other preserved texts collected in GongsunLong Zi 公孫龍子. The name interpretation can also make sense of some puzzling expressions of sophists in the classic period."

125. Yi, Byeong-uk. 2014. "Numeral Classifiers and the White Horse Paradox." *Frontiers of Philosophy in China* no. 9:498-522.

126. ———. 2019. "Two Syllogisms in the *Mozi*: Chinese Logic and Language." *The Review of Symbolic Logic* no. 12:589-606.

127. Yu, Anthony C. 2002. "Cratylus and Xunzi on *Names*." In *Early China /Ancient Greece: Thinking through Comparisons*, edited by Shankman, Steven and Durrant, Stephen W., 235-250. Albany: State University of New York Press.

128. Yuan, Jinmei. 2002. "Exploring the Logical Space in the Patterns of Classical Chinese Mathematical Art." *Journal of Chinese Philosophy* no. 29:519-531.

129. ———. 2005. ""Kinds, *Lei"* in Ancient Chinese Logic: A Comparison to "Categories" in Aristotelian Logic." *History of Philosophy Quarterly* no. 22:181-199.

130. ———. 2006. "The Role of Time in the Structure of Chinese Logic." *Philosophy East and West* no. 56:136-152.

131. ———. 2010. "ZHAI, jincheng 翟錦程, the study of the theories of Ming 名 (name) in the pre-Qin period 先秦名家研究." *Dao: A Journal of Comparative Philosophy* no. 9:253-255.

132. ———. 2012. "Analogical Propositions in Moist Texts." *Journal of Chinese Philosophy* no. 39:404-423.

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"The text known as Yi˘nwénzi˘ 尹文子has traditionally been attributed to the Warring States philosopher Yi˘n Wén 尹文 (traditionally c. 360–280 BCE), who lived in the state of Qí and was active in the environment of the so-called Jìxià academy. Generally, it is among the most neglected ancient texts, even in comparison with the Gōngsūn Lóngzi˘ 公孫龍子." (p. 347, a note omitted)

(...)

"Conclusion

The linguistic evidence I have presented in this chapter provides many good reasons to doubt that the extant transmitted version of the Yi˘nwénzi˘ can be a Warring States composition. The combination of some important syntactic evidence and certain lexical phenomena support the hypothesis of a later date of composition. As I argued in the introduction to this survey, it is self-evident that one can always try to dismiss these findings out of hand with reference to the influence of a post-classical editor. I will not repeat the discussion here – suffice it to say that in such a case, one would have to carefully explain how and why the editor happened to revise and transmit the text in a style characterized by a noticeably

colloquial and, at the time, modern flavor instead of preserving its original ancient appearance, as was the case with practically all genuinely pre-Qín texts in the course of their transmission." (p. 387)

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"Gōngsūn Lóng's 公孫龍(c. 325–250 BCE) 'Discourse on the White Horse' ('Báimaˇ lùn', 白馬論; henceforth BML) has always been considered an example of sophistry. But just as the tracks of single particles in an aerosol chamber can only be recognized by an expert physicist, so it is only with a full grasp of its analytical philosophy of language and its epistemological nature that one is able to realize the essence of BML: its character as a concrete analytical philosophy of language. At the same time, this insight presupposes a solid understanding of the spirit and the atmosphere of the time, of the thought and scholarly culture from which this theory has emerged – namely, the point which the Zhuāngziˇ 莊子has characterized as the splitting up of the unified "Art of the Way" into the "Hundred Schools" of thought. And only together with firm evidence from ancient books and records, including bibliographical lists, are we able to evaluate and ascertain the authenticity of the received Gōngsūn Lóngziˇ (henceforth GSLZ), in which BML has been transmitted." (p. 87)

140. Zhou, Qi. 2009. "Study on the Logical Ideas in Chinese Ancient Mathematics from "Liu Hui's Commentary of the Chiu Chang Suan Shu"." *Asian Social Science* no. 5:9-13.

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    "The Mohist School's logical study focuses mainly on the following inference rule: suppose that N and M are coextensive terms, or N a subset of M; it follows that if a verb can appear in front of N, it can also appear in front of M. That is, if 'VM' then 'VN', where V is some extensional verb. Such an approach to logical inference necessitates the study of logical relations among nouns, verbs, and the relations between these two types of words. Evidence is offered here that the Mohists clearly distinguished extensional verbs from intensional verbs, and that this insight enabled them to say, among other things, that VN does not follow from VM, even in cases where N is M or contained in M, as long as the V in question is an intensional verb."

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History of Logic

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Ancient Indian Logic and Ontology. A Survey of Contemporary Studies

The meaning and scope of Indian philosophy

"Indian philosophy denotes the philosophical speculations of all Indian thinkers, ancient or modern, Hindus or non-Hindus, theists or atheists. 'Indian philosophy' is supposed by some to be synonymous with 'Hindu philosophy.' This would be true only if the word 'Hindu' were taken in the geographical sense of 'Indian.' But if 'Hindu' means the followers of a particular religious faith known as Hinduism, the supposition would be wrong and misleading. Even in the ancient writings of the orthodox Hindu philosophers, like the Sarva-darsana-sangraha of Mädhâvacârya which tries to present in one place the views of all (sarva) schools of philosophy, we find in the list of philosophies (darsanas) the views of atheists and materialists like the Cärväkas, and unorthodox thinkers like the Bauddhas and the Jainas, along with those of the orthodox Hindu thinkers.

Indian philosophy is marked, in this respect, by a striking breadth of outlook which only testifies of its unflinching devotion to the search for truth. Though there were many different schools and their views differed sometimes very widely, yet each school took care to learn the views of all the others and did not come to any conclusion before considering thoroughly what others had to say and how their points could be met. This spirit led to the formation of a method of philosophical discussion. A philosopher had first to state the views of his opponents before he formulated his own theory. This statement of the opponent's case came to be known as the prior view (purvapaksa). Then followed the refutation (khandana) of this view. Last of all came the statement and proof of the philosopher's own position, which,

therefore, was known as the subsequent view (uttarapaksa) or the conclusion (siddhänta).

This catholic spirit of treating rival positions with consideration was more than rewarded by the thoroughness and perfection that each philosophical school attained. If we open a comprehensive work on the Vedanta, we will find in it the statement of the views of all other schools, Cärväka, Bauddha, Jaina, Sänkhya, Yoga, Mimämsa, Nyäya and Vaisesika, discussed and weighed with all care; similarly any good work on the Bauddha or Jaina philosophy discusses the other views. Each system thus became, encyclopaedic in its grasp of ideas. Naturally we find that many of the problems of contemporary Western philosophy are discussed in Indian systems of philosophy. Besides, we find that indigenous scholars with a thorough training, exclusively in Indian philosophy, are able to deal even with abstruse problems of Western philosophy with surprising skill.

If the openness of mind - the willingness to listen to what others have to say has been one of the chief causes of the wealth and greatness of Indian philosophy in the past, it has a definite moral for the future. If Indian philosophy is once more to revive and continue its great career, it can do so only by taking into consideration the new ideas of life and reality which have been flowing into India from the West and the East, from the Aryan, the Semitic and the Mongolian sources." (pp. 4-6)

From: Satischandra Chetterjee and Dhirendaramohan Datta, *An Introduction to Indian Philosophy*, Calcutta: University of Calcutta, 1954 (Fifth edition).

The Schools of Indian philosophy

According to a traditional principle of classification, most likely adopted by orthodox Hindu thinkers, the schools or systems of Indian philosophy are divided into two broad,classes, namely, orthodox (ästika) and heterodox (nästika). To the first group belong the six chief philosophical systems (popularly known as sad-darsana), namely, Mimämsä, Vedanta, Sänkhya, Yoga, Nyäya and Vaisesika. These are regarded as orthodox (ästika), not because they believe in God, but because they accept the authority of the Vedas.(1) The Mimämsä and the Sänkhya do not believe in God as the creator of the

world, yet they are called orthodox (ästika) because they believe in the authoritativeness of the Vedas.

The six systems mentioned here are not the only orthodox systems; they are the chief ones, and there are some other less important orthodox schools, such as the Grammarian school, the medical school, etc., also noticed by Mädhaväcärya. Under the other class of heterodox systems, the chief three are the schools of the Materialists like the Cärväkas, the Bauddhas and the Jainas. They are called heterodox (nästika) because they do not believe in the authority of the Vedas."

Notes

(1) In modern Indian languages. 'astika' and 'nâstika' generally mean 'theist' and 'atheist', respectively. But in Sanskrit philosophical literature, 'àstika' means 'one who believes in the authority of the Vedas' or 'one who believes in life after death. ('Nâstika' means the opposite of these.) The word is used here in the first sense. In the second sense, even the Jaina and Bauddha schools are 'âstika', as they believe in life after death. The six orthodox schools are 'âstika', and the Carvâka is 'nâstika' in both the senses." (pp. 6-7)"

From: Satischandra Chetterjee and Dhirendaramohan Datta, *An Introduction to Indian Philosophy*, Calcutta: University of Calcutta, 1954 (Fifth edition).

The Nyāya-Vaiśeṣika School

"Historically the Nyâya and Vaisesika schools are different. They had separate origins and developed differently in the early phases of their existence and also had different spheres of interest and expertise. However, on account of their common philosophical standpoints and methodology a link seems to have existed between the two quite early in their history which during the course of their development brought them closer, resulting in their subsequent amalgamation into a single syncretic system.

Roughly speaking the history of the Nyâya-Vaisesika system extends over a period of twenty-four centuries, i.e. from about the fourth century BC, till modern times. Like Vedânta, it has been one of the living systems of philosophy. Redaction of the Nyâya doctrines in the

form of sutras was done by Gautama around the fourth century BC. He was succeeded by an array of illustrious commentators and exponents like Vatsyayana (about AD 400), Uddyotakara (about AD 650), Väcaspati (about AD 840), Bhâsarvajna (about AD 860), Udayana (about AD 984), Jayanta (about the tenth century AD) and many others. The sutras of the Vaisesika school were formulated by Kanâda, about one century prior to Gautama, and he was followed by thinkers like Prasastapada (about the sixth century AD), Sridhaka (about AD 990 and Sarirkara Misra (about the fifteenth century AD).

As stated above, the Nyâya and Vaisesika schools had more or less the same sort of philosophical orientation and presuppositions; however, their interests were most pronounced in the fields of epistemology and metaphysics respectively. They borrowed from and leaned upon each other so heavily that they could not afford to remain separate for long. Though the synthesis of the two schools began appearing in Udayana, it was Gangesa (about the twelfth century AD) who is to be given the credit of forging the unity of the two schools. He is regarded as the founder of the syncretic school known as the Navya-Nyâya (Neo-Nyâya) school." (p. 132)

From: Brian Carr and Indira Mahalingam (eds.), *Companion Encyclopedia of Asian Philosophy*, London: Routledge 1997, Chapter 7: "Nyāya-Vaiśeṣika" by S. R. Bhatt pp. 119-138.

Indian Logic

"The term "Indian logic" may be used to refer to the system of logic (Nyāya) that forms one of the six principal schools of Hindu philosophy. In a wider sense it denotes Buddhist and Jaina logic as well. In a still wider sense it refers to any logical doctrine propounded by Indian scholars. In this article the term is used in the last sense, although Jaina logic is omitted and only some representative doctrines and techniques from other sources are discussed.

The history of Indian logic covers at least 23 centuries, and the number of works by Indian logicians, published and unpublished, is vast. Those available in Western languages or accessible in good editions constitute only a fraction of this material. Attention here is confined to material from some of the published Sanskrit texts. For

the study of Buddhist logic translations into Tibetan or Chinese from Sanskrit originals, many of which are lost, must also be utilized.

This survey falls into five parts: (1) Grammar, which was well developed by the time of the Sanskrit grammar of Panini. Its sophisticated logical rules and techniques influenced almost all later scholarly developments in India. (2) Mimamsa, the most orthodox of the six philosophical schools of Hinduism. It dealt largely with problems of textual interpretation and faced a variety of logical problems in the course of its history. (3) Vaisesika and Old Nyāya. Vaisesika, which also embodied a system of natural philosophy, provided a list of categories that set the framework within which logicians of the Old Nyāya school developed their systematic analyses of perception and inference. (4) Buddhist logic, partly a reaction against the old Nyāya. Some branches of Buddhist logic laid a foundation for formal logic and began to exclude extraneous considerations of ontology, epistemology, and psychology. (5) New Nyāya, the final phase of Hindu logic, both challenged by Buddhist logic and substantially enriched by it. The New Nyāya began with the work of Gangesopadhyàya (thirteenth century A.D.) and continues to the present day.

Lack of space prevents discussion of the role of logic in the sciences and of the philosophical schools of the Vedanta, which dealt with logical topics, especially in the later developments within Advaita and Dvaita.

Since more attention will be paid to doctrines than to individual logicians and their works and dates, a chronological table may be helpful in providing a rough outline of their historical context. (In the table, names of writings are in italic.) The table makes it clear that some of the schools which developed simultaneously were in a position to influence each other." (pp. 529-521)

INDIAN LOGICIANS AND LOGICAL WORKS

CENTURY	GRAMMAR	MĪMĀṂSĀ (Vedas)	VAIŚEṢIKA AND OLD NYĀYA	BUDDHIST LOGIC	NEW NYĀYA
	(*prātiśākhya*)	(*ritual sūtras*)			
Fourth B.C.	Pāṇini				
Second B.C.	Patañjali				
First A.D.			Kaṇāda		
Second				Nāgārjuna (?)	
Third		Jaimini (?)	Gautama		
Fourth			Vātsyāyana		
Fifth		Śabara	Praśastapāda		
Sixth				Dignāga	
Seventh	*Kāśikā* Bhartṛhari	Prabhākara	Uddyotakara	Dharmakīrti	
Eighth		Kumārila		Dharmottara	
Ninth			Vācaspatimiśra		
Tenth			Udayana		
Eleventh	Kaiyaṭa				
Thirteenth					Gaṅgeśopādhyāya
Sixteenth		Nārāyaṇa			Raghunātha
Seventeenth	Bhaṭṭojīdīkṣita	Āpadeva			Mathurānātha
					Jagadīśa
					Gadādhara
					Annambhaṭṭa
					Pañcānana
					Maṇikaṇa
Eighteenth	Nāgojībhaṭṭa				

From: Frits J. Staal, *Indian Logic* (Second section of: *Logic, History of*) in: Paul Edwards (ed.), *The Encyclopedia of Philosophy*, New York: Macmillan 1967, Vol. IV pp. 520-521.

Indian Ontology

"All Indian philosophical traditions are deeply engaged with ontology, the study of being, since clarity about the nature of reality is at the heart of three intimately connected goals: knowledge, proper conduct and liberation from the continued suffering that is part of all human existence. The formulation of a list of ontological categories, a classification of reality by division into several fundamental objective kinds, however, is less widespread. There is little room for a doctrine of distinct, if related, ontological categories in a philosophical school that takes reality as one, even less if that one lies beyond description. If the phenomenal world is but illusory appearance, as, for example, in the Vedanta of Sankara, then a determination of kinds of entities does not recommend itself as a means to adequate analysis of the world. Even the Sankhya tradition's realism reduces the world to an evolution from two fundamental entities, spirit and matter. Categories make sense within the context of a pluralistic realism, an analysis of the world that finds it to be composed of a multiplicity of real entities. Such a view is found to some extent in Jaina philosophy,

but is primarily defended and developed in the Nyāya-Vaiśeṣika school.

The Nyāya- Vaisesika categories are seven: substance, quality, motion, universal, particular, inherence and not-being. While all are understood as real entities and objects of knowledge, substance is most fundamental as each of the others in some way depends on substance. Substances are nine: earth, water, fire, air, ether, time, space, self and mind. The first four are atomic: they may combine to form macroscopic substance, such as a clay pot, but in incomposite form they are indestructible atoms, as are the last two. Ether, time and space, likewise indestructible, are unitary and pervade all. In its irreducible parts, all substance is eternal; every composite whole is a destructible substance.

A relation of containment, called inherence, structures the categories. The qualities, actions and universals by which we might characterize a pot inhere in it. They are distinct entities from the pot, yet cannot exist apart from their underlying substrate. Composite substances like a pot are also contained in their parts by inherence, but the smallest parts, eternal substances, exist independently as receptacles that contain nothing A whole, greater than the sum of its parts, is said to inhere in the parts while the parts are the inherence cause of the whole.

Eternal substance, the ultimate substrate of all, is a bare particular. An entity that is nothing but a receptacle for other entities, it furnishes criteria for separability and individuality, but cannot be defined in itself apart from others. This aspect of the concept of substance leads later Nyāya-Vaiśeṣika into extensive analysis of relations and negation." (pp. 118-119)

"From: David Ambuel, *Ontology in Indian Philosophy*, in: Edward Craig (ed.), *Routledge Encyclopedia of Philosophy*, London, New York: Routledge 1998.

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   "The article seeks to introduce to the students of philosophy the concept of contradiction in Indian philosophy. contradiction and contrariety fall under the common class of opposition called "Virodha". the former means "pervasion of mutual negation by two predicates," the latter means "pervasibility of two predicates by their mutual negation." Vontradiction is a purely logical relation, while contrariety is semilogical. The author suggests that contradiction and contrariety should better be called, respectively, "absolute contradiction" and "relative contradiction", both being based on contradiction of identity. Some formidable Indian philosophers argue that contradiction (including contrariety) is a purely logical category, for contradiction of facts is impossible."
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13. ———. 1987. "Implication and Entailment in Navya-Nyāya Logic." *Journal of Indian Philosophy* no. 15:149-154.

    "It is argued against the claim that there exist in the concept of "Vyapti" and "Paramarsa" the two notions of implication and entailment in the Navya-Nyāya logic. Also, it is suggested that the "Pancavayava-Vakya" form of "Anumana" does not represent the deductive model of inference."

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18. ———. 2010. "On Two Questions of the New Logic of India." In *Logic in Religious Discourse*, edited by Schumann, Andrew, 34-43. Frankfurt: Ontos Verlag.

    Abstract: "Formal logic was born in two – and only two – cultural spheres: the western and the Indian. There was a 'formalism,' too, in Indian logic. The last phase of this logic, the 'new logic,' created a new language which, as with the 'new logic' of the West, became the language of other disciplines as well. But, while the new logic of the West followed the mathematical model, that of India followed the linguistic model: in that they followed two distinct traditions. Unlike the western, the Indian new logic did not construct an 'artificial language,' consisting in a system of symbols, but formulated its definitions and solved various logical problems with different combinations of concepts in natural language. Very little work has been done so far on the subject in western and Indian languages. The present paper deals with two questions which have been the subjects of discussion in recent years."

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    Abstract: "The Charvaka (Cārvāka)-s are the last known materialists in India. They appeared in or around the eighth

century CE and, for some unknown reason, disappeared after the twelfth century CE. The earlier materialists flourished at least from the time of the Buddha (6th/5th BCE). They were found both in north and south India, bearing such names as Bhūtavāda, Lokāyata, etc. They believed perception to be the only means of knowledge. The Cārvākas, however, admitted inference to some extent as the second source, insofar as the inference was based on or followed from perception. It was in connection with the materialists' denial of the Other World that their opponents developed their own form of arguments. The materialists were challenged by the opponents with the help of inference by analogy and verbal testimony. The Veda was the ultimate source of such testimony. The Buddhists and the Jains, too, were at one with the materialists in denying the status of the Veda. Thus, the philosophical systems of India were divided into two opposing camps – the āstikas (affirmativists) and the nāstikas (negativists). The contribution of the Cārvākas in particular to the logical thought in India lies in the distinction made by them between two kinds of inference: the first based on perception or verifiable facts, and the second, arguments based on scriptures. Their atheism and satire against vedic sacrificial rites made them stand out as heretics. Their opponents also complained that they were opposed to caste and gender discriminations. These traits also made the Cārvākas appear as the ultimate rationalists in pre-modern India."

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    Contents: List of Contributors 5; In memoriam: Sibajiban Bhattacharyya 21; Abbreviations 31;

    Part One: Sibajiban Bhattacharyya: Introduction 33

    I. Metaphysics 35; II. Epistemology 102; III. Theory of Inference 129; IV. Some Aspects of the Navya-Nyāya Theory of Language 145;

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23. ———. 1958. "The Concept of Logic." *Philosophy and Phenomenological Research* no. 18:326-340.

24. ———. 1974. "Some Features of Navya-Nyāya Logic." *Philosophy East and West* no. 24:329-342.

    "Navya-Nyāya developed a technical (non-symbolic) language tied to a realistic ontology, but this became the language of all serious discourse in India -- of all philosophies, grammar, law, medicine. The problem is primarily to explain how this was possible. The answer suggested is that Navya-Nyāya developed a language for 'describing' cognitions by stating not merely the objects recognized, but also the 'mode of cognition of the object'. This necessitated the development of special concepts like the concept of limitor (Avacchedaka). in ontology, Navya-Nyāya made extensive use of Occam's razor to decide which abstract terms stood for abstract entities, and which, though abstract grammatically, still denoted entities identifiable as concrete objects."

25. ———. 1990. "Some Features of the Technical Language of Navya-Nyāya." *Philosophy East and West* no. 40:129-149.

    "The technical language of Navya-Nyāya uses concepts like limitor, determiner, etc., to deal with sentences expressing cognition like perception, inference, memory, belief, doubt, supposition. As such sentences are not extensional, Navya-Nyāya distinguishes between what is cognised and the mode under which what is cognised is cognised. Limitor, in the technical language, determines the mode of cognition and is also used to express quantity of cognition, universality, particularity, etc. The concept of determiner is used to show what predicate is asserted of what subject in the same cognition."

26. ———. 1997. "Gadadhara's Theory of Meaning of Pronouns." In *Relativism, Suffering and Beyond. Essays in Memory of Bimal K. Matilal*, edited by Bilimoria, Purusottama and Mohanty, Jitendra Nath, 16-31. New Delhi: Oxford University Press.

    "In order to explain Gadadhara's theory of meaning of pronouns, it is necessary first to briefly state his theory of word meaning. In Indian philosophy in general and in Navya-nyaya in particular, theories of meaning of sentences are regarded as a part of theories of origin of true cognition. Hence in discussing theories of meaning, Indian philosophical systems almost exclusively consider how a hearer acquires information second-hand from what a speaker tells him. Indian theories of meaning refer to the speaker's intention only in so far as it is necessary for the hearer to cognize truly what the speaker says.

    According to Navya-nyaya, a word means an object only under a mode of presentation. Anyone who knows the meaning of the word knows the object under this mode on hearing, remembering, or otherwise cognizing, the word. The problem of meaning of words is the problem of explaining how the hearer knows the object under the particular mode.

    The mode of presentation of an object, according to Navya-nyaya, must be a property of the object. A property is anything which may be said to be *in* the object. According to Navya-nyaya, this is the case if and only if what is to be regarded as a property of an object is related to the object *by an occurrence-exacting relation*. Anything related to an object by such a relation will be its property."

27. Bhowmik, Subrata. 2014. "A Glimpse of Rule of Logic in Gautama's Nyāya Sūtra." *Indian Journal of History of Science* no. 49:50-51.

28. Bilimoria, Purusottama. 1985. "Jñāna and Pramā: the Logic of Knowing - A Critical Appraisal." *Journal of Indian Philosophy* no. 13:73-102.

    "The thrust of this paper is to investigate the relative difference between "Jnana" and "Prama", two crucial concepts in Indian epistemology, since more recent treatment of them would seem

to be confused. Utilizing the framework developed by Nyāya and Advaita, it is argued that the former describes a wide range of cognitive processes, such as 'cognition', 'judgment', 'remembering', 'doubting', etc., while the latter defines the bounds of cognition in respect of its truth-value. A theory of knowledge is developed that accounts for the rise of 'true' knowledge in terms of the 'psyche-activity' involved and the set of criteria ("Pramanya") that renders a "Jnana" as a "Prama". The intensional structure of such a judgment, it is argued, involves a complex qualified-qualifier relation in conformity with the property-content relation of the objective correlate."

29. Bronkhorst, Johannes. 1981. "Meaning Entries in Panini's Dhātupātha." *Journal of Indian Philosophy* no. 9:335-357.

30. ———. 2011. *Language and Reality: On an Episode in Indian Tought*. Leiden: Brill.

    Translated from the French by Michael S. Allen and Rajam Raghunathan.

    Revised and with a new appendix

31. Butzenberger, Klaus. 1996. "On Doubting What There Is Not: The Doctrine of Doubt and the Reference of Terms in Indian Grammar, Logic and Philosophy of Language." *Journal of Indian Philosophy* no. 24:363-406.

32. Chakrabarti, Arindam. 1997. *Denying Existence. The Logic, Epistemology and Pragmatics of Negative Existentials and Fictional Discourse*. Dordrecht: Kluwer.

    See the Appendix: "The Problem of the Nonexistent in Indian Philosophy of Logic and Language", pp. 211-245.

33. ———. 2000. "Against Immaculate Perception: Seven Reasons for Eliminating *Nirvilkalpaka* Perception from Nyāya." *Philosophy East and West* no. 50:1-8.

    "Besides seeing a rabbit or seeing that the rabbit is grayish, do we also sometimes see barely just the particular animal (not as an animal or as anything) or the feature rabbitness or grayness? Such bare, non-verbalizable perception is called "indeterminate perception" *(nirvikalpaka pratyaksa)* in Nyāya. Standard

Nyāya postulates such pre-predicative bare perception in order to honor the rule that awareness of a qualified entity must be caused by awareness of the qualifier. After connecting this issue with the Western debate concerning the "myth of the given," seven distinct arguments are presented showing that the very notion of such indeterminate perception is epistemically otiose and that the Nyāya theory of perception is better off without it."

34. ———. 2001. "Reply to Stephen Phillips." *Philosophy East and West* no. 51:114-115.

35. Chakrabarti, Kisor Kumar. 1976. "Some Comparisons Between Frege's Logic and Navya-Nyāya Logic." *Philosophy and Phenomenological Research* no. 36:554-563.

36. ———. 1977. *The Logic of Gotama*. Honolulu: University Press of Hawaii.

37. ———. 1978. "The Nyāya-Vaisesika Theory of Negative Entities." *Journal of Indian Philosophy* no. 6:129-144.

    "The paper consists in three parts. The first part criticizes the attempt of some major Indian and Western philosophers like Plato, Cook Wilson, the Buddhists, the Prabhakaras, etc., to dispense with negative entities and builds up the case for them. The second part is devoted to their classification and contains additional arguments in favour of negative entities of particular kinds. The third part discusses some problems of a specialized nature such as the criteria for distinguishing one negative entity from another."

38. ———. 1985. "Some Remarks on Indian Theories of Truth." *Journal of Indian Philosophy* no. 12:339-356.

    "Some of the points sought to be established are (1) an overly pragmatic reading of the concept of truth in Indian philosophy should be avoided; (2) notions similar to that of knowledge as justified true belief and to the distinction between analytic and synthetic truths are found in Indian philosophy; (3) confirmation of truth through an inferential process, when properly analyzed, does not lead to an infinite regress and that (4) in some cases truth is known immediately."

39. ———. 1989. "Contraposition in European and Indian Loigc." *International Philosophical Quarterly* no. 29:121-127.

Abstract: "This paper consists of five sections. In the first two sections the presence and recognition of the law of contraposition of the universal affirmative categorical proposition (traditionally called an A proposition) is traced in Greek, Latin, and Sanskrit logical writings. In the third section it is pointed out that in both traditional European and Indian logic the universal proposition is understood to have existential import. The fourth section shows that the above law is invalid under the traditional interpretation. The fifth section deals with the views of Uddyotakara, a famous Indian logician, on this subject and takes notice of a number of logical notions introduced by him in this connection."

40. ———. 1995. *Definition and Induction: A Historical and Comparative Study*. Honolulu: University of Hawaii Press.

41. ———. 2003. "Response to Roy W. Perrett's Review of Classical Indian Philosophy of Mind: The Nyaya Dualist Tradition." *Philosophy East and West* no. 53:593-598.

42. ———. 2010. *Classical Indian Philosophy of Induction: The Nyāya Viewpoint*. Lanham: Rowman & Littlefield.

43. Chakrabarty, Debasish. 2000. "Kanada's *Vaisesika Sutra*: A Translation." In *Signs and Signification. Vol. II*, edited by Gill, Harjeet Singh and Manetti, Giovanni, 311-336. New Delhi: Bahri Publications.

44. Chakraborty, Krishna. 1978. "Determination of Universal Concomitance." *Journal of Indian Philosophy* no. 5:291-310.

45. ———. 1978. "The Nyāya Concept of Svābhāvika Sambandha: A Historical Retrospect." *Journal of Indian Philosophy* no. 5:385-392.

46. Chakraborty, Mihir K., Lowe, Benedikt, Mitra, Madhabendra Nath, and Sarukkai, Sundar, eds. 2008. *Logic, Navya-Nyāya and Applications: Homage to Bimal Krishna Matilal*. London: College Publications.

Contents: Preface VII; Jonardon Ganeri: Bimal Krishna Matilal and his contribution to the study of Indian logic and Navya-Nyaya XI-XVII; Mohua Banerjee, Md. Aquil Khan: Rough set theory: A temporal logic view 1;

Johan van Benthem: Natural logic: A view from the 1980s 21; Purushottama Bilimoria: *Abhāva*: Negation in logic, real non-existent, and a distinctive pramāńa in the Mīmāṃsā 43; Amita Chatterjee, Mihir K. Chakmborty: "Marry your daughter to a handsome person": The Nyaya technique of precisification 65; Anuj Dawar: Computational Complexity and the expressive power of logics 81; Jonardon Ganeri: Towards a formal regimentation of the Navya-Nyaya technical language I 105; Jonardon Ganeri: Towards a formal regimentation of the Navya-Nyaya technical language II 123; Eberhard Guhe: George Bealer's property theories and their relevance to the study of Navya-Nyaya logic 139; Wilfrid Hodges: Tarski on Padoa's method: A test case for understanding logicians of other traditions 155; Hisayasu Kobayashi: Other minds in Buddhist epistemology 171; Kamal Lodaya: Marking time 185; Shinya Moriyama: Sense data and *ākāra* 205; Hideyo Ogawa: Kaundabhatta on the *śakyatāvacchedaka* of a meaning of a verb ending 217; Biswambhar Pahi: On relating two traditions of logic 235; R. Ramanujarn, Sunil Simon: Reasoning in games 261; Sundar Sarukkai: A semiotic interpretation of Indian logic 287-304.

47. Chatterjee, Amita. 2022. "Logic in India." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-21. Dordrecht: Delhi.

    Abstract: "This chapter aims at providing a broad overview of Indian logic pursued in the classical Indian philosophical systems as well as in contemporary India. It will be seen that traditional systems of logic do share some features, yet diverge from each other due to the differences in their ontology and practice. During the colonial period, logic was pursued mainly within a comparative framework. However, the perception of Indian logicians changed entirely as they came into contact with modern symbolic logic. The chapter is divided into five sections. The first section deals mainly with the distinction

between Western and Indian conception of logic. The second section provides the structure of inference in classical Indian philosophical systems. The third section analyzes the concepts of negation available in the Nyāya, Buddhist, and Jaina logic and links different concepts of negation to the metaphysical presuppositions of the systems. The fourth section lays bare the nature of contradiction as conceived in these systems, and the final section gives a brief account of the developments in Indian logic during the nineteenth and the twentieth centuries."

48. Chatterjee, Satischandra. 1939. *The Nyāya Theory of Knowledge. A Critical Study of Some Problems of Logic and Metaphysics*. Calcutta: University of Calcutta.

    Reprinted 1950, 1965 and 1978.

49. Chinchore, Mangala. 1988. *Vādanyāya: A Glimpse of Nyāya-Buddhist Controversy*. Delhi: Sri Satguru Publications.

50. Clavel, Anne. 2022. "Logic of Syād-Vāda." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar, 1-22. Dordrecht: Springer.

    Abstract: "The *syād-vāda* (“doctrine of syāt”), also called “sevenfold predication” (*sapta-bhaṅgī*), constitutes a cornerstone of the Jaina doctrine of multilateralism, since it prevents a predicate from being attributed absolutely to a subject. According to Jainism, in order to consider a single state of affair as exhaustively as possible, one has to submit every predicative relation between a subject and a predicate to a structural rule made up of seven propositions, which are not conceived of as alternative truths but are all endowed with the same truth-value. A thorough understanding of the syād-vāda raises tricky issues, such as the meaning of the adverb syāt in the context of this logical pattern, the compatibility of Jaina logic with basic logical principles, or the oddness of the number of propositions – why seven?"

51. Clerbout, Nicolas, Gorisse, Mari-Hélène, and Rahaman, Shahid. 2011. "Context-Sensitivity in Jain Philosophy: A Dialogical Study of Siddharsigani's "Commentaryon the

Handbook of Logic"." *Journal of Philosophical Logic* no. 40:633-662.

Abstract: "In classical India, Jain philosophers developed a theory of viewpoints (*naya-vāda*) according to which any statement is always performed within and dependent upon a given epistemic perspective or viewpoint. The Jainas furnished this epistemology with an (epistemic) theory of disputation that takes into account the viewpoint in which the main thesis has been stated. The main aim of our paper is to delve into the Jain notion of viewpoint- contextualisation and to develop the elements of a suitable logical system that should offer a reconstruction of the Jainas' epistemic theory of disputation. A crucial step of our project is to approach the Jain theory of disputation with the help of a theory of meaning for logical constants based on argumentative practices called *dialogical logic*. Since in the dialogical framework the meaning of the logical constants is given by the norms or rules for their use in a debate, it provides a meaning theory closer to the Jain context-sensitive disputation theory than the main-stream formal model-theoretic semantics.

52. Croce, Benedetto. 1953. "Benedetto Croce on Indian Logic." *East and West* no. 4:30.

Abstract: "We believe we are paying our tribute of respect to the memory of Renedetto Croce, the great Italian thinkerr who died recently, by reprinting here a passage from his "Logic as the Science of pure Concept" (*Logica come scienza del concetto puro*) taken from his work *La Filosofia dello Spirito* (Tl, Chap. JV), in which he shows a fine intuition of that essential logic, of a superior order, which is at the centre of Indian philosophy. In this case we may well speak of the science of thought rather than of the science of logic, for thought is here taken at its source, springing from the mystery of the forces that support the Universe. Thus understood, the science of thought that comes to us from India may be considered as the logic of every age, the logic superior to all formal

dialectics, and therefore the very logic of all future knowledge."

53. D'Amore, Bruno. 2005. "Association Secondary School Students' Mathematical Argumentation and Indian Logic (Nyaya)." *For the Learning of Mathematics* no. 25:26-32.

54. Dasgupta, Probal. 1981. "Modern Indian Work at the Logic-Linguistics Boundary." *Journal of Indian Philosophy* no. 9:217-225.

    "The mainstream Western logico-linguistic assumption that wh-words ("who", "when",...) in constituent questions manifest a wh-quantifier reflects features of Western languages, which position wh-words clause-initially. Languages like Sanskrit, Hindi, and Bangla form indefinite expressions systematically by adding an existential element to interrogative K-words, suggesting that K expresses a variable and not a quantifier. Further probing indicates that existential and universal quantifiers are based respectively on free and bound variables. Independent linguistic arguments show that these proposals work better than the quantifier theory of questions even for Western languages. Frege and Felix Cohen have, on logical grounds, already argued for a variable theory."

55. Davis, Lawrence. 1981. "Tarka in the Nyāya Theory of Inference." *Journal of Indian Philosophy* no. 9:105-120.

56. Daye, Douglas Dunsmore. 1979. "Circularity in the Inductive Justification of Formal Arguments (*Tarka*) in the Twelfth-Century Indian Jaina Logic." *Philosophy East and West* no. 29:177-188.

57. Deshpande, Madhav M. 1992. *The Meaning of Nouns. Semantic Theory in Classical and Medieval India*. Dordrecht: Springer.

    Nāmārtha-nirṇaya of Kauṇḍabhaṭṭa translated and annotated.

58. Dixit, Krishna Kumar. 1975. *Indian Logic: Its Problems as Treated by Its Schools*. Vaishali (Muzaffarpur): Research Institute of Prakrit, Jainology, and Ahimsa.

59. Franco, Eli. 1983. "Studies in the Tattvopaplavasiṃha I. The Criterion of Truth." *Journal of Indian Philosophy* no. 11:149-166.

60. ———. 1984. "Studies in the Tattvopaplavasiṃha II. The Theory of Error." *Journal of Indian Philosophy* no. 12:105-137.

61. Frauwallner, Erich. 1961. "Landmarks in the History of Indian Logic." *Wiener Zeitschrift für die Kunde Süd- und Ostasiens und Archiv für indische Philosophie für das indologische Institut der Universität Wien* no. 5:125-148.

62. Friedman, David. 1955. "Aspects of Indian Epistemology, Logic and Ontology." *Philosophia Reformata* no. 20:49-58.

63. Gajendragadkar, Veena. 1980. "The Vaisesika Categories: A Logical Perspective." *Indian Philosophical Quarterly*:107-119.

64. Ganeri, Jonardon. 1986. "The Hindu Syllogism: Nineteenth-Century Perceptions of Indian Logical Thought." *Philosophy East and West* no. 46:1-16.

    "Following H. T. Colebrooke's 1824 'discovery' of the Hindu syllogism, his term for the five-step inference schema in the Nyāya-Sutra, European logicians and historians of philosophy demonstrated considerable interest in Indian logical thought. This is in marked contrast with later historians of philosophy, and also with Indian nationalist and neo-Hindu thinkers like Vivekananda and Radhakrishnan, who downgraded Indian rationalist traditions in favor of 'spiritualist' or 'speculative' texts. This article traces the role of these later thinkers in the origins of the myth that Indian thought is spiritual and a-rational. The extent to which Nineteenth-century European philosophers were aware of Colebrooke's 'discovery' is documented, and then their criticisms of the Hindu syllogism and its defense by orientalists like Ballantyne and Muller are examined."

65. ———. 1995. "Vyadi and the Realist Theory of Meaning." *Journal of Indian Philosophy* no. 23:403-428.

    "Vyadi, a celebrated Indian linguist, endorses a version of the realist theory of meaning, that the meaning of a word is the object for which it stands. As applied to generic nominals like " (the) cow", Vyadi's thesis faced two much rehearsed objections: 1) if, for each token utterance, a separate meaning rule must be

given, then the number of such rules will be "limitless", and the word will be radically homonymous; 2) if only some finite set is given, use of the word to refer outside this set will be "aberrant". These arguments significantly resemble certain Davidsonian constraints on a theory of meaning. The application of Vyadi's theory to proper names is also examined."

66. ———. 1996. "Meaning and Reference in Classical India." *Journal of Indian Philosophy* no. 24:1-19.

    "In another paper, I discussed the grammarian Vyadi's realist' theory of meaning, and showed how its failure to distinguish between the concepts of meaning' and reference' laid open his theory to a series of powerful objections. Later grammarians and Naiyayikas were forced to seek new, more sophisticated, accounts of the semantics of proper names and nominals, and in doing so introduced important innovations in the theory of meaning. I would like in this paper to discuss the contributions of these authors, especially to our understanding of the relation between the meaning of a term and its reference, and to the semantics of context-sensitive expressions."

67. ———. 1999. *Semantic Powers. Meaning and the Means of Knowing in Classical Indian Philosophy*. Oxford: Clarendon Press.

68. ———, ed. 2001. *Indian Logic: A Reader*. Richmond: Curzon.

    Contents: Preface VII-IX; Jonardon Ganeri: Introduction: Indian Logic and the Colonization of Reason 1; Chapter 1: Henry T. Colebrooke: The Philosophy of the Hindus: On the Nyāya and Vaisesika Systems (1824) 26; Chapter 2: Max Muller: On Indian Logic (1853) 59; Chapter 3: H. N. Randle: A Note on the Indian Syllogism (1924) 75; Chapter 4: Stanislaw Schayer: Studies in Indian Logic (1932-3) 93; Chapter 5: Stanislaw Schayer: On the Method of Research into Nyāya (1933) 102; Chapter 6: Daniel H. H. Ingalls: Logic in India (1955) 110; Chapter 7: I. M. Bochenski: The Indian Variety of Logic (1956) 117; Chapter 8: J. F. Staal: The Concept of Paksa in Indian Logic (1973) 151; Chapter 9: Sibajiban Bhattacharyya: Some Aspects of the Navya-Nyāya Theory of Inference (1987)

162; Bimal Krishna Matilal: Chapter 10: Introducing Indian Logic (1998) 183; Readings in Indian Logic 216-221.

69. ———. 2002. "Jaina Logic and the Philosophical Basis of Pluralism." *History and Philosophy of Logic* no. 23:267-281.

70. ———. 2003. "Ancient Indian Logic as a Theory of Case-Based Reasoning." *Journal of Indian Philosophy* no. 31:33-45.

71. ———. 2003. "Hinduism and the Proper Work of Reason." In *The Blackwell Companion to Hinduism*, edited by Flood, Gavin, 411-446. Malden: Blackwell Publishing.

72. Gangopadhyay, Mrinal Kanti. 1971. "The Concept of Upadhi in Nyāya Logic." *Journal of Indian Philosophy* no. 1:146-166.

73. ———. 1984. *Indian Logic in its Sources: On Validity of Inference*. New Delhi: Munhsiram Monoharlal.

74. Gerow, Edwin. 1984. "Language and Symbol in Indian Semiotics." *Philosophy East and West* no. 34:245-260.

75. Gillon, Brendan S. 1997. "Negative Facts and Knowledge of Negative Facts." In *Relativism, Suffering and Beyond: Essays in Memory of Bimal K. Matilal*, edited by Bilimoria, Purusottama and Mohanty, Jitendra Nath, 128-149. New Delhi: Oxford University Press.

    Abstract: "Negative facts have perplexed Western philosophers ever since the time of Plato. But the philosophers of Europe and America have not been the only philosophers to have been perplexed by them; classical Indian philosophers too have pondered their nature. My interest here is to explore how the reflections of these classical Indian philosophers, transposed into the contemporary philosophical idiom, might enrich current metaphysical thinking about negative facts; and what I shall conclude is that at least one of these philosophers has a view of negative facts and knowledge of them, which, when so transposed, is very plausible indeed.

    I shall begin by asking the fundamental ontological question of whether or not negative facts exist and then sketch various replies which European and American philosophers have given to it. Since these replies have not led to any decisive answer to

the question, I shall then ask two other questions: the more specific ontological question of whether or not absences-surely paradigmatic examples of negative facts-exist; and the related epistemological question of what is known when the absence of something is said to be known. Answers to these questions comprise an important part of classical Indian philosophy; and I shall outline their answers to them, concluding that the most plausible answers to these questions are those of Jayanta Bhatta, who maintained that absences do indeed exist and that they are known not only by inference but also by perception."

76. Gillon, Brendan S., and Lile Love, Martha. 1980. "Indian Logic Revisited: Nyāyapraveśa Reviewed." *Journal of Indian Philosophy* no. 8:349-384.

77. Glashoff, Klaus. 2004. "On Stanislaw Schayer's Research on Nyāya." *Journal of Indian Philosophy* no. 32:295-319.

78. ———. 2004. "Using Formulas for the Interpretation of Ancient Indian Logic." *Hōrin: Vergleichende Studien zur japanischen Kultur / Comparative Studies in Japanese Culture* no. 11:9-21.

79. Gokhale, Pradeep P. 1982. "The Terms *Padartha* and *Prameya* in the Context of *Nyayasutra*." *Philosophy East and West* no. 32:207-211.

    "In this paper an attempt has been made to show that the Vaisesika concept of "padartha" as 'a type of object in this world' is not properly applicable to the sixteen terms mentioned by Gautama in Nyāya-Sutra III. Traditionally "artha" (in Gautama's list of "prameyas") was identified with "padartha" of Vaisesika's. But identification of Gautama's "prameya" or "artha" with Vaisesika "padartha" is misleading. The sixteen terms of Nyāya are also not 'categories' in the technical sense. Gautama's definition of 'padartha' has linguistic import rather than ontological."

80. ———. 1992. *Inference and Fallacies Discussed in Ancient Indian Logic with Special Reference to Nyāya Buddhism*. New Delhi: Sri Satguru Publications.

81. Gorisse, Marie-Hélène. 2022. "The Opponent: Jain Logicians Reacting to Dharmakīrti’s Theory of Inference." In *Handbook*

of Logical Thought in India, edited by Sarukkai, Sundar, 1-22. Dordrecht: Springer.

Abstract: "The goal of this chapter is to present the contribution made by Jaina philosophers in the conception of inference in the classical paradigm of philosophy in India. In this perspective, the attacks and defenses that Jaina philosophers in the lineage of Akalaṅka performed against the Buddhist thinker Dharmakīrti are precious witnesses, not only of the development of the Jaina conceptions but also of their contribution to the general constitution of the framework of debate. This chapter is moreover conceived to clarify the consequences of argumentative, epistemic, and more formal considerations at important transition periods of the development of these conceptions of inference."

82. Gorisse, Marie-Hélène. 2021. "Jain Philosophers in the Debating Hall of Classical India." *Argumentation* no. 35:35-49.

Abstract: "The practice of rational debate between philosophers from different traditions, especially between Hindu—Naiyāyika and Mīmāṃsaka—, Buddhist and Jain philosophers, is unique in classical India. Around the 7th c., a pan-Indian consensus was

achieved on what counts as a satisfactory justification. The core of such discussions is an inferential reasoning whose structure is such that it ensures that its conclusions are recognised as knowledge statements, irrespective of the obedience of the interlocutor. In this line, stories of conversion following those philosophical debates are commonplace in the narratives of the different traditions and regularly involve the conversion of a royal patron. Beside the influence of argumentative practices on social and political changes, theories of argumentation have deeply influenced the whole edifice of philosophy in pre modern India, since no philosopher can claim a thesis without being committed to defend it in this highly regulated dialogical framework. Moreover, the characterisation, as well as the methods to test the validity of this justification, raised the question of the existence of shared principles and was a battlefield for the different traditions to establish their own

conceptions on the constitution of the world and on our ability to know it. The aim of this paper is to provide an overview of the contribution of the minority tradition that is Jainism to the framework of philosophical disputation in India."

83. Gosh, Ragunath. 2022. "Logical Aspects of Grammar: Pāṇini and Bhartṛhari." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-23. Dordrecht: Delhi.

    Abstract: "The present entry addresses the problem that between language and grammar which one is prior and the relation between them with special reference to Indian tradition in order to understand the importance of grammar. Secondly, an address will be made to the chief contributions of the grammarians to the philosophy of language as such. By way of rounding off these questions some evaluative and critical points will be put forth.

    The present entry will deal with the arguments behind the first problem mentioned earlier. Secondly, an address will be made to the reasonings for which they are considered as chief contributions of the grammarians to the philosophy of language as such. Grammar has been taken as an aid to detect corrupt word (*apaśabda*), formation of word, meaningfulness of null-class, *akhaṇḍa-vākyārtha-vāda, anvitābhidhāna-vāda*, division of *Vāk*, *Sphoṭa* theory, and some epistemological reflections of them. It should be borne in mind that all these theories are interrelated. There are certain reasonings which are related to each other. As the grammarians believe in *Sphoṭa* theory of *Vāk*, i.e., the primordial originating point of a word is *Sphoṭ*a, it gives rise to the theory of holistic meaning which again is related to *anvitābhidhāna* theory. By virtue of being originated from one source its meaning comes into existence in one burst which is indivisible. Due to its indivisibility it becomes sentence-related contextualism, i.e., meaning of the sentence comes into being at the first flash giving rise to word-meaning afterwards. The grammarians do not always admit that their job is only to show the path of rectifying or purifying language. Ultimate goal of them is also to direct a man to reach

in the realm of metaphysics which is beyond all cognitions. In Vākyapadīya grammar is taken as the entrance of heaven and also royal road to liberation. That is why they have given much importance to Vedas whether there is no room for corrupt word and misunderstanding of the statement. To Bhartṛhari liberation may not be considered as the ultimate goal to someone yet through the instrumentality of Vāk he attains a great poetic pleasure generated through the light of the lights (*jyotiṣāṁ jyotiḥ*) of sound overcoming darkness (*tamasaḥ parastāt*), which is not at all ignorable in this world."

84. Gradinarov, Plamen. 1989. "Laugākṣi Bhāskara on Inference: Problems of Generalizing Ideation in ComparativeLight." *Journal of Indian Philosophy* no. 17:225-264.

85. Guha, Dinesh Chandra. 1968. *Navya Nyāya System of Logic. (Some Basic Theories and Techniques)*. Varanasi: Bharatiya Vidya Prakasan.

    Second revised edition with the title: *Navya Nyāya System of logic: theories and techniques*, Delhi, Motilal Banarsidass, 1979.

86. Guhe, Eberhard. 2022. "The Logic of Late Nyāya: A Property-Theoretic Framework for a Formal Reconstruction." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-23. Dordrecht: Delhi.

    Abstract: "Late Nyāya and Navya-Nyāya are renowned for their affinity to Western formal logic. The interest of modern interpreters has especially been sparked by the technical language of the Navya-Naiyāyikas and by their attempt to formulate theorems about properties by means of these peculiar linguistic tools. The aim of the present contribution is to provide a property-theoretic framework for a formal reconstruction of Navya-Nyāya logic. “The Logic of Late Nyāya: Problems and Issues,” published in the same book, demonstrates its utility by referring to some pertinent examples."

87. ———. 2022. "The Logic of Late Nyāya: Problems and Issues." In *Handbook of Logical Thought in India*, edited by Sarukkai,

Sundar and Chakraborty, Mihir Kumar, 1-29. Dordrecht: Delhi.

Abstract: "The purpose of the present chapter is to demonstrate the utility of the property-theoretic framework for a formal reconstruction of Navya-Nyāya logic which was introduced in Guhe 2016 (*Computer Science Journal of Moldova* 24/3 (72): 312–334). Some pertinent examples have been selected, namely the Navya-Naiyāyikas' operations applied to properties and relations, their discovery of theorems related to these operations, their account of the reference of number words, and the definition of the concept of pervasion. Several alternative methods of formalization in secondary sources are noted and critically examined."

References

E. Guhe, "The absence of the difference from a pot is potness" – Axiomatic Proofs of Theorems Concerning Negative Properties in Navya-Nyāya. *Computer Science Journal of Moldova*, vol. 24/3 (72) (2016), pp. 312–334.

88. Gupta, Bina. 1980. "Are Hetvabhasas Formal Fallacies?" *Journal of Indian Philosophy* no. 8:135-147.

    "The first part of the paper examines the "Hetvabhasas" of the Nyāya school. The second part analyzes the differences between Indian and Western conceptions of fallacy and deals with the question whether the Indian account of the "Hetvabhasas" is totally devoid of the notion of formal fallacy as it is understood in the West. I have suggested that though the "completed" Nyāya inference includes the properties of formal validity, the notion of "Hetvabhasa" presents only the necessary conditions for satisfactorily completing such an inferential process. Thus, while the Nyāya inference adequately accounts for the validity of the final "product" of inference, the Nyāya "Hetvabhasas" account for the inferential process leading up to a sound product of inference."

89. Hamlin, Edward. 1983. "Discourse in the Lankāvatāra-sūtra." *Journal of Indian Philosophy* no. 11:267-313.

90. Houben, Jan E. M. 1997. "The Sanskrit Tradition." In *The Emergence of Semantics in Four Linguistic Traditions*, edited

by Van Bekkum, Wout, Houben, Jan E. M., Sluiter, Ineke and Versteegh, Kees, 49-145. Amsterdam: John Benjamins.

9: Bhartṛhari's discussion of linguistic and semantic theories: major issues and parameters, pp. 110-119.

91. Houben, Jan E.M. 2000. "Language and Thought in the Sanskrit Tradition." In *History of the Language Sciences. An International Handbook on the Evolution of the Study of Language from the Beginnings to the Present. Vol. 1*, edited by Auroux, Sylvain, Koerner, E.F.K., Niederehe, Hans-Josef and Versteegh, Kees, 146-156. Berlin: Walter de Gruyter.

92. Ingalls, Daniel Henry Holmes. 1951. *Materials for the Study of Navya-Nyāya Logic*. Cambridge: Harvard University Press.

93. ———. 1955. "A Reply to Bhattacharya." *Philosophy East and West* no. 5:163-166.

94. Jayaraman, Thanga. 2022. "Logic in Tamil Didactic Literature." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-19. Dordrecht: Delhi.

Abstract: "Demonstrating that there had been an ancient logical tradition native to the Tamil society, Nirmal Selvamony has, in a paper entitled, "The Syllogistic Circle in *tolkāppiyam*" (The syllogistic circle in *tolkāppiyam*. 65th Session of the Indian Philosophical Congress. Madurai-Kamaraj University, Madurai, 27–29 Dec. Unpublished Paper, 1990; *Journal of Tamil Studies* 57 & 58: 117–134, 2000), identified the five-member syllogism central to the tradition. He has also shown that *kāṇṭikai* had perfect application to Tamil didactic texts and was significantly different from the universally adopted Aristotelian three-member syllogism. The early tendency of the Tamils was to identify logic with philosophy and religion. Taking a departure from this tendency, he recovers the original definition of *kāṇṭikai* from *iḷampūraṇār*'s commentary on *tolkāppiyam*. This chapter tries to identify the structure of arguments in Tamil didactic verses employing the *kāṇṭikai* form. The application of *kāṇṭikai* to diverse Tamil texts as an analytic tool has no hermeneutic intent, but the tool gets itself defined in the process. The argument of this chapter is that the efficiency of

the different members of kāṇṭikai can be better appreciated when their correspondence to those of the jurisprudential model of argument, described by Stephen Toulmin, is traced. Taking a clue from Toulmin, it is also argued that many Tamil didactic texts have what Collingwood calls “absolute presuppositions” and that these presuppositions have correspondence to “warrants” in the jurisprudential structure of argument. The ubiquitous analogy and recursive analogical reasoning found in Tamil texts can also be accommodated in this model of argument when the features of an analogy are seen as the “datum” in the jurisprudential model. This helps us overcome the problem in claiming application of logic to didactic texts of preceptorial tone, the arguments of which, though often seen as assertions and affirmations on authority, do have warrants and also backing for their warrants. The arguments of Tamil didactic verses, when cast in the kāṇṭikai form of argument thus eclectically constructed, allow us to clearly see the unstated presupposition of every one of them."

95. Jha, Ujjwala. 2002. *Mimamsa Philosophy of Language*. Delhi: SRI Satguru Publications.

96. Jha, Vashishtha Narayan. 1985. "Problem of Error: the views of the Grammarians." *Annals of the Bhandarkar Oriental Research Institute*:231-238.

    Reprinted in V. N. Jha, *Studies in Language, Logic, and Epistemology,* Delhi: Pratibha Prakashan, 1986, pp. 92-100.

97. ———. 1986. *The Logic of the Intermediate Causal Link*. Delhi: Sri Satguru Publications.

    Containing the Sanskrit Ttext of the *Apurvavada* of the *Sabdakhanda* of the *Tattvacintamani* of Gangesa with English Translation and Introduction.

98. Joshi, S. D. 2001. "Syntactic and Semantic Devices in the Astādhyāyī of Pānini." *Journal of Indian Philosophy* no. 29:155-167.

99. Kahrs, Eivind. 1998. *Indian Semantic Analysis: The Nirvacana Tradition*. Cambridge: Cambridge University Press.

100. Kak, Subhash. 2010. "Logic in Indian Thought." In *Logic in Religious Discourse*, edited by Schumann, Andrew, 20-32. Frankfurt: Ontos Verlag.

    Abstract: "This paper presents an overview of the Indian tradition of logic. The paper starts with Vedic ideas and goes on to summarize the relevant contributions of the formal schools of philosophy which included one devoted principally to logic. The Indian tradition of logic reached its peak in the Navya Nyāya school of medieval India."

101. Kalghatgi, T. G. 1981. *Jaina Logic (Anekānta, Naya and Syādvada)*. New Delhi: Shri Raja Krishen Jain Charitable Trust.

102. Kalyana Sastry, O. G. P. . 2022. "Technical Language of Navya Nyāya." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-23. Dordrecht: Delhi.

    Abstract: "The Nyāya system, which is one of the six schools of Indian orthodox philosophy, can be broadly classified into *Prācīna Nyāya* and *Navya Nyāya* with respect to chronology. The older school of Nyāya discussed mainly about the objects of a valid cognition, namely *Prameyās*, while the neo-Naiyāyikās shifted their area of focus onto the means of valid cognition, i.e., the *Pramāṇās*. Hence, it is said that *Prācīna Nyāya* is *Prameyā Pradhāna* while Navya Nyāya is *Pramāṇā Pradhāna*.

    During this process of shifting, there evolved a methodology of language which was so technical yet precise that many other streams like grammar, law, and aesthetics adopted it. Words like *avacchedaka, nirūpaka, pratiyogin, anuyogin*, etc. were used frequently during philosophical debates and while defining new concepts.

    The current chapter deals with how such a methodological language evolved over a span of 15 centuries, ever since the Sūtras, the need for the development of such a technical language, and finally some of the unique characteristics of this technical language."

103. Kataoka, Kei. 2003. "The Mimamsa Definition of Pramana as a source of New Information." *Journal of Indian Philosophy* no. 31:89-103.

104. Keith, Arthur Berriedale. 1921. *Indian Logic and Atomism: An Exposition of the Nyāya and Vaiçeṣika Systems*. Oxford: Clarendon Press.

    Reprint: New York: Greenwood Press, 1968 and New Delhi: Oriental Books Reprint Corp., 1977.

105. Kellner, Birgit. 2003. "Integrating Negative Knowledge into "Pramana" Theory: The development of the "Dṛśyānupalabdhi" in Dharmakīrti' earlier works." *Journal of Indian Philosophy* no. 31:121-159.

106. Kronen, John, and Tuttle, Jacob. 2011. "Composite Substances as True Wholes: Toward a Modified Nyāya-Vaiśeṣika Theory of Composite Substances." *Canadian Journal of Philosophy* no. 41:289-316.

107. Kulkarni, Amba. 2022. "Later Nyāya Logic: Computational Aspects." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-23. Dordrecht: Delhi.

    Abstract: "In this article we describe the computational aspects of the Technical Language of Navya-Nyāya. Navya-Nyaya is an off-shoot of the early Nyāya philosophy. It deviates from the Nyāya philosophy in three major ways. First, instead of prameyas the discussions are centered around the pramāṇas. Second, the Navya-Nyāya has adapted the Vaiseṣika ontology. And finally it has introduced a few concepts expressed through an unambiguous technical terminology that brings in a clarity in the communication removing the inherent ambiguities of a natural language. In this article the syntax of expressions involving this technical terminology is described, followed by a scheme based on Conceptual Graphs of Sowa for their graphical rendering. Finally a computational algorithm is described that renders the graphs corresponding to the Navya-Nyāya expressions semi-automatically."

108. Kuniko, Hosono. 2014. "Uddyotakara's Logic and Predicate Logic." *Journal of Indian and Buddhist Studies* no. 62:1156-1161.

109. Lama, Doboom Tulku, and Joshi, Maya. 2010. *Pramana: Dharmakirti and the Indian Philosophical Debate*. New Delhi: Manohar Publishers & Distributors.

110. Lawrence, David Peter. 2022. "Pratyabhijñā Inference as a Transcendental Argument about a Nondual, Plenary God." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-30. Dordrecht: Delhi.

Abstract: "The two most well-known and important nondual Śaiva and tantric philosophers are Utpaladeva (c. 900–950 CE) and Abhinavagupta (c. 950–1020 CE). Utpaladeva furthered the initiatives of his teacher Somānanda (c. 900–950 CE) in creating the originary verses and commentaries of the Pratyabhijñā system of philosophical theology. Abhinavagupta is famous for brilliant and extensive commentaries on Utpaladeva's writings as well as for the creation of a vast corpus of philosophical hermeneutics, itself comprising both a poetics and an exegetics of tantric symbolism and ritual.

This chapter clarifies and build upon the interpretations of the overarching Pratyabhijñā inference as a *transcendental argument* in the article, "Tantric Argument: The Transfiguration of Philosophical Discourse in The Pratyabhijñā System of Utpaladeva and Abhinavagupta" (1996) and the book *Rediscovering God with Transcendental Argument* (1999). It considers how the Pratyabhijñā inference may be characterized as transcendental, answering various objections to that characterization, provides translations of key passages for understanding the Pratyabhijñā method (especially, IPV 2.3.17 and a paragraph from IPV 1.17.1 on the identification of cosmogony and teleology), and summarizes some of the author's later research that pertains to this subject."

111. Lloyd, Keith. 2022. "Early Nyāya Logic: Rhetorical Aspects." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-24. Dordrecht: Delhi.

Abstract: "Nyāya philosophy emerged when Akṣapāda Gautama (first century CE), credited with authoring the Nyāyasūtra, redacted ideas originating from Medhatithi Gautama (fifth century BCE). However, many of Medhatithi's ideas were "reproduced" in the Caraka Saṃhitā about 78 CE (Vidyābhūṣaṇa *History* 25), indicating that concepts from both Medhatithi and Nyāya were in circulation well before Akṣapāda's redaction – including elements of the five-part approach to reasoning called "the Nyāya method." The Caraka Saṃhitā, though mostly about Ayurvedic medicine, includes a very focused debate manual bearing profound implications for the history and study of "comparative" rhetoric, which attempts to look beyond ancient Greece for other origins and interpretations of rhetoric. Early studies of Robert Oliver (*Communication and culture in Ancient China and India*. Syracuse: Syracuse University Press. 1971) and George Kennedy (*Comparative rhetoric : An historical and cross-cultural Introduction*. New York: Oxford University Press. 1998) identified Indian forms of rhetorical practice found in ancient literature. However, the presence of rhetorical manuals and terminologies shows that India, though it did not develop a concept exactly like Greek rhetoric, not only practiced debate but created theories about it, leading to an entire school of philosophy. To expand the knowledge of rhetorical terminologies, approaches, and contexts in ancient India, this chapter traces the case-based rhetorical origins and concepts that became Nyāya philosophy, focusing upon the Caraka Saṃhitā, the Nyāyasūtra, and other ancient sources."

112. Łucyszyna, Olena. 2017. "On the Notion of Linguistic Convention (*saṁketa*) in the *Yogasūtrabhāṣya*." *Journal of Indian Philosophy* no. 45:1-19.

Abstract: "The aim of this study is to clarify the meaning of the term *saṁketa*, which is usually translated as '(linguistic) convention', in the *Yogasūtrabhāṣya*, the first and the most authoritative commentary to the *Yogasūtras*. This paper is a contribution to the reconstruction of the classical Yoga view on the relation between word and its meaning, for *saṁketa* is a key

term used by this *darśana* in discussing this relation. The textual analysis of the *Yogasūtrabhāṣya* has led me to the conclusion that its author's understanding of the linguistic convention (saṁketa) is different from the notion of the linguistic convention (*saṁketa/samaya*) of the Vaiśeṣikas and Naiyāyikas and similar to the notion of the linguistic convention (*samaya/saṁketa*) of the Grammarians (as presented in Houben's article "Bhartrhari's samaya/Helārāja's saṁketa. A contribution to the reconstruction of the Grammarian's discussion with the Vaiśeṣikas on the relation between *śabda* and *artha*", published in the "Journal of Indian Philosophy") [*]. These are interpretations of the term *saṁketa* which reflect *Yogasūtrabhāṣya*'s understanding of the linguistic convention: the tradition of the usage of words, established (practice/custom of the) usage of words. *Saṁketa* of the *Yogasūtrabhāṣya*, unlike *saṁketa/samaya* of the Vaiśeṣikas and Naiyāyikas, is not an agreement established by anyone, but an agreement in the sense of tradition, established practice, or established custom.

Unlike the *saṁketa/samaya* of these philosophers, the *saṁketa* of the *Yogasūtrabhāṣya*, having neither beginning nor end, is not re-created (re-established), but only made known (revealed) at the beginning of each cycle of existence of the world."

[*] Vol. 20, No. 2 (June 1992), pp. 219-242

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History of Logic

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2. Maitra, Susil Kumar. 1956. *Fundamental Questions of Indian Metaphysics and Logic*. Calcutta: Chuckervertty, Chatterjee & Co.
3. Matilal, Bimal Krishna. 1968. "Indian Theories of Knowledge and Truth. Review of Mohanty, 'Gangesa's Theory of Truth'." *Philosophy East and West* no. 18:321-333.
4. ———. 1968. *The Navya-Nyāya Doctrine of Negation: The Semantics and Ontology of Negative Statements in Navya-Nyāya Philosophy*. Cambridge: Harvard University Press.
5. ———. 1970. "Reference and Existence in Nyāya and Buddhist Logic." *Journal of Indian Philosophy* no. 1:83-108.

   "This Nyāya-Buddhist controversy over the empty subject term may well recall to a modern mind the Meinong-Russell controversy about 'existence' and 'denotation'. The Nyāya and the Buddhist logicians worried over the logical and the epistemological problem connected with the issue. The Nyāya interpreted "the rabbit's horn" not as a singular term but as a predicate complex attributing 'hornness' to something that belonged to the rabbit. "The rabbit's horn does not exist"

ascribes the absence of hornness to something belonging to a rabbit, and is true. This analysis is closer to Russell's theory of description. The Buddhist, on the other hand, is prepared to allow some sort of 'fictional existence' to "the rabbit's horn" which is perhaps not very different from Meinong's 'theory of objects'. In epistemology the Nyāya believed that any object of cognition (which is expressible in words) must be either real or analyzable into constituents which are ultimately identifiable with some real entity or other. Only a complex object can be fictional. The Buddhists, however, hold that the objects of erroneous cognition are fictional."

6. ———. 1974. "A Note on the Nyāya Fallacy Sādhyasama and petitio principii." *Journal of Indian Philosophy* no. 2:211-224.

   "When H. N. Randle (in 1930) interpreted 'sadhyasama' as petitio principii, he made a mistake. Unfortunately, many scholars accepted randle's interpretation. It has been shown that Randle was wrong about this interpretation. 'Sadhyasama' can be correctly translated as a fallacy of being in the same predicament with yet-to-be-proven proposition. Petitio is a different fallacy, as it has been described by Aristotle. Some general comments have been made on the notion of fallacy, and on the distinction between 'formal' and 'non-formal' fallacies."

7. ———. 1980. "Double Negation in Navya-Nyaya." In *Sanskrit and Indian Studies. Essays in Honour of Daniel H.H. Ingalls*, edited by Nagatomi, Masatoshi, Matilal, Bimal Krishna, Masson, J. Moussaieff and Dimock Jr., Edward C., 1-10. Dordrecht: Reidel.

8. ———. 1981. "Error and Truth: Classical Indian Theories." *Philosophy East and West* no. 31:215-224.

   "Classical Indian theories of error are discussed to show their relevance to the philosophical problems of the Cartesian epistemologists in general and the British empiricists in particular. The concept of "alambana" and "pratibhasa" as discussed by the Ssautrantika-Yogacara School is explained and the views of the "sense-data" philosophers are discussed in this connection."

9. ———. 1985. *Logic, Language and Reality: An Introduction to Indian Philosophical Studies*. Delhi: Motilal Banarsidass.

10. ———. 1990. *The Word and the World: India's Contribution to the Study of Language*. New York: Oxford University Press.

11. ———. 1992. "Indian Philosophy of Language." In *Sprachphilosophie / Philosophy of Language / La philosophie du langage. Vol. 1*, edited by Dascal, Marcelo, Gerhardus, Dietfried, Lorenz, Kuno and Meggle, Georg, 75-94. Berlin: Walter de Gruyter.

12. ———. 1998. *The Character of Logic in India*. Albany: State University of New York Press.

    Edited by Jonardon Ganeri and Heeraman Tiwari.

13. ———. 2002. *The Collected Essays of Bimal Krishna Matilal: Mind, Language, and World*. New York: Oxford University Press.

    Edited by Jonardon Ganeri.

14. ———. 2005. *Epistemology, Logic, and Grammar in Indian Philosophical Analysis*. New York: Oxford University Press.

    First edition: The Hague: Mouton 1971.

    Second revised edition edited with a new preface by Jonardon Ganeri and the additions and changes made by Matilal in his personal copy.

15. Matilal, Bimal Krishna, and Chakrabarti, Arindam, eds. 1994. *Knowing from Words: Western and Indian Philosophical Analysis of Understanding and Testimony*. Dordrecht: Kluwer.

16. Matilal, Bimal Krishna, and Shaw, Jaysankar Lal, eds. 1985. *Analytical Philosophy in Comparative Perspective: Exploratory Essays in Current Theories and Classical Indian Theories of Meaning and Reference*. Dordrecht: Reidel.

17. McCrea, Lawrence. 2000. "The Hierarchical Organization of Language in Mimansa Interpretive Theory." *Journal of Indian Philosophy* no. 28:429-459.

18. Mejor, Marek. 2003. "Contribution of Polish Scholars to the Study of Indian Logic." *Journal of Indian Philosophy* no. 31:9-20.

19. Misra, Ganewar. 1990. *Language, Reality, and Analysis: Essays on Indian Philosophy*. Leiden: Brill.

    Edited by Jitendra Nath Mohanty.

20. Mohanty, Jitendra Nath. 1961. "Reflections on the Nyāya Theory of Avayavipratyaksa." *Journal of Indian Philosophy* no. 1:30-41.

    Reprinted in J. N. Mohanty, *Phenomenology and Ontology*, Den Haag: Martinus Nijhoff 1970, pp. 183-197.

    Abstract: "It is well known that the Nyāya advocates an extreme form of direct realism and maintains that what we directly perceive are physical objects and not some intermediate entities called variously by philosophers 'ideas', 'contents' or even 'sense-data'. Gotama's sûtras 2.1.31 - 2.1.36 and Vātsāyana's commentaries on them contain arguments which may be regarded as constituting a very effective defence of what has come to be called the physical object language as against the sense-datum language. Gotama's, as well as his commentator's, direct interest however is twofold. In the first place, they are out to refute the suggestion that perception is not an independent source of knowledge but a variety of inference. In the course of this refutation, they are led to their second point: they try to show that the object of perception, that is to say, the physical object, is not a mere assemblage of parts but a true unity of some unanalysable kind. Our task in this paper will be to bring out the relevance of these arguments in the light of contemporary discussions of the problem of perception."

21. ———. 1966. "Nyāya Theory of Doubt." *Visva Bharati Journal of Philosophy* no. 3:15-35.

    Reprinted in J. N. Mohanty, *Phenomenology and Ontology*, Den Haag: Martinus Nijhoff 1970, pp. 198-219 and in J. N.

Mohanty, *Essays on Indian Philosophy*, New Delhi: Oxford: Oxford University Press 1963, pp. 44–61.

Abstract: "The Nyāya logic contains a theory of doubt. A preoccupation with the nature, origin and structure of doubt seems out of place in a logical system inasmuch as logic has been taken to be concerned, speaking rather broadly, with formally valid thought abstracted from its psychological context. Now, Nyāya logic — in fact all Indian logic — does not conform to this conception. It is in a broad sense coextensive with, and indeed indistinguishable from, a theory of knowledge, and concerns itself with all kinds of knowledge, the non-propositional and the invalid ones not excluding. In a narrower sense it is of course a theory of inference. But even as a theory of inference, (i) it does not concern itself with the bare form, though some amount of formalism has been developed, and (ii) it does not separate logic from psychology in a way in which western formal logic has done. Consequently, it is as much interested in the psychological conditions of the origin of a certain type of knowledge, say e.g. of inference, as in the conditions of its logical validity."

22. ———. 1980. "Indian Theories of Truth: Thoughts on their Common Framework." *Philosophy East and West* no. 30:439-451.

    "The peculiar features of Indian theories of truth, according to this paper, are: (I) a theory of cognitive occurrent; (II) absence of a theory of meaning as distinct from reference; (III) a consequent position that avoids the extremes of logicism and psychologism; (IV) a restricted theory of necessary truths, a fallibilism with regard to empirical truths and infallibilism with regard to moral truths; (V) a close connection between cognitive enterprise and practice; and (VI) reliance on reflective analysis of the cognitive situation."

23. Mohanty, Jitendra Nath, Saha, S.R., Chatterjee, Amita, Sarkar, Tushar Kanti, and Bhattacharyya, Sibajiban. 2009. "Indian Logic." In *The Development of Modern Logic*, edited by Haaparanta, Leila, 903-961. New York: Oxford University Press.

24. Motege, Shujun. 2016. "Early Concepts of Logic in Sâmkhya." In *Logic and Belief in Indian Philosophy*, edited by Balcerowicz, Piotr, 363-382. Warsaw: Indological Studies.

25. Mukherjea, A.K. 1976. "The Definition of Pervasion ("vyāpti") in Navya-Nyāya." *Journal of Indian Philosophy* no. 4:1-50.

26. ———. 1979. "The Definition of Pervasion ("vyāpti") in Navya-Nyāya II." *Journal of Indian Philosophy* no. 7:107-152.

27. Mullick, Mohini. 1976. "Implication and Entailment in Navya-Nyāya Logic." *Journal of Indian Philosophy* no. 4:127-134.

    "My attempt is to produce some evidence to show that the notions of implication and entailment are clearly distinguished in Navya-Nyāya logic. This is done by examining the nature of the Navya-Nyāya syllogism and showing that the Naiyayikas were aware of various definitions of material implication but rejected them as definitions of vyapti (implication), not because they led to inferential paradoxes but to semantic ones; they in fact never confused implication with entailment. The entailment relation is contained in their notion of "paramarsa" and appears as the last premise in the argument which immediately precedes and thus 'causes' the conclusion."

28. Murti, T. R. V. 1974. "Some Comments on the Philosophy of Language in the Indian Context." *Journal of Indian Philosophy* no. 2:321-331.

29. Nemec, John. 2022. "Logical Proofs in the Śivadṛṣṭi of Somānanda." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-23. Dordrecht: Delhi.

    Abstract: "As is well known, Somānanada was a Brahmin of the Kashmir Valley who flourished circa 900–950 CE and who is the founding author of the famed Śaiva philosophical tradition known as the Pratyabhijñā or “Recognition” school. With the present chapter is pursued the somewhat modest concern of exploring various occasions when Somānanda deploys logical argumentation in his magnum opus, the *Śivadṛṣṭi* (ŚD). Three ways in which logic is deployed in the ŚD are examined in what

follows. First is charted a syllogism appearing in the fourth chapter (*āhnika*), which is meant to prove the unity of all in the form of Śiva-as-consciousness. Following this, the present essay examines arguments Somānanda develops to illustrate how his opponents' views can be understood to cohere logically only if they are understood implicitly to assume the existence of the ontological nondualism described by him. Finally, instances are examined in which Somānanda develops arguments with philosophical opponents, where the opponent is forced to accede to the nondualism for which he argues. Altogether, the present chapter illustrates the ways in which, for Somānanda, logical proofs offer more than mere rhetoric but are dispositive of the nature of reality itself."

30. Nicholson, Hugh. 2010. "The Shift from Agonistic to Non-Agonistic Debate in Early Nyāya." *Journal of Indian Philosophy* no. 38:75-95.

    Abstract: "This article examines the emergence of the Nyāya distinction between *vāda* and *jalpa* as didactic-scientific and agonistic-sophistical forms of debate, respectively. Looking at the relevant sutras in Gautama's *Nyāya-sūtra* (NS 1.2.1-3) in light of the earlier discussion of the types of debate in Caraka-Saṃhitā 8, the article argues that certain ambiguities and obscurities in the former text can be explained on the hypothesis that the early Nyāya presupposed an agonistic understanding of vāda similar to what we find in Caraka."

31. Nieuwendijk, Arthur. 1992. "Semantics and Comparative Logic." *Journal of Indian Philosophy* no. 20:377-418.

    "The paper takes up the question as to which logical framework is most suitable for a formal interpretation of Navya-Nyāya logic. It is claimed that, for this purpose, the framework offered by extensional first-order predicate logic is inadequate. This claim is established by discussing three well-known difficulties: the interpretation of the notion of Jnana, the question whether contraposition is a law of NavyaNyaya logic, and the interpretation of the Navya-Nyāya scheme of inference. Next, the interrelatedness of these difficulties is pointed out, and,

carrying through the analysis, it is examined whether situation semantics offers a suitable alternative framework."

32. Nishankar, Vaishnavi. 2022. "Convergence and Divergence of Nyāya and Tattvavāda (Dvaita) Theories of Logic." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-26. Dordrecht: Delhi.

    Abstract: "Indian epistemology has delved deep into the analysis of logic as a component of cognition. It is considered as an essential constituent or, rather, an essential process of inferential cognition. Most Indian schools of thought, except the materialists called Cārvākas, recognize inferential cognition as a kind of cognition. The varied schools developed conclusive theories of inference, each with their own unique contributions, resulting in a vast body of literature, often polemical, in this field of analysis.

    This chapter focuses on providing an Introduction to the various constituents and the logical process of inferential cognition according to the Indian intellectual tradition using illustrations, both classic and contemporary, for elucidation. It particularly focuses on the doctrines of the Nyāya and Dvaita Schools of philosophy in this regard and aims to objectively bring out the points of convergences and divergences in the theories of logic of the two schools and tries to provide the background for the divergences to clarify the reasons for the differences in their view points."

33. Oetke, Claus. 1996. "Ancient Indian Logic as a Theory of Non-Monotonic Reasoning." *Journal of Indian Philosophy* no. 24:447-539.

    "The aim of the paper is to demonstrate that the most ancient varieties of "Indian logic" are significantly related to theories associated with the term "non-monotonc logic" in so far as they try to account for reasoning relying on the ability to use general rules subject to exceptions and indicate a conception of context-dependent validity implying that valid inferences or arguments can lose this status in the context of additional information. On that background it is possible to give a theoretical justification for a number of features of Indian

theories of inference which previously appeared theoretically ill motivated and which were often explained by historical coincidences."

34. ———. 2003. "Indian Logic and Indian Syllogism." *Indo-Iranian Journal* no. 46:53-69.

35. ———. 2004. "In which sense are Indian theories of inference non-monotonic?" *Hōrin: Vergleichende Studien zur japanischen Kultur / Comparative Studies in Japanese Culture* no. 11:23-38.

36. ———. 2016. "*Pramāṇa*, Logic and Belief." In *Logic and Belief in Indian Philosophy*, edited by Balcerowicz, Piotr, 45-70. Warsaw: Indological Studies.

37. Padoux, André. 1990. *Vāc: The Concept of Word in Selected Hindu Tantras*. Alabny: State University of New York Press.

    Translated from French by Jacques Gontier.

38. Pandeya, Ram Chandra. 1963. *The Problem of Meaning in Indian Philosophy*. Delhi: Motilal Banarsidass.

39. Paris, Jeffrey B., and Vencovská, Alena. 2017. "Ancient Indian Logic, Pakṣa and Analogy." In *Philosophical Logic: Current Trends in Asia. Proceedings of AWPL-TPLC 2016*, edited by Yang, Syraya Chin-Mu, Lee, Kok Yong and Ono, Hiroakira, 45-58. Singapore: Springer Nature.

    Abstract: "Abstract The authors B.K. Matilal, and earlier J.F. Staal, have suggested that the Indian Schema (erstwhile Hindu Syllogism) from Gotama's *Nyāya-sūtra* should be understood in terms of an occurrence relation of an event happening at a locus (*paksa*). Building on a reading of the Indian Schema as analogical reasoning, that is, smoke on the hill and the prior example of smoke in the kitchen being associated

    with fire in the kitchen leading to the conclusion that there is fire on the hill, we have previously suggested and investigated a formalisation of the Schema within a binary predicate language. In this paper we consider a version derived therefrom using just unary predicates. We go on to show that within the

context of Pure Inductive Logic this formal version has a rational justification, in the sense that from the Principle

of Atom Exchangeability (akin to Carnap's Attribute Symmetry and a property of Carnap's Continuum of Inductive Methods) it follows that under the assumptions of the Schema fire on the hill must be at least as probable as absence of fire on the hill."

40. Patil, Parimal G. 2010. "History, Philology, and the Philosophical Study of Sanskrit Texts." *Journal of Indian Philosophy* no. 38:163-202.

    Abstract: "This paper is a critical review of Jonardan Ganeri's *Philosophy in Classical India*."

41. Perrett, Roy W. 1984. "Self-Refutation in Indian Philosophy." *Journal of Indian Philosophy* no. 12 (3):237-264.

42. ———. 1985. "A Note on the Navya-Nyāya Account of Number." *Journal of Indian Philosophy* no. 13:227-234.

    "I maintain (contra Ingalls) that the Navya-Nyāya account of number as a property of classes should be understood intensionally, not extensionally. Such a theory is closer to Frege's earlier views than to Russell's and also has certain advantages over Russell's theory. However it seems that Navya-Nyāya cannot provide a criterion of identity for such intrinsically intensional properties; and this difficulty is particularly important for Navya-Nyāya, given its epistemological and metaphysical realism."

43. ———. 1999. "Is Whatever Exists Knowable and Nameable?" *Philosophy East and West* no. 49:401-414.

    "Naiyayikas are fond of a slogan, which often appears as a kind of motto in their texts: "Whatever exists is knowable and nameable". What does this mean? Is it true? The first part of this essay offers a brief explication of this important Nyāya thesis; the second part argues that, given certain plausible assumptions, the thesis is demonstrably false."

44. ———, ed. 2001. *Indian Philosophy. A Collection of Readings. Vol. II. Logic and Philosophy of Language*. New York: Garland.

"Volume 2: *Logic and Philosophy of Language* is concerned with those parts of Indian *pramana* theory that Western philosophers would count as logic and philosophy of language. Indian philosophers and linguists were much concerned with philosophical issues to do with language, especially with theories of meaning, while the Indian logicians developed both a formalised canonical inference schema and a theory of fallacies. The logic of the standard Indian inferential model is deductive, but the premises are arrived at inductively. The later Navya-Nyāya logicians went on to develop too a powerful technical language, an intentional logic of cognitions, which became the language of all serious discourse in India.

The selections in this volume discuss Indian treatments of topics in logic and the philosophy of language like the nature of inference, negation, necessity, counterfactual reasoning, many-valued logics, theory of meaning, reference and existence, compositionality and contextualism, the sense-reference distinction, and the nature of the signification relation."

45. Perszyk, Kenneth J. 1983. "'Virtue is not blue': Navya-Nyāya and some Western Views." *Journal of Indian Philosophy* no. 11:325-338.

46. ———. 1984. "The Nyāya and Russell on Empty Terms." *Philosophy East and West* no. 34:131-146.

    "The purpose of this paper is to demonstrate how the Navya-Nyāya school of Indian philosophy determines the truth or falsity of a sentence which contains an empty term, and to point out some similarities and differences between its method of analysis and truth-value determinations of such sentences and that of Bertrand Russell."

47. ———. 1984. "Negative Entities and Negative Facts in Navya-Nyāya." *Journal of Indian Philosophy* no. 12:265-276.

    "The purpose of this article is to discuss the Navya-Nyaya's thesis that absence is an ontological category, which is to say that there are negative entities, and its corollary that there are negative facts. The Nyāya resists all attempts to eliminate

negative facts in favour of positive facts. In addition, we see that no atomic sentence can have a negative subject-term."

48. Potter, Karl H. 1974. "On the Realistic Proclivities of Navya-Nyāya as Explicated by Bhattacharyya." *Philosophy East and West* no. 24:343-347.

49. ———. 1975. "Some Thoughts on the Nyāya Conception of Meaning." *Journal of Indian Philosophy* no. 3:209-216.

50. ———, ed. 1977. *Encyclopedia of Indian Philosophies. Vol. 2: Indian Metaphysics and Epistemology: The Tradition of Nyāya-Vaiśesika up to Gaṅgeśa*. Delhi: Motilal Banarsidass.

    Contents: Preface XI-XIII; Part One: Introduction to the Philosophy of Nyāya-Vaiśesika 1; Part Two: Summaries of Works 211-715; Notes 687; Index 717-744.

    "The present volume provides a detailed resume of current knowledge about the classical Indian philosophical system of Nyâya-Vaiśesika in its earlier stages. Specifically, it covers the literatures of Nyâya and Vaiśesika from their inception in the respective *sütras* up to the time of Gangesa, that is, about A.D. 1350. This dividing point is regularly accepted in the tradition, since with Gaṅgeśa it is felt that a new start is made within the systems, the result coming to be known as Navyanyäya, "new" Nyäya."

    (...)

    "The form of this book features an extended introductory section followed by summaries of works belonging to the system's literature.

    These summaries are arranged in relative chronological order to assist the reader in tracing the development of the school's thought.

    Summaries have been solicited from scholars around the world —Indian, Japanese, and American scholars have collaborated in the undertaking. This international aspect of the book is one of its pleasantest features, serving to put philosophers and Indologists around the world in closer touch with one another." (Preface. p. XI)

"*Logic*: Nyāya grew in part as a theory of philosophical debate, and among Hindus has been accepted as the system which specially studies the theory of arguments good and had, in keeping with the division of labor principle alluded to in the previous paragraph.

This does not mean that all Hindu philosophers accepted every point in the Nyāya account, but they certainly tended to look to Nyāya for definitive treatment and detailed discussions of intricate points.

Nyāya had its great rival, however, in the logic developed by the Buddhists, and from this controversy developed one of the most comprehensive logical theories the world has known. Indian logic is never conceived as "formal" in the Western sense, but as an account of sane processes of reasoning it has few equals in the West for attention to detail." (p. 2)

51. Potter, Karl H., and Bhattacharya, Sibajiban, eds. 1993. *Encyclopedia of Indian Philosophies. Vol. 6: Indian Philosophical Analysis: Nyāya-Vaiśesika from Gangeśa to Raghunātha Śiromani*. Delhi: Motilal Banarsidass.

Contents: Preface XI; Part One: Karl H. Potter, Sibajiban Bhattacharyya: Introduction to the Philosophy of Nyāya-Vaiśesika 3; Part Two: Summaries of Works 85-590; Notes 591; Index 633-672.

"Volume Six of the *Encyclopedia of Indian Philosophies* picks up the history of the Nyāya-Vaiśesika system where Volume Two left off.

The time covered in this volume is much smaller than in any of the previous volumes of the *Encyclopedia*, a scant two hundred years between approximately 1310 and 1510. There are good reasons for this intensive

attention to such a brief period. For one thing, two of Indian's most remarkable philosophers, Gangeśa and Raghunātha Śiromani, are covered in these pages—in fact, they initiate and terminate the period surveyed.

More generally, we here begin to treat the literature of Navya-nyâya, a movement comparable in its implication to the burgeoning of symbolic logic and its concomitant philosophical speculations found in the writings of Frege, Russell and Wittgenstein in the West at the end of the 19th and beginning of the 20th centuries. The excitement of newly pioneered techniques of philosophical analysis developed by Gangeśa spawned a bevy of philosophical talents. Indeed, this period is even richer than we are able to summarize here, since a good part of it is still unavailable in print.

(...)

The form of this book features an extended introductory section followed by summaries of works belonging to the system's literature.

These summaries are arranged in relative chronological order to assist the reader in tracing the development of the school's thought. Summaries have been provided by scholars from India, England and the United States." (Preface, p. XI)

52. Pragati, Jain. 2000. "Saptabhaṅgī: The Jaina Theory of Sevenfold Predication: A Logical Analysis." *Philosophy East and West* no. 50:385-399.
53. Prasad, Jwala. 1930. "Discussion of the Buddhist Doctrines of Momentariness and Subjective Idealism in the Nyaya-Sutras." *Journal of the Royal Asiatic Society of Great Britain and Ireland* no. 1:31-39.
54. Prasad, K.S., ed. 2002. *The Philosophy of Language in Classical Indian Tradition*. New Delhi: Decent Books.
55. Preisendanz, Karin. 2009. "Logic, Debate and Epistemology in Ancient Indian Medical Science." *Indian Journal of History of Science* no. 44:261-312.
56. Prets, Ernst. 2001. "Futile and False Rejoinders, Sophistical Arguments and Early Indian Logic." *Journal of Indian Philosophy* no. 29:545-558.
57. Priest, Graham. 2008. "Jaina Logic: A Contemporary Perspective." *History and Philosophy of Logic* no. 29:263-278.

58. Raja, K. Kunjunni. 1969. *Indian Theories of Meaning*. Madras: Adyar Library and Research Centre.

    Second edition; first edition 1963.

59. Raju, Poolla Tirupati. 1954. "The Principle of Four-Cornered Negation in Indian Philosophy." *The Review of Metaphysics* no. 7:694-713.

60. Randle, Herbert Niel. 1930. *Indian Logic in the Early Schools: A Study of the Nyayadarsana in Its Relation to the Early Logic of Other Schools*. Oxford: Oxford University Press.

    Reprint: New Delhi: Oriental Books Reprint Corp., 1976.

61. Ranganathan, Shyam. *Hinduism: A Contemporary Philosophical Investigation*. new York: Routledge.

    Chapter 4: *Logic: The nectar of immortality*, pp. 79-111.

62. Rastogi, Maharaj Narain. 1983. *The Theories of Implication in Indian and Western Philosophy. A Critical Study*. Delhi: Bharatiya Vidya Prakashan.

    Foreword by Irving M. Copi.

63. Saha, Sukharanjan. 1962. *Perspectives on Nyāya Logic and Epistemology*. Calcutta: K. P. Bagchi & Company.

64. Sahota, Jaspal Peter. 2022. "Early Nyāya Logic: Pragmatic Aspects." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-20. Dordrecht: Delhi.

    Abstract: "This chapter sets out and explains the discussion of inference (*anumāna*) in the Nyāya Sūtra of Akṣapāda Gautama and the Nyāya Bhāṣya of Vātsyāyana Pakṣilasvāmin. Affinities with the pragmatic method of Charles Peirce and modern scientific method are presented. Specifically, the procedural methodology of reasoning to form beliefs and the scope for legitimate doubt are shown to have a pragmatic character.

    An initial definition of inference in NS 1.1.5 is followed by an objection in NS 2.1.37 and a response to the objection in NS

2.1.38. There is scope to read these either as a progressive refinement of a deductive schema or as a sequence of stages in a procedural logic of rational inquiry involving abductive and deductive elements. Accordingly, the definition, objection, and response are presented and analyzed according to a deductive syllogistic schema and according to an open-ended abductive-deductive schema. The extent to which either of these schemas conforms to the intentions of the early Nyāya authors is considered, with reference to Vātsyāyana's remarks in the Nyāya Bhāṣya in particular. Although the deductive schema is found to capture an important aspect of how Vātsyāyana understands correct inference, nevertheless the abductive schema more clearly demonstrates how the inference processes described by the early Nyāya authors are driven by pragmatic considerations, whereby the scope for belief adoption, suspension, and revision are constrained by observable evidence."

65. Salome, D. Judia, and Parthasarathi, Ranjani. 2011. "Mining Ontological Knowledge using Nyaya Framework." *International Journal of Networking and Virtual Organisations* no. 8:123-141.

    Abstract: "Ontology has become the buzzword of the knowledge and semantics community. The process of automatically constructing an ontology with completeness and reduced time has become the need of the hour. This paper presents the method for automatically constructing an ontology for any domain based on the Indian philosophical system, the Nyaya Sastra. Nyaya defines the whole world from atom to universe. This categorisation provided by Nyaya acts as the framework for extracting ontological relations from documents obtained from the web. With Nyaya and Natural Language Processing (NLP) techniques, an improved and enriched knowledge can be obtained from web documents. This paper explains the way of constructing an ontology (i.e., extracting taxonomical and nontaxonomical relations) using Nyaya in detail. The extracted knowledge includes concepts, relations and qualities pertaining to a concept. A Semi-Supervised Learning (SSL) technique for learning Nyaya categories is also explained."

66. Sanyal, Manidipa. 2022. "Imperative Logic: Indian and Western." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-40. Dordrecht: Delhi.

    Abstract: "Statements having imperative intents are found in plenty in the context of formal argumentative discourses. Commands of any form are commonly accepted as expressing a "prescription" as distinct from "proposition," though the possibility of their crossing over is not ruled out. The lingering question remains about the logical status of prescriptions as constituents of imperative arguments. Discussion of Vidhivākya (imperative) is extensively found in the Mīmāṁsā system and it has its pragmatic application in recent days in a very robust form.

    Since twentieth century, imperative arguments are considered as more than a possibility in the West. Its early history starts with Aristotle's practical syllogism, passes through the thoughts of the Stoics, Leibnitz, Hume, and finally has a primary line of development, i.e., becomes a formal logic for normatives in Ernst Mally's Principle of Inheritance of Obligation. Logicians take different stands in explaining the inferential property of an argument involving commands at par with that property of an inference of classical propositional logic. The present chapter undertakes a survey of the logic of imperatives both from the Indian and the Western points of view."

67. Sarkar, Tushar K. 2022. "Jaina Theory of "ANUMĀNA" [Inference]: Some Aspects." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar, 1-51. Dordrecht: Springer.

    Abstract: "The chapter takes a thoroughly analytical, but somewhat nontraditional, look at the Jaina theory of *anumāna* in its various aspects. A critical analysis of the scheme of classification of *anumāna*-s into "svārtha" and "parārtha" is undertaken to show that a *svārthānumāna* is only a proto-anumāna, not a standard *anumāna* at all. So, it is wrong and misleading to consider both of them as "anumāna-s" in the same sense. Next, the features of *bahirvyāpti* and of *antarvyāpti* are compared, the respective roles played by each

of them in universal generalizations and some severe limitations of *bahirvyāpti* in this respect, etc., are critically discussed one by one. After a detailed analysis of the definition of "antarvyāpti," it is claimed that *antarvyāpti* signifies a "semantic-conceptual linkage," and, in this respect, it has a thematic affinity to Kant's notion of "synthetic a priori judgements." "Logical" and "methodological" aspects of *antarvyāpti* are dis-entangled next. It is followed by a thorough discussion of the nature of *Hetvābhāsa*s, the reasons why they are not to be viewed as purely formal fallacies, an enumeration of different types of *hetvābhāsas,* lessons to learn from some queer instances of "fallaciously valid" argument-patterns in Western logic, etc. Topics such as the Minimum Number of *avayava*-s required in an Inferential Unit, notion of "existence" and of *Vikalpa* as "existence proof," notions of Contradiction, Contextualization of LNC in Jaina Logic, etc., are discussed after it. The need of balancing between the ontic and the epistemic conceptions of logic, replacing the tautology-centric notion of "deductive validity" by an information-theoretic-cum-context-sensitive notion of "logical infer-ability" [Sanskrit, "anumeyatva"] are discussed next. In the section "Concluding Remarks," attention is drawn to what the author considers to be an emerging trend of mutual convergence of the respective outlooks [viz., the respective "epistemic" and "ontic" outlooks] of Indian and Western logicians. A final such convergence may even need a radical "paradigm-shift" in the patterns of logical thinking. It is not expected to be an easy task at all. Nevertheless, it feels better to keep dreaming about it as a realizable goal."

68. Sarma, V. V. S. 1994. "A Survey of Indian Logic from the Point of View of Computer Science." *Sadhana* no. 19:971-983.

69. Sarukkai, Sundar. 2005. *Indian Philosophy and Philosophy of Science*. New Delhi: Centre for Studies in Civilizations.

    Chapter 3: *Indfian Logic*, pp. 43-106.

70. ———. 2011. "Indian Logic and Philosophy of Science: The Logic-Epistemology Link." In *Proof, Computation and Agency:*

Logic at the Crossroads, edited by van Benthem, Johan, Gupta, Amitabha and Parik, Rohit, 333-353. Dordrecht: Springer.

71. ———. 2011. "Possible Ideas of Necessity in Indian Logic." *Journal of Philosophical Logic* no. 40:563-582.

72. Sarukkai, Sundar, and Chakraborty, Mihir Kumar eds. 2022. *Handbook of Logical Thought in India*. Dordrecht: Delhi.

    Table of Contents available on the Springer website.

73. Sasaki, Ryō. 2016. "Jayanta's Obsjection to Dharmakirti's Criticism of the pratijnāhāni of the Nyāya School." *Joumal of lndian and Buddhist Studies* no. 64:1093-1099.

74. Sastri, Gaurinath. 1959. *The Philosophy of Word and Meaning*. Calcutta: The Principal Sanskrit College.

    Some Indian approaches with special reference to the philosophy of Bhartṛhari.

75. ———. 1959. *The Philosophy of Word and Meaning. Some Indian Approaches with Special Reference to the Philosophy of Bhartrhari*. Calcutta: Sanskrit College.

76. Sastri, Kuppuswami. 1932. *A Primer of Indian Logic According to Annambhatta's Tarkasamgraha*. Mylapore: The Kuppuswami Sastri Research Institute.

    Second edition 1951; Third edition 1961; Fourth edition 1998.

77. Schang, Fabien. 2010. "Two Indian Dialectical Logics: Saptabhaṅgī and Catuṣkoṭi " *Journal of Indian Council of Philosophical Research* no. 27:47-76.

78. ———. 2013. "A One-Valued Logic for Non-One-Sidedness." *International Journal of Jaina Studies (Online)* no. 9:1-25.

79. Scharf, Peter M. 1996. *The Denotation of Generic Terms in Ancient Indian Philosophy: Grammar, Nyāya and Mimamsa*. Philadelphia: American Philosophical Society.

80. Schayer, Stanislaw. 2001. "Studies on Indian Logic." In *Material of the International Seminar Argument and Reason in Indian Logic*, edited by Balcerowicz, Piotr and Mejor, Marek,

23-34. Warsaw: Instytut Orientalistyczny Uniwersytet Warszawski.

Originally published in German in 1932.

English translation by Piotr Balcerowicz.

81. ———. 2001. "On the Method of the Nyāya Research." In *Material of the International Seminar Argument and Reason in Indian Logic*, edited by Balcerowicz, Piotr and Mejor, Marek, 35-44. Warsaw: Instytut Orientalistyczny Uniwersytet Warszawski.

    Originally published in German in 1932.

    English translation by Piotr Balcerowicz.

82. Schmidt, Martin, and Sriraman, Bharath. 2021. "Nyāya Methodology and Western Mathematical Logic: Origins and Implications." In *Handbook of the Mathematics of the Arts and Sciences*, edited by Sriraman, Bharath, 2515-2537. Dordrecht: Springer.

83. Schumann, Andrew. 2019. "On the Origin of Indian Logic from the Viewpoint of the Pāli Canon." *Logica Universalis* no. 13:347–393.

    Abstract: "Abstract. In this paper, I show that in the Pāli Canon there was a tradition of Buddhist logic, but this tradition was weak, and the proto-logic we can reconstruct on the basis of the early Pāli texts can be evaluated as a predecessor of the Hindu logic. According to the textual analysis of the Pāli texts, we can claim that at the time of the closing of the Pāli Canon (excluding the later addition of the *Milindapānha* into it by the Burmese tradition) there did not exist the Nyāya philosophy known by the *Nyāya Sūtra*. Meanwhile, we can assume that the Milindapānha, the best logical source of early Pāli literature, was written under influences of the Gandhāran Buddhists and this text preceded the Nyāya philosophy."

84. Schuster, Nancy. 1972. "Inference in the Vaisesikasutras." *Journal of Indian Philosophy* no. 2:341-386.

"Conflicting statements appear in the Vaisesikasutras about how knowledge of imperceptible entities is attained. Passages from the Sutras are compared with the Samkhya Sastitantra, the Nyayasutras, Nyayabhasya, and other early texts. Impact of the Sastitantra on Vaisesikasutras and Nyayabhasya was strong. Contradictions within Vaisesikasutras reveal the compilers' grappling with the Samkhya theory over a period of time. Bias in favor of direct perception dominates the Vaisesika text."

85. Selvamony, Nirmal. 2022. "Logic in nīlakēci and maṇimēkalai." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-20. Dordrecht: Delhi.

    Abstract: "The present chapter attempts to unearth the salient features of logic in the Tamil epics, *nīlakēci* and *maṇimēkalai*. In the former text, we have a few verses which expound the fundamental validative criteria (*aḷavaikaḷ*) of the Jaina faith, and a surfeit of debates the heroine has with exponents of rival faith systems. These debates amply illustrate the techniques of debate called *uttikaḷ* explained in *tolkāppiyam*. Using these techniques, the heroine goes about demolishing rival arguments. The kind of debate she engages in is identified in the essay as “vātam.” Though Jaina philosophy is based on the multivalued logical concept of *nayam*, *nīlakēci*’s debate is based on the bivalent logic of *vākai* (*vātam*). In the case of the Buddhist epic, *maṇimēkalai,* logical matters are dealt with primarily in two cantos (27 and 29). Unlike her Jaina counterpart, *maṇimēkalai*, the heroine, is content to listen to the tenets of rival faith systems and also to those of her own spiritual guru, *aṟavaṇa aṭikaḷ*. The exponents of Tamil logic are *aḷavai vāti*, the logician who explains all the ten *aḷavaikaḷ* of Tamil logic, and *aṟavaṇa aṭikaḷ* who deals with *aḷavaikaḷ* briefly, and inference elaborately. Though the latter speaks of the five-member Tamil syllogism-like text, he elaborates the proper forms and defects of the three-member counterpart adopted by the Buddhists. Similarly, though aṭikaḷ identifies nayam (based on multivalent logic) as a trait of Buddhist

syllogistic text, the theory of inference he expounds is based on bivalent logic."

86. ———. 2022. "Logic in Tamil Tradition." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-22. Dordrecht: Delhi.

    Abstract: "Logic, in Tamil tradition, is inseparably connected with philosophy and rhetoric. It is a reasoning praxis, which includes knowing the truth and communicating it. If the former is the epistemic aspect of logic, the latter is its rhetorical. The rhetorical branch has two main divisions, the monological (*tarukkam*) and the dialogical (*vākai*). Examples are provided from classical literature, folk songs, folk drama, religious polemics, political oration, screen play, research methodology, forum for disputation, and debating forum. The purpose of logic is to affirm the normative mode of truth of each type of society. If the truth of the Tamil primal society is differentiated continuity, that of the Tamil state society is foregone conclusion, and that of the Tamil industrial society is anarchic indeterminacy."

87. ———. 2022. "Logic in tolkāppiyam." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-21. Dordrecht: Delhi.

    Abstract: *"tolkāppiyam* shows us that logic had an important place in the primal society (known as *tiṇai*). Such primal cultural practices as “tarukkam,” “vākai,” analogical reasoning, the use of the criteria of knowledge (“aḷavai”) in premarital life situations and in oral texts (such as *mutumoḻi* and *kāṇṭikai*), and also the primal social institution, namely, the assembly (*avai*) where public debates were held, were all part of the philosophical tradition of this society. Such philosophy embraced logic, which had rhetorical as well as epistemic functions. If rhetorical logic was persuasive (as in tarukkam) and contestatory (as in *vākai* in combat and in the assembly), epistemic logic (*aḷavai*) was validative. In fact, early Tamil logic was a complex discipline not easily distinguishable from philosophy (especially, epistemology and ethics) and rhetoric."

88. Sen, Prabal Kumar. 1978. "Nyāyabhāskara - A Lost Nyāya Work." *Journal of Indian Philosophy* no. 5:267-274.

89. Sen, Prabal Kumar, and Chatterjee, Amita. 2010. "Navya-Nyāya Logic." *Journal of the Indian Council of Philosophical Research* no. 27:77-99.

90. Sharma, Dhirendra. 1966. "Epistemological Negative Dialectics of Indian Logic - Abhāva versus Anupalabdhi." *Indo-Iranian Journal* no. 9:291-300.

91. ———. 1969. *The Differentiation Theory of Meaning in Indian Logic*. The Hague: Mouton.

92. Shaw, Jaysankar Lal. 1974. "Empty Terms: The Nyāya and the Buddhists." *Journal of Indian Philosophy* no. 2:332-343.

93. ———. 1976. "Subject and Predicate." *Journal of Indian Philosophy* no. 4:155-179.

94. ———. 1978. "The Nyāya on Existence, Knowability and Nameability." *Journal of Indian Philosophy* no. 5:255-266.

    "One of the aims of this paper is to discuss the different senses of the term 'existence' as used by the Nyāya philosophers. This discussion leads us to a discussion on absence or negation and its role in logic. A discussion on empty terms has also been introduced in this context. According to the Nyāya, existence, knowability and nameability are considered as universal properties. The distinction between these universal properties has been discussed in this context. I have also discussed the question whether the Nyāya has used redundant terms in designating the same imposed property by using three different terms. A distinction between different senses of the term 'property' has also been discussed in this context."

95. ———. 1980. "The Nyāya on Cognition and Negation." *Journal of Indian Philosophy* no. 8:279-302.

    "The aim of this paper is to discuss the Nyāya concept of negation and the different types of negation. This discussion involves a discussion of the Nyāya concept of cognition, relation and meaning. The Nyāya has drawn a distinction between

qualificative and non-qualificative cognition. A qualificative cognition can be represented by the form "arb". The Nyāya concept of negation cannot be said to be a term-negation, or a sentence-negation, or a propositional function negation. The conclusion is that the Nyāya concept of negation does not correspond to any Western concept of negation."

96. ———. 1981. "Number: From the Nyāya to Frege-Russell." *Studia Logica: An InternationalJournal for Symbolic Logic* no. 41:283-291.

    Abstract: "The aim of this paper is to present the Nyāya concept of number in the light of contemporary philosophy and to show that the Frege-Russell concept of number does not contradict the Nyāya concept of number but rather supplements it."

97. ———. 1991. "Universal Sentences: Russell, Wittgenstein, Prior, and the Nyāya." *Journal of Indian Philosophy* no. 19:103-119.

    "The aim of this paper is to discuss I) whether the following sentences have the same meaning, II) whether they have the same truth-value, III) whether there is some assertion common to all of them, and IV) if there is some such assertion, whether it can be defined. 1) all men are mortal, 2) whoever is a man is mortal, 3) wherever there is humanity, then there is mortality, 4) if anyone is a man, then he is mortal, 5) if humanity is present somewhere, then mortality is also present there."

98. ———. 1998. "The Nyāya on Double Negation." *Notre Dame Journal of Formal Logic* no. 20:139-154.

99. ———. 2000. "Conditions for Understanding the Meaning of a Sentence: The Nyāya and the Advaita Vedanta." *Journal of Indian Philosophy* no. 28:273-293.

100. ———. 2003. *The Nyaya on Meaning: A Commentary on Pandit Visvabandhu*. Calcutta: Punthi Pustak.

101. ———. 2014. *Logic and Metaphysics*. Wellington: Society for Philosophy & Culture.

    Edited by D. L. Oxtoby.

102. ———. 2022. "The Nyāya on Logical Thought." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-72. Dordrecht: Delhi.

    Abstract: "In this paper, I shall emphasize the following features of the Nyāya logical thought: (1) some of the uses of Occam's razor or the principle of simplicity; (2) how to avoid the postulation of tertiary entities, such as propositions or images; (3) how the concept of relevance has been used in the context of an inference; (4) the Nyāya view about understanding the meanings of contrary or contradictory expressions; (5) the Nyāya conception of negation, as it cannot be equated with the term negation or the proposition negation in Western philosophy; (6) the definition of the quantifier "all" as well as the pervader-pervaded relation; and (7) the reconstruction of Gadādhara's theory of definite descriptions.

    I would also like to discuss the distinction between the pairs of terms *anuyogī-pratiyogī* (first term-second term), *ādhāra-ādheya* (substratum-superstratum), *viśeṣya-viśeṣaṇa* (qualificand-qualifier), *viśeṣya-prakāra* (qualificand-relational qualifier), *uddeśya-vidheya* (subject-predicate), and *pakṣa-sādhya* (the locus of inference-probandum), which are analogous to the subject-predicate distinction in Western philosophy.

    These terms are used for the explanation of the distinction between perceptual, inferential, and verbal cognitions, as well as for the distinction in meaning between transformationally equivalent sentences and for suggesting a solution to Frege's problem, why predicate alone is to be considered as unsaturated or to use the term of Russell "incomplete"."

103. Shida, Taisei. 2011. "Hypothesis-Generating Logic in Udayana's Rational Theology." *Journal of Indian Philosophy* no. 39:503-520.

104. Shukla, Rajaram. 2022. "The Importance of *Śābdabodha* in Language Analysis." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-14. Dordrecht: Delhi.

Abstract: "In order to protect the Vedas, several linguistic theories covering various aspects of knowledge ranging from phonetics to understanding a sentential meaning were developed in India. A theory dealing with verbal cognition, known as śābdabodha in Sanskrit, is one of them. The discipline of understanding the verbal communication deals with various aspects of linguistic communication such as the nature of the relation between a word and its meaning, the reason behind naming an object, the process of arriving at the meaning of a sentence from its constituents, and various factors that contribute to this process. In this chapter, we present a bird's eye view of the discussions presented by different schools in the Indian philosophical literature."

105. Siderits, Mark. 1986. "The Sense-Reference Distinction in Indian Philosophy of Language." *Synthese* no. 69:81-106.

    Published also in the *Journal of Chinese Philosophy*, 14, 1987, pp. 331-355.

106. ———. 1991. *Indian Philosophy of Language: Studies in Selected Issues*. Dodrecht: Kluwer.

107. Simonson, Solomon. 1946. "The Categories of Proof in Indian Logic." *International Phenomenological Society* no. 6:400-409.

108. Sin, Fujinaga. 2000. "Determining Which Jaina Philosopher was the Object of Dharmakīrti's Criticisms." *Philosophy East and West* no. 50:378-384.

109. Sinha, Sweta. 2016. "Indian Schools of Logic: A Critical Assessment." *International Journal of Sanskrit Research* no. 2:170-172.

110. Smart, Ninian. 1964. *Doctrine and Argument in Indian Philosophy*. London: Allen and Unwin.

    Reprint: Atlantic Highland: Humanities Press, 1976; Second revised edition: Leiden: Brill, 1992.

111. Solomon, Esther A. 1976. *Indian Dialectics: Methods of Philosophical Discussion*. Ahmedabad: B. J. Institute of Learning and Research Gujarat Vidya Sabha.

Two volumes.

112. Soni, Jayandra. 2022. "General Introduction to Logic in Jainism with a List of Logicians and Their Texts." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar, 1-21. Dordrecht: Springer.

    Abstract: "In comparison to the work and research done in Brahmanism/Hinduism and Buddhism, studies in Jaina philosophy and particularly Jaina logic are relatively ignored areas. The Jaina contribution to the land of its origin, for example, to literature, art, and architecture, is widely acknowledged, and one is hard pressed to find a reason for the scanty interest in its philosophy and logic. This chapter suggests a possible reason for this in the Indian tradition. At the same time, it is shown that Jaina philosophers and especially logicians have made significant contributions to the development of ideas throughout the history of Indian philosophy. A short list of 13 thinkers and their major works (annotated) is regarded as the minimum one needs for a study of the basic orientation to the development of Jaina logic over a period of 1,500 years. A long list of 43 thinkers with their major works related specifically to logic is also provided additionally. This long list too is a succinct and summary one, especially when it is known that in the Jaina tradition, a list can be drawn entailing, e.g., 352 authors and 951 works."

113. Staal, Frits. 1960. "Formal Structures in Indian Logic." *Synthese* no. 12:279-286.

    Reprinted as Chapter 2 in F. Staal, *Universals: Studies in Indian Logic and Linguistics*, pp. 73-80.

    Abstract: "There is a use of the term ‘model’ in which it can be said that a linguistic expression, in a natural language, is a model for its sense. A translation of a linguistic expression from one language into another may be said to provide another model for the sense of the original. If the sense of a linguistic expression is of a logical nature, the expression can be translated into an expression of formal logic or into a formula. This is not surprising, for logic and mathematics came into being when expressions of natural languages were translated

into formal symbolisms, which were more precise and practical and less cumbersome. Subsequently these artificial languages attained full independence and started a development of their own. Originally, however, these symbolisms could only have been constructed along the lines suggested by the possibilities of expression and the scope of expression of the natural languages themselves. That in mathematics and in modern logic such a linguistic origin of the symbolism has often receded into the background does not imply that the origin of certain symbolisms was independent from the structure of natural languages."

114. ———. 1960. "Correlations between Language and Logic in Indian Thought." *Bulletin of the School of Oriental and African* no. 23:109-122.

    Reprinted as Chapter 1 in F. Staal, *Universals: Studies in Indian Logic and Linguistics*, pp. 59-72.

115. ———. 1960. "Means of Formalization in Indian and Western Logic." In *Proceedings of the XIIth International Congress of Philosophy (Venezia, 1958)*, 221-227. Firenze: Sansoni.

    Reprinted as Chapter 3 in F. Staal, *Universals: Studies in Indian Logic and Linguistics*, pp. 81-87.

116. ———. 1961. "The Theory of Definition in Indian Logic." *Journal of the American Oriental* no. 81:122-126.

    Reprinted as Chapter 4 in F. Staal, *Universals: Studies in Indian Logic and Linguistics*, pp. 88-92.

117. ———. 1962. "Contraposition in Indian Logic." In *Logic, Methodology and Philosophy of Science: Proceedings of the 1960 International Congress*, 634-649. Stanford, California: Stanford University Press.

    Reprinted as Chapter 5 in F. Staal, *Universals: Studies in Indian Logic and Linguistics*, pp. 93-108.

118. ———. 1962. "Negation and the Law of Contradiction in Indian Thought: A Comparative Study." *Bulletin of the School of Oriental and African Studies* no. 25:52-71.

Reprinted as Chapter 6 in F. Staal, *Universals: Studies in Indian Logic and Linguistics*, pp. 109-128.

119. ———. 1973. "The Concept of *Paksa* in Indian Logic." *Journal of Indian Philosophy* no. 2:156-165.

    Reprinted as Chapter 7 in F. Staal, *Universals: Studies in Indian Logic and Linguistics*, pp. 129-139.

120. ———. 1975. "The concept of Metalanguage and Its Indian Background." *Journal of Indian Philosophy* no. 3:315-354.

    "In Indian culture the concept of metalanguage originated early in the context of linguistics and speculations on language; in the West, late in the context of logic. This is related to the grammatical character of Indian culture and the mathematical character of Western culture. Connections are made between metalinguistic notions and technical, in particular poetic and ritual languages; Mantras; the origin of phonetic writing; communication and metacommunication among animals and men; and the origin of language."

121. ———. 1988. *Universals: Studies in Indian Logic and Linguistics*. Chicago: University of Chicago Press.

122. ———. 2003. "The Science of Language." In *The Blackwell Companion to Hinduism*, edited by Flood, Gavin, 348-359. Malden: Blackwell Publishing.

123. Sugiura, Sadajiro. 1900. *Hindu Logic as Preserved in China and Japan*. Philadelphia: Ginn & Co.

124. Taber, John A. 1989. "The Theory of the Sentence in Purva Mimamsa and Western Philosophy." *Journal of Indian Philosophy* no. 17:407-430.

    "The Mimamsa school of Indian philosophy developed two distinct theories of the relation of the meaning of a sentence to the meanings of the words that comprise it, the Anvitabhidhana or "qualified designation" theory and the Abhihitanvaya or "designated relation" theory. Both of these theories, I attempt to show, turn on the observation that the meanings of individual words change in different sentences. I go on to suggest that an appreciation of this fact can lead to a solution of

the problem, first raised by Frege, of the change of meaning of terms in intensional contexts."

125. ———. 2004. "Is Indian Logic Nonmonotonic?" *Philosophy East and West* no. 54:143-170.

"Claus Oetke, in his "Ancient Indian logic as a theory of non-monotonic reasoning," presents a sweeping new interpretation of the early history of Indian logic. His main proposal is that Indian logic up until Dharmakirti was nonmonotonic in character-similar to some of the newer logics that have been explored in the field of Artificial Intelligence, such as default logic, which abandon deductive validity as a requirement for formally acceptable arguments; Dharmakirti, he suggests, was the first to consider that a good argument should be one for which it is not possible for the property

identified as the "reason" (hetu) to occur without the property to be proved (sadhya) -- a requirement akin to deductive validity. Oetke's approach is challenged here, arguing that from the very beginning in India something like monotonic, that is, deductively valid, reasoning was the ideal or norm, but that the conception of that ideal was continually refined, in that the criteria for determining when it is realized were progressively sharpened."

126. Tachikawa, Musashi. 1971. "A Sixth-Century Manual of Indian Logic." *Journal of Indian Philosophy* no. 1:111-145.

"This article consists of four parts: explanations of basic technical terms as an Introduction, a translation of the Nyayapravesa, notes to the translation, and a romanized text based upon Dhruva's edition. This work is Samkarasvamin's Introduction to Dignaga's logic, and deals with means of proof, fallacious means of proof, means of refutation, perception, inference, fallacious perception and fallacious inference."

127. ———. 1981. *The Structure of the World in Udayana's Realism: Laksanavali and the Kiranavali*. Dorrecht: Reidel.

128. Tarkatirtha, Visvabandhu. 1991. "The Nyāya on the Meaning of Some Words." *Journal of Indian Philosophy* no. 20:41-88.

Translated by Jaysankar Las Shaw.

"The aim of this paper is to discuss the views of Nyāya philosophers on meaning. This paper deals with the meaning and reference of proper names, and general terms. It also deals with the meanings of homonymous expressions, and discusses the question whether demonstrative pronouns are homonymous terms. Different uses of personal pronouns have been mentioned. The section on the quantifier 'all' deals with different uses of it. Similarly, the section on interrogative pronoun deals with as many as seven uses of an interrogative pronoun. This paper ends with the discussion of the meaning of a sentence."

129. Thero, Lenagala Siriniwasa. 2017. "Origin and Development of Indian Logic and Buddhist Logic." *International Journal of Science and Research (IJSR)* no. 6:890-900.

130. Timalsina, Sthaneshwar 2022. "Abhinavagupta on Śānta Rasa: The Logic of Emotional Repose." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-18. Dordrecht: Delhi.

    Abstract: "This chapter explores the ways Abhinavagupta, an eleventh-century Kashmirian polymath, establishes the experience of serenity (śānta) as one of the appraised emotions called rasa. Beyond the issue of whether serenity can be the savoring of rasa, this chapter explores various models from classical Hindu and Buddhist philosophies that establish serenity in order to contextualize the phenomenology of experiencing serenity. For Abhinava, this experience is not a mere negation of emotions but a positive experience. And to establish his argument, Abhinava explores the ways absence is analyzed in Hindu and Buddhist traditions. One of the central problems of aesthetics that overlaps metaphysics is whether the experience of serenity is identical to the experience of liberation. Abhinava paves his path through the middle, without collapsing this experience to the mystical experience of the Brahman or to common everyday experiences. By rejecting the argument that serenity is a product of cessation or that

dispassion evolves into serenity, Abhinava argues that serenity emerges from self-awareness."

131. Tiwari, Heeraman. 1994. "One and Many: The Early Naiyayikas and the Problem of Universals." *Journal of Indian Philosophy* no. 22:137-170.

    "The problem of universals in Indian philosophy is as old as c. 400 b. C. In his great work, Astadhyayi, the grammarian Panini introduced the problem of universals while discussing the meaning of a noun. Later, the Nyāya and Vaisesika systems of Indian philosophy discussed the universals in great detail. The present article deals with the early Nyāya view of universals. The article is divided in two parts: one gives a brief general Introduction to the problem; the other contains a fresh translation of the Nyāya-Sutras 2.2.58-70 and Vatsyayana's commentary on them. The translation is also supplied with discussions and analysis. The article tries to demonstrate that the Nyāya system extends the debate about word and meaning which was inaugurated by early Sanskrit grammarian (viz., Panini, Patanjali etc.)."

132. Trikha, Himal. 2022. "Logical Argument in Vidyānandin's Satya-śāsana-parīkṣā." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar, 1-15. Dordrecht: Springer.

    Abstract: "The Jainas used variations of the pan-Indian sets of dialectical, epistemological, and logical principles in order to justify their ontological and soteriological convictions. The article analyses the application of logical principles in an ontological argument of a Jaina Digambara author. After the explication of the ontological aspect of the argumentation, central logical principles are examined against the backdrop of their definitions in Digambara Sanskrit works."

133. van Ditmarsch, Hans, Parikh, Rohit, and Ramanujam, R. 2011. "Logic in India—Editorial Introduction." *Journal of Philosophical Logic* no. 40:557-561.

134. Vattanky, John. 1979. "Śaśadhara's Īśvaravāda. An Important Source of Gangeśa's Īśvaravāda." *Journal of Indian Philosophy* no. 7:257-266.

135. ———. 1993. "The Referent of Words: Universal or Individual, the Controversies between Mimansakas and Naiyayikas." *Journal of Indian Philosophy*:51-78.

"One of the most important problems discussed in Nyāya philosophy of language is whether words denote an individual or a universal. On this point there are basically two schools of thought which oppose one another, i.e., the Mimansakas and the Naiyayikas. The texts of Muktavali, Dinakari and Ramarudri dealing with this topic give a brilliant summary of the long drawn out conflict between the two Schools. The authors of these texts established the Nyāya position that the denotative function of words is in the individual as qualified by the universal and the present essay examines these arguments and counterarguments."

136. ———. 1995. *Nyāya Philosophy of Language. Analysis, Text, Translation and Interpretation of Upamana and Sabda sections of Karikavali, Muktavali and Dinakari*. Delhi: Sri Satguru Publications.

137. ———. 2003. *A System of Indian Logic: The Nyāya Theory of Inference*. London: Routledge Curzon.

Analysis, text, translation and interpretation of the *Anumana* section of Karikavali, Muktavali and Dinakari.

"Nyāya is the most rational and logical of all the classical Indian philosophical systems. In the study of Nyāya philosophy, Karikavali with its commentary Muktavali, both by Visvanatha Nyayapancanana, with the commentaries Dinakari and Ramarudri, have been of decisive significance for the last few centuries as advanced Introductions to this subject. The present work concentrates on inference (anumana) in Karikavali, Muktavali and Dinakari, carefully divided into significant units according to the subject, and translates and interprets them. Its commentary makes use of the primary interpretation in Sanskrit contained especially in the Ramarudri and Subodhini. The book begins with the Sanskrit texts of Karikavali and Muktavali; followed by English translation of these texts. Next is given the Sanskrit text of

Dinakari which comments on the first two texts, followed by its English translation. Lastly, the book contains a commentary on all the texts included."

138. Venkataramana, B. V. 2022. "Influence of Navya-Nyāya Concepts and Language in Vyākaraṇa." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-23. Dordrecht: Delhi.

    Abstract: "The schools of Nyāya and Vyākaraṇa are mighty Śāstras among the traditional Indian knowledge systems. Both the Śāstras have a long and strong traditional lineage with vast literature, original and commentarial, delineating their unique doctrines, even on common topics between them, that are concluded after much systematic deliberation and in line with the ontology and tenets of the respective Śāstras. Such long traditions of knowledge have much dialectic and polemic engagement, thereby, mutually influencing the pathways the Śāstras traverse as the tradition moves ahead in time.

    Gaṅgeśopādhyāya, a radical thinker of the Nyāya school, not only changed the landscape of the ontology of his own school by bringing in more brevity in categorization and precision in expression, but also influenced the knowledge community then on greatly by giving them the gift of precision in expression through many technical axioms that he adopted for drawing conclusions through the thicket of gruesome complexities that epistemological topics dragged the scholars through.

    Incidentally, the scholars of other schools like Vyākaraṇa, Vedānta, Sāhitya, etc. borrowed the terminology, methodology, and axioms that the Navya-Nyāya school propagated for more incisive logical presentation of their doctrines and used them to refute the viewpoints of other schools, including Nyāya, and establish their own theories. This article throws light on how the Nyāya concepts, axioms, and language influenced the Vyākaraṇa scholars and gave them the tools for analytical and critical thinking, aiding them to establish their doctrines by defending the refutations from other schools and also refuting the viewpoints of other schools while claiming supremacy of their own theories."

139. Vidyabhusana, Satis Chandra. 1909. *History of the Mediaeval School of Indian Logic*. Calcutta: Calcutta University.

140. ———. 1918. "Influence of Aristotle on the Development of the Syllogism in Indian Logic." *The Journal of the Royal Asiatic Society of Great Britain and Ireland*:469-488.

141. ———. 1920. *A History of Indian Logic (Ancient, Mediaeval and Modern Schools)*. Delhi: Motilal Banarsidass.

    Reprint 1988.

142. Vinay, P. 2022. "Dependency of Inference on Perception and Verbal Testimony." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-16. Dordrecht: Delhi.

    Abstract: "Indian philosophical schools heavily depend upon the means of valid cognition (*Pramāṇas*) to establish the findings of metaphysics and the stand of one's school. Although there is divergence of opinion with the regard to the number of *Pramāṇas*, roughly three distinct means of valid cognition are acknowledged widely: perception, inference, and verbal testimony. Perception refers to sensory means of knowing, while inference is argument to arrive at some conclusion. Verbal testimony is a word of authority which propounds truth of one's experience. In the present chapter, it is examined as to how inference depends upon perception and verbal testimony for its functioning and soundness. Various arguments forwarded by Dvaita thinkers (the school of Indian realism propounded by Śrī Madhvācārya, twelfth-century C.E.) are culled from the classical texts and presented. It is shown as to how any inference is subject to the *Pramanya* of perception and verbal testimony for its intrinsic soundness. The potency of perception, on natural stature as well as being supportive, is being presented here. When the argument at hand is about the sensory objects, the role of perception as supportive to inference is indispensible. In case of an apparent contradiction, the inference which is dependent loses soundness on empirical grounds. Similarly, if the argument is about the supra-sensuals like the virtue and vice, it cannot hope to contradict verbal

testimony, since the latter is the actual means to know the supra-sensuals, and not mere inference. The factor of dependency and the grounds thereof with suitable examples have been presented in the present chapter. The working patterns of the Pramāṇas pertaining to dependency have been portrayed in the chapter. The views of different schools such as that of Vācāspati Miśra and others are presented on the subject and reviewed on the backdrop of great thinkers like Śrī vyāsatīrtha and others of Dvaita school."

143. Wada, Toshihiro. 2001. "The Analytical Method of Navya-Nyāya." *Journal of Indian Philosophy* no. 29:519-530.

144. ———. 2017. "A History of Navya-nyāya Study and Its Future: From the Methodological Point of View." *Journal of Indian and Buddhist Studies* no. 65:1073-1081.

145. Wayman, Alex. 1958. "The Rules of Debate According to Asaṅga." *Journal of the American Oriental Society* no. 78:29-40.

146. Zhang, Zhongyi, and Zhang, Jialong. 2009. "The Three-Form Reasoning of New Hetu-vidya in Indian Logic from the Perspective of Modern Logic." *Frontiers of Philosophy in China* no. 4:631-645.

147. Zilberman, David B. 2006. "History of Indian Logic." In *Analogy in Indian and Western Philosophical Thought*, edited by Gourko, Helena and Cohen, Robert S., 110-120. Dordrecht: Springer.

148. ———. 2006. "Analogy in Navya-Nyāya." In *Analogy in Indian and Western Philosophical Thought*, edited by Gourko, Helena and Cohen, Robert S., 56-109. Dordrecht: Springer.

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History of Logic

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Bibliography on Bhartrhari, grammarian-philosopher (First part)

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1. Akamatsu, Akihiko. 1993. "*Pratibhā* and the meaning of the sentence in Bhartṛhari's Vākyapadīya." *Asiatische Studien / Études Asiatiques* no. 47:37-43.

   Reprinted in Saroja Bhate, Johannes Bronkhorst (eds.), *Bhartṛhari, Philosopher and Grammarian*, Delhi: Motilal Banarsidass 1994, pp. 37-44.

   "In the second book of the Vākyapadīya (VP), Bhartṛhari sets forth a theory that pratibhä 'intuition' or 'flash of understanding' is the meaning of the sentence (väkyärtha). He discusses the issue of pratibhä in kärikäs 2.143-152. The first kärikä of this section is as follows:

   When we understand the meanings [of the individual words in a sentence] by discriminating them from each other, there arises flash of understanding (pratibhä) which is totally different [from every knowledge of the meanings of the words]. We call that [*pratibhä*], caused by the meanings of the words, the meaning of the sentence.

   As a beginning, by placing this statement in the philosophical and historical context about the linguistic theory in India, I will reconsider the reason Bhartrhari introduced the concept of

pratibhä into his linguistic theory." (p. 37, sanskrit text omitted)

2. ———. 1999. "The Two Kinds of *Anumāna* in Bhartṛhari's *Vākyapadīya*." *Journal of Indian Philosophy* no. 27:17-22.

   "The aim of the present paper is to make clear how Bhartṛhari characterized inference (*anumāna*) when he put forward the two kinds of *anumāna*. The problem of *anumāna* may not be important for Bhartṛhari.

   Although it is evident that he counted *anumāna* among the *pramāṇas*,(9) he considered it as indirect and incomplete cognition in comparison with *agama*. Accordingly it is useless to attempt to estimate his view in the history of Indian logic. Finally, however, we can ask the following question: From where did Bhartṛhari borrow the twofold distinction of *anumāna*?

   As is well known, Bhartṛhari lived and worked before Dignāga and Praśastapāda. Now we must recall a passage of Dignāga translated by Frauwallner (1968). It runs as follows: “Der Vṛttikāra [= Bhavadāsa] vertritt im allgemeinen die Lehre des Vaiśeṣika von der Schlußfolgerung, da er Sehen (*dṛṣṭam*) und Sehen dem Gemeinsamen nach (*sāmānyato dṛṣṭam*) usw. unterscheidet” (p. 87). It is probable that Bhartṛhari also borrowed the view on the two kinds of *anumāna* from the early Vaiśeṣika system. Bronkhorst (1993) has noted some possible links between Bhartṛhari’s Vākyapadīya and the early Vaiśeṣika; we can see the same possibility in Bhartṛhari’s view on *anumāna*." (p.20)

   (9) Cf. Aklujkar (1989).

   References

   Aklujkar, Ashok (1989). ‘The Number of Praman. as according to Bhartṛhari, Wiener Zeitschrift für die Kunde Südasiens 33: 151–158.

   Bronkhorst, Johannes (1993). ‘Studies on Bhartrari, 5: Bhartṛhari and Vaiśeṣika’, Asiatische Studien/ Études

Asiatiques XLVII–1: 75–94.

Frauwallner, E. (1958). ‘Die Erkenntnislehre Klassischen Sāmkhya Systems’, Wiener Zeitschrift für die Kunde Süd– und Ostasiens 2: 84–139

3. Aklujkar, Ashok. 1969. "Two Textual Studies of Bhartṛhari." *Journal of the American Oriental Society* no. 89:547-563.

   Abstract: "The first half of the article discusses the range of reference and the significance of the title *Vākyapadīya*. It is argued that the title was originally given to the first two books only of Bhartṛhari's monumental work and that the word "Vākyapadīya" has been explained morepreciselyby ancient writers than is generally supposed. In the second half, the article points out how the published parts of Bhoja's *Śṛṅgāra-prakāśa* contain a number of borrowings from Bhartṛhari's partly *vṛtti* of the *Vākyakāṇḍā*, and how the discovery is significant for a textual study of both the works, the manuscript material for which is extremely insufficient."

4. ———. 1970. *The Philosophy of Bhartṛhari's Trikāṇḍi.*

   Unpublished Ph.D. dissertation.

   "My completed dissertation could have been published in Professor Matilal's then newly established *Journal of Indian Philosophy*. However, Professor Matilal did not think he could publish the whole dissertation together in one issue, and, in my view, on the other hand, the chapters of the dissertation were too interdependent to withstand segmented publication. Thus, it remained unpublished. I did not make any effort to have it published elsewhere either, for by that time almost every established scholar who was known to be interested in B [= Bhartṛhari] had either read it or had acquired a photocopy of it and I had moved on to (or returned to) an activity I had deliberately suspended to complete the dissertation, namely the activity of settling the TK [= Trikāṇḍi] text. Recently, I have once again been advised by kind colleagues in the field that I should do the minimally necessary revision and have the dissertation published. But now it seems wasteful to publish it without coordinating the textual references with the better or

more convenient editions I think I will be able to finish in the next few years." (A. Aklujkar, *An Introduction to the Study of Bhartṛhari,* (1993), pp. 12-13)

5. ———. 1971. "Nakamura on Bhartṛhari." *Indo-Iranian Journal*:161-175.

"An article by Professor Hajime Nakamura, "Bhartṛhari The Scholar", was published in the fourth volume of the *Indo-Iranian Journal* (1960: 282-305). That article was a revised translation of a part of Nakamura's *Kotoba no Keijijogaku*, which is regarded by many scholars to be Nakamura's important contribution to the study of Vedānta in general and to Bhartṛhari studies in particular. Naturally I was very surprised to find in it, as I shall presently demonstrate, a large number of inaccurate translations, remarks, conclusions, and comparisons. My purpose in demonstrating what I consider to be Nakamura's mistakes is, of course, purely that of *śāstra-śuddhi* "purification of a branch of learning"; the positive aspects of the present article, namely the correct translations of some of the key verses in Bhartṛhari's *Trikāṇḍi* (1) (*TK* in abbreviation) and a correct understanding of Bhartṛhari's position, are more important in my view than the refutation of the contents of Nakamura's article." (p. 161, anote omitted)

(1) (a) It is generally believed that the title of the work to which I refer as the *Trikāṇḍi* is *Vākyapadīya*. In a recent article (Aklujkar, 1969: 547-555), I have argued that *Vākyapadīya* was originally the title of only the first two books of Bhartṛhari's magnum opus and that *Trikāṇḍi* liis th only ancient name that can refer to the work under study as a whole. (b) Some scholars advocate the view that the composition referred to as *Vṛtti* (as *V* in abbreviation) is not Bhartrhari's work and that it is much later than the verses (*kārikā*) which alone form the genuine *TK*. I see absolutely no reason to subscribe to this view. In my paper, "Authorship of the *Vākyapadīya-vṛtti* ", read at the annual meeting of the American Oriental Society (1969) (to appear in *Wiener Zeitsschrift für die Kunde Süd- und Ostasiens*, vol. xvi, May 1972), I have exposed the weaknesses of the arguments on which this view is based, and I have shown

with unmistakable internal evidence that the traditional ascription of the *V* to Bhartṛhari cannot be doubted by any unprejudiced mind."

6. ———. 1972. "The Authorship of the Vākyapadīya-Vṛtti." *Wiener Zeitschrift für die Kunde Südasiens* no. 15:181-198.

   "1.1 It has been a long tradition in India to ascribe the Vṛtti (*V* in abbreviation) of the first two kāṇḍas of the Trikāṇḍi to Bhartṛhari and to accept it as an integral part of the Vakyapadiya."

   (...)

   "1. 2 Under these circumstances, any doubt about Bhartṛhari's authorship of the *V* may seem highly improbable; but, today, all scholars who are interested in the Trikāṇḍi, as far as I know, entertain such a doubt. Their uncertainty of opinion usually begins when they realize that the *V* occasionally gives two or more interpretations of one verse (kārikā). Then this uncertainty is deepened either by the occurrence in the *V* of the word *tatra-lihavat*, which, in the usage of some ancient authors, serves as Bhartṛhari's epithet, in a manner indicating reference to a person other than the author (S. Iyer 1965: >xxxi-xxxii), or by a feeling that some divergence of views exists between the *V* and thekārikā-text (Bi8ardeau 1964a: 5-21 (summarized by S. Yier 1965: xxxiii-xxxiv), 1964b: 260). But doubtful as they may be, no scholar except Madeleine Biardeau is known to me who has declared the traditional authorship of the *V* to be ill-founded and incorrect. Biardeau has gone beyond the range of uncertainty about the validity of the tradition and reached the conclusion that the *V* cannot be a work of Bhartrhari, that it must have been written by Hari Vṛṣabha sometime after Kumarila, and that the tradition accepted it as Bhartrhari's work through a confusion of names.

   1.3 The purpose of the present article is to refute this conclusion.

   Not only do I uphold the validity of the traditional ascription, but I also maintain that the *V* is an inseparable part of the

Vākyapadīya and that it is wrong to think of the Vākyapadīya as a work consisting of *kārikās* only. Now, there are two ways of establishing this thesis, one negative and another positive. The negative way consists in challenging Biardeau's method of solving the problem of authorship, in pointing out the difficulties to which her conclusion leads, and in demonstrating that the divergences which she notices between the views and use of terms in the *V* on the one hand, and in the *karikas* on the other, are superfluous and that some of her interpretations are inaccurate. I have followed this way in a forthcoming sequel article, and hence it would be proper to devote the present article to a positive demonstration of Bhartṛhari's authorship of the *V*." (pp. 181-185, notes omitted)

7. ———. 1974. "The Authorship of the Vākya-kānda-tīkā." In *Charudeva Shastri Felicitation Volume*, 165-188. Delhi: Charu Deva Shastri Felicitation Committee.

   "1.1 Since the date of its publication (1887) in the Benares Sanskrit Series, the *ṭīkā* on the verses of the second book of Bhartṛhari's *Trikāṇḍi* or *Vākyapadīya* (Aklujkar 1969: 547-555) has been ascribed to Punya-rāja. A few scholars (e.g. Kosambi 1945:65.9-10, ft7.7-9: Bhattacharya 1954:4-5) have given the name of the author of this commentary as Helā-rāja, but that is obviously due to oversight and is not intended to be a deliberately reached conclusion regarding the authorship of the work. Thus, on the whole, the ascription to Punya-rāja has gone unchallenged in the writings of the compilers of manuscript catalogues, of the editors of Bhartṛhari's works, of the scholars working on Bhartṛhari's views and of the historians of Sanskrit grammar. However, it seems likely to me that a serious mistake has been made in deciding the problem of authorship in this case and that the Vakya-kāṇḍa-ṭikā is more likely to be a work of Helā-rāja, the well-known commentator of the third book of the *Trikāṇḍi*, than of Punya-rāja. The evidence favouring this view is manifold and considerably strong when taken cumulatively." (pp. 165-166, notes omitted)

References

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Kosambi, D. D. 1945. "The Authorship of the Śataka-trayi" *Journal of Oriental Research*, 15:64-17. Madras.

8. ———. 1977-78. "The concluding verses of Bhartṛhari's 'Vākya-kāṇḍa'." *Annals of the Bhandarkar Oriental Research Institute* no. 58-59:9-26.

"In this paper I wish to offer some observations on verses 481-490 (1) appearing at the end of the second book of Bhartṛhari's *Trikãndi* or *Vākyapadīya*.

(,,,)

My objective here is neither to review what has been said about them, nor to pronounce judgements on all the controversies they have given rise to. I wish rather to put forward a few considerations that have not so far appeared in print and to refute a few interpretations that have so far gone unrefuted." (p. 9)

(1) (a) In the present and following publications I shall follow Rau's (1977) enumeration of the Trikãndi kãrikãs. It is the only flawless enumeration we have at present that enables us to refer to a tradition of the Trikãndi text (the kãrikã manuscript tradition) in a form determined by objective textual criticism. It will be highly convenient if the Trikãndi text as preserved in the other (Vṛtti and Tīkā) traditions is critically established by following Rau's enumeration. This I advocate simply as a procedure that facilitate future text-critical research concerning Bhartṛhari. I do not hold that the kārikā manuscripts give us the oldest accessible form of the Trikãndi text. See Aklujkar 1971, 1978.

(b) The text of verses 481-490 given below is based on a consideration of all known manuscript traditions. In the case of kãrikã manuscripts I have simply followed Rau's lead. It is only

the collection and evalution of the evidence of the Vṛtti and Tīkā manuscripts that I have freshly attempted.

[Note added by R. Corazzon: in the English translation by K. A. Subramania Iyer, *The Vakyapadiya of Bhartrhari. Chapter II*, Delhi: Motilal Banarsidass 1977, the verses are numbered 476-485, pp. 203-205]

9. ———. 1982. "Interpreting Vakyapadiya 2.486 Historically (Part 1)." In *Dr. K. Kunjunni Raja Felicitation Volume*, 581-601. Madras: Adyar Library and Research Centre.

"The verse I propose to discuss (*parvatād āgamaṃ, labdhvā bhāsya-bijānusāribhiḥ/ sa nīto bahu-śakhatvaṃ candrācāryādibjiḥ punah//*) [*] is a part of the ten epilogue type· verses found at the end of the Vākya-kānda or second book of *Bhartṛhari's Vākyapadīya* or *Trikāṇḍi*.(1)

l have argued elsewhere (Aklujkar 1978:9-26) that the ten verses were not written by Bhartṛhari but by a student of his. However, this does hot diminish the historical importance of the verses, for they remain almost as ancient as they have been thought to be. Secondly, acceptance of my view on the authorship of the verses is not a presupposition underlying the points I wish to make in this article. As far as I can see, the observations I offer below are logically independent of the problem of authorship." (pp. 581-582)

In referring to the *Vākyapadīya/Trikāṇḍi*. verses I have followed the enumeration in Rau 1977.

(1) Eight of these verses are directly or indirectly relevant to the following discussion. They are given below for easy reference: [the author cite the verses in sanskrit, I give the translation by K. A. Subramania Iyer, *The Vakyapadiya of Bhartrhari. Chapter II*, Delhi: Motilal Banarsidass 1977, verse 476-483, pp. 203-204 [Rau numeration is given in parenthesis):]

476. [481] After the *Saṅgraha* declined when it came into the hands of Grammarians who were fond of abridgements and had acquired only little knowledge.

[The *Saṅgraha* is mentioned in the *Mahābhāṣya*, I. p.6.1.12

We are told that there the question whether the word is eternal or only an effect is discussed as one of the main topics.

Commenting on this, Bhartṛhari says in his commentary on the Mahābhāṣya that there were 14 000 topics discussed in the *Saṅgraha*: *Caturdaśa sahasrāṇi vastūni asmin saṃgrahagranthe* (M. Bhā. dīpikā, p. 21, 1. 4-5. B. O. R. I. Post Graduate and Research Department Series no. 8.)]

477. [482] And when the Master Patañjali who knew all the traditions (*tīrtha-darśinā*) had incorporated into his Mahäbhäṣya all the arguments and principles.

478. [483] It was found that those who were not sufficiently equipped (*akṛtabuddhīnām*) could not arrive at proper decisions while studying that work at once bottomless because of its depth and clear because of its lucidity.

479. [484] When that sacred work which was an epitome of the *Saṅgraha* was ruined by Baiji, Saubhava and Haryakṣa who merely followed dry reasoning.

480. [485] The Grammatical Tradition slipped away from the hands of the disciples of Patañjali and in time the mere text of it survived in the South.

481. [486] Then Ācārya Candra and other followers of the principles of the Bhāṣya obtained the true Tradition from the mountain and elaborated it into many branches.

482. [487] After mastering those principles and cultivating his own discipline this collection of traditions was composed by our Teacher.

483. [488] Here only the gist of a few of those traditions is given. In the third *Kāṇḍa*, there wiil be full discussion.

References

Aklujkar, Ashok. 1978. The concluding verses of Bhartṛhari's Vākya-kānda. *Annals of the Bhandarkar Oriental Research*

Institute, Diamond Jubilee Volume, pp. 9-26.

Rau, Wilhelm. 1977. (Ed.) *Bhartṛhari's Vākyapadīya (mula-karikas)*. Monograph Series of the Deutsche Morgenländische Gesellschaft, no. 42, 4. Wiesbaden: Franz Steiner Verlag.

10. ———. 1982. "Interpreting Vakyapadiya 2.486 Historically (Part 2)." In *Indological and Buddhist Studies: Volume in Honour of Professor J. W. de Jong on his Sixtieth Birthday*, edited by Hercus, Luise Anna, 1-10. Canberra: Faculty of Asian Studies.

"In the first part of this article, to be published in the Dr K. Kunjunni Raja Felicitation Volume, I have pointed out, among other things, that the explanation of *parvatād āgamaṃ, labdhvā bhāsya-bijānusāribhiḥ// sa nīto bahu-śakhatvaṃ candrācāryādibjiḥ punahIi* II given in Puṇyarāja's or Helārāja's Tīkā is contextually unjustifiable. In the present part I wish to analyse the Tīkā explanation further to establish its mythic character and to account for its acquisition of that character.(...) (1)" (p. 1)

(1) An English summary of the Tīkā explanation is given in section 2.5 of the first part of this article. The aspects in which the Tīkā explanation appears hazy and hesitant are clarified in a footnote to that section.

[From the section 2. 5 of the first part of this article:

"According to it [the Tīkā], what happened in the history of Pāṇinian grammar was essentially this: Because of the peculiar style of the *Mahābhāṣya* and because of the insensitive interpretations· advanced by Vaiji and others, the successors of Pataṇjali lost the knowledge of what Pataṇjali actually wished to say and what Pataṇjali accepted as *siddhānta*. This knowledge was no longer a part of their living tradition of study and was preserved only in manuscripts among the Southerners. Candrācārya and others again gave it currency in a much developed form, once they came in possession of the *mūla-bhūta vyākaraṇāgama*. In other words, although the *Tika* seems hesistant and hazy it probably visualizes the relevant

happenings as follows: Candrācārya and others got hold of the essential, most fundamental, body of Vayākaraṇa doctrines.

They studied the intimations in the *Mahābhāṣya* on the background of these doctrines; they used the principles implicit in Pataṇjali's statements to provide flesh to the skeleton they had received. This activity enabled them to make current once again a multifaceted, robust tradition of Vayākaraṇa views." (pp. 588-569, a note omitted)

11. ———. 1989. "The Number of *Pramāṇas* According to Bhartṛhari." *Wiener Zeitschrift für die Kunde Südasiens* no. 33:151-158.

"In an article entitled "*prāmāṇya* in the philosophy of the Grammarians", expected to be published in the near future,[*] I have tried to explain the distinctive nature of the view of *prāmāṇya* or 'validity of the means of cognition' which the Grammarians or Vaiyākaraṇas held.

I have pointed out in that article that whereas most other traditions of Indian philosophy, knowingly or unknowingly, emphasized the separability of the means of cognition (*pratyakṣa* 'perception', *anumāna* 'inference', etc.), the Grammarian-philosophers like Bhartṛhari ("B" in abbreviation) played down the separability of the means and looked upon them as functioning conjointly(1). In particular, *pratyakṣa* and *anumāna* work on the backdrop of *āgama*, and *āgama* changes, usually gradually, in the light of the knowledge received through *pratyakṣa* and *anumāna*. This is so because the Grammarian's idea of *āgama* was significantly different, which, in turn, was due mostly to his four-fold or multi-level concept of language and his awareness of the centrality of language in our experience of the world." (pp. 151-162)

[*] "Prāmāṇya in the philosophy of the grammarians", in Avinandra Kumar et al. (eds.), Studies in Indology. Prof. Rasik Vihari Joshi Felicitation Volume, Delhi: Shree Publishing House 1989, pp. 15-28.

(1) This is not to say that Indian philosophers of other persuasions are not aware of the mutual dependence or limitations of *prāmāṇas*. They too would readily concede that an *anumāna* is not valid if it is vitiated by a perception, that the perception of a rope as a snake should be rejected if one can infer at a later momerit the real nature of the object, and that one cannot assert that fire does not burn simply because a reliable text or person says so. What I have in mind here is not invalidation or delimitation that obtains after the operation of a *prāmāṇa*. My remark has rather to do with what takes place while a *prāmāṇa* is in operation: The Grammarian school is unlike the other schools of Indian philosophy in accepting at that point the penetration of (what is considered to be) the domain of one *prāmāṇa* by (what is considered to be) the domain of another *prāmāṇa*. While the Buddhist thinkers like Dignāga avoid such overlapping of *prāmāṇas* by restricting the object of *pratyakṣa* (to *svalakṣaṇa*, i.e, by redefining *pratyakṣa*), the Grammarians accept the overlapping as an unavoidable fact of life and view the operations of (so-called separate) *prāmāṇas* as basically complex."

12. ———. 1990. "Introduction and Summary of the First Two Books of the Vākyapadīya." In *Encyclopedia of Indian Philosophies. Vol. 5: The Philosophy of the Grammarians*, edited by Coward, Harold G. and Raja, Kuniunni, 121-153. Delhi: Motilal Banarsidass.

    "As with many great figures of classical times in India, a large number of works have been attributed to Bhartṛhari, and once again current scholarship has hardly settled all questions concerning the authenticity of some of these claims. By definition, the Bhartṛhari we are speaking of is the author of the work that is regularly referred to as the *Vākyapadīya*, a seminal work on Grammar and grammatical philosophy the influence of which, though difficult to calculate precisely, is certainly considerable in subsequent philosophical developments, both within Grammar and outside it. This work has three chapters, and it was more properly termed *Trikāṇḍī*

on that account. Ashok Aklujkar has argued that only the first two chapters constitute the *Vākyapadīya*.

It seems likely that Bhartṛhari also composed th e commentary called *vṛtti* on at least the first two chapters of the *Trikāṇḍi*. Beside this body of literature—verses and prose commentary—Bhartṛhari apparently also wrote a commentary—or part of one — on Patañjali's *Mahābhāṣya*.

Again, the proper title is a matter of discussion: Aklujkar points out that the title *Tripādi* for it has extensive sanction among early commentators in the grammatical tradition , while the title under which it is frequently known nowadays, *Mahābhāṣyadīpikā,* has only one manuscript mention in its favor. No doubt the work is referred to regularly as a ṭikā on the *Mahābhāṣya*. It seems likely that it was a lengthy work, perhaps covering the entire scope of Patañjali's masterpiece, though only a small portion is now available." (pp. 121-122, a note omitted)

13. ———. 1990. "Summary of the Third Book of the Vākyapadīya." In *Encyclopedia of Indian Philosophies. Vol. 5: The Philosophy of the Grammarians*, edited by Coward, Harold G. and Raja, Kuniunni, 153-172. Delhi: Motilal Banarsidass.

    In collaboratio with Karl. H. Potter.

    "1. On Universal Property (*Jātisamuddeśa*)

    1-5 (E58; Tl-9). Words abstracted from sentences have been regard ed as falling into two (noun, verb), four (with the addition of prepositions and particles) or five (with the addition of postpositions) categories. In the analysis into word meanings there are said to be two eternal word meanings for all language (or linguistic forms), namely universal and particular. Sometimes the particular as characterized by the universal of its class is intended, and sometunes without such a characterization." (p. 153)

14. ———. 1991. "Interpreting Vakyapadiya 2.486 Historically (Part 3)." In *Paninian Studies: Professor S. D. Joshi Felicitation*

Volume, edited by Deshpande, Madhav and Bhate, Saroja, 1-48. Ann Arbor, MI: University of Michigan Press.

"Vākyapadīya (VP in abbreviation) 2.486, the first word of which I intend to discuss here, runs thus:

parvatād āgamaṃ, labdhvā bhāsya-bijānusāribhiḥ/ sa nīto bahu-śakhatvaṃ candrācāryādibjiḥ punah//

The question of the precise import of this verse has given rise to a substantial body of literature extending over 125 years (Aklujkar 1978:9). As I have already examined this literature directly and indirectly in the publications mentioned above, I shall merely state here that I prefer to translate the verse along the following lines: 'Having acquired the traditional knowledge from parvata, Candrācārya and others, who followed the indications in the *Bhāṣia*, again made it (i.e., the traditional knowledge) many-branched'. I should also clarify that in my view, as argued in the 1978 article, the verse was probably authored by a student of Bhartṛhari (B in abbreviation) and not by B as has been commonly supposed.

Although parvata is a common Sanskrit word with 'mountain, mountain range' as its definite meaning and it would not be incompatible in that meaning with the other words of VP 2.486, it has caused much reflection on the part of scholars." (pp. 1-2)

15. ———. 1993. "An Introduction to the Study of Bhartṛhari." *Asiatische Studien / Études Asiatiques* no. 47:7-36.

Reprinted in Saroja Bhate, Johannes Bronkhorst (eds.), *Bhartṛhari, Philosopher and Grammarian*, Delhi: Motilal Banarsidass 1994, pp. 7-36.

"My lecture has been described as introductory and to some extent it *will* be introductory. However, please note that it will not be introductory in the sense of a presentation proceeding on the assumption that the audience knows nothing or little about Bhartṛhari (hereafter abbreviated to "B") and the works associated with him and hence the principle goal should be to give to the audience some very basic or preliminary information in that regard. Rather, I am principally going to

talk about what research has achieved so far, what parameters are emerging, and what we could expect in the future. From the obseivations made along these lines and the information given in the appendix, it should be possible for you to infer, if you do not already know, what basic factual information and surmises made by scholars there are regarding B, his works, and his commentators." (p. 8)

16. ———. 1993. "Once Again on the Authorship of the Trikāndī-Vṛtti." *Asiatische Studien / Études Asiatiques* no. 47:45-57.

    Reprinted in Saroja Bhate, Johannes Bronkhorst (eds.), *Bhartṛhari, Philosopher and Grammarian*, Delhi: Motilal Banarsidass 1994, pp. 45-58.

    "I keep an open mind on the issue of the authorship of the Vṛtti (hereafter "V" in abbreviation) of the first two kāṇḍas of the Trikāndī (abbreviated to "TK" in the following lines) or Vākyapadīya. My interest is not in arguing for a position by implicitly assuming the adversarial system analogous to that of the British or North American judiciary. That is why when I discussed the problem in 1972 I tried to consider in as much detail as possible all the pieces of evidence that had the potential to disturb the traditional authorship of the V. For example, I collected all cases of double or multiple glossing in the V and attempted to determine if each of them indicated alternative possibilities of meaning entertained by an uncertain commentator or whether the different glosses were in fact intended by the kārikā author - whether what we had in front of us were, in effect, cases of sophisticated *śāstra* punning. In the end, the time-consuming investigation I invited upon myself revealed that the latter indeed was the case. Wherever we had more than one explanation given for a kārikā expression, the content of each explanation was acceptable to the kārikā author on some level or in some specific context. The alternative explanations could not be thought of as signs of uncertainty of understanding and thus be an evidence of the V author's difference from the kārikā author." (p. 45)

17. ———. 2000. "The Epistemological Point of View of Bhartṛhari." In *Concept of Knowledge: East and West*, edited

by Shaw, J. L. , 1-19. Calcutta: Ramakrishna Mission Institute of Culture.

§S.1 In the preceding, I have implicitly made a distinction between B [= Bhartṛhari] as a philosopher (in our most prevalent contemporary Western sense of the term) and as a religious thinker. What that distinction suggests is that B, as a philosopher, need not be seen as needing the concept of *mokṣa* or, to use his expression in Vṛtti 1.5, of *brahmaṇaḥ prāptiḥ* or the other elements of his philosophy to stand.

Another implication of what I have said so far is that there are levels in B's ontology and they are related to his roles as a thinker. As a Grammarian or Vaiyākaraṇa, he accepts as existing everything that words can denote (even 'hare's horn' is deemed to exist from the Grammarian's perspective).(24) As a philosopher, he admits only the physical things and the language principle as truly existing. Everything else is seen as inseparable from either the things or the principle (time and space, as capacities of the latter, are inseparable from it; all other entities such as qualities, universals, etc. have no separate existence from substance).

And as a religious thinker, he entertains the possibility that his philosophical ontic world could be superseded by one in which the language principle alone remains. The assumption then is that a person can reach a certain stage in which his mind (= *buddhi*, *paśyantī*) is divested of diversity and he 'becomes' the language principle.

§S .2 The distinction between B's roles as a Grammarian thinker and as a non-Grammarian thinker is conveyed by the remarks of his ancient commentators, particularly the remarks of Helā-rāja. The differentiation between a *śabda-pramāṇaka* ontology and a *non-śabda-pramāṇaka* (in effect, corresponding to our philosophical) ontology, which Helā-rāja makes, has support in B's remarks. That the *non-śabda-pramāṇaka* ontology is not explicitly characterized as philosophical or is not further divided into philosophical and religious is due to the absence of distinctive terminology for

philosophy and religion in the Indian tradition." (p. 11, three notes omitted)

(24) Compare Quine's procedure of beginning the investigation of what exists with the position 'everything.'

18. ———. 2001. "The Word *is* the World: Nondualism in Indian Philosophy of Language." *Philosophy East and West* no. 51:452-473.

"Bhartṛhari the grammarian-philosopher most eligible for attributing the view "the word is the world," lived sometime around A.D. 425-450, if not earlier. In the current state of our resources, he can be viewed as the originator of the view, although it is clear from his major surviving work, the *Trikāndī* or *Vākyapadīya*, that the view must have preceded him by quite some time, probably many centuries, in several important details if not in its entirety. The argumentation in support of the view, as distinct from the statement of the view, is at present found for the first time only in Bhartṛhari's incompletely preserved *magnum opus*, albeit it is not Bhartṛhari's principal intention, except maybe for a part of the first book, to argue systematically in favor of the view. My aim here is to identify myself with Bhartṛhari, unearth the many facets of his argumentation, and give him the best possible hearing that I can." (p. 456)

19. ———. 2009. "Veda Revelation according to Bhartṛhari." In *Bhartṛhari: Language, Thought and Reality*, edited by Chaturvedi, Mithilesh, 1-98. Delhi: Motilal Banarsidass.

"In his paper “Veda Revelation according to Bhartṛhari”, Ashok Aklulkar discusses the connotations of words like *sākṣākṛta-dharma*n and *pratyakṣadharman* used in Bhartṛhari's Vṛtti and earlier by Yāska and Patañjali. He interprets *dharma* as ‘properties of things’. According to him, Bhartṛhari uses the word *veda* in more than one sense: Veda in a subtle form as appearing in the vision of seers comes before the sequential language form or the textual corpus that is later divided into four Vedas and different śākhās. Aklujkar equates Veda in pre-revelation stage with para-paśyanti-rūpa or the language

principle itself and the first revelaton with paśyanti, i.e., the active or the extrovert stage of it. He also thinks that Bhartṛhari's account of Veda revelation is not an expression of faith only but also has philosophical content and there is empiricist spirit in the account. He further draws the conclusion that although Bhartṛhari has genuine reverence for the Veda, he opts for theoretical fictions when necessary. Aklujkar has added four appendices, mainly discussing the relevant Vṛtti and Nirukta Passages textually, to his paper." (*Editor's Introduction*, p. XXVI)

20. Alackapally, Sebastian. 2002. *Being and Meaning: Reality and Language in Bhartrhari and Heidegger*. Delhi: Motilal Banarsidass.

    Contents: Foreword. General Introduction. Philosophical background of Bhartrhari and Heidegger: Bhartrhari: the grammarian philosopher. Heidegger: the philosopher of being and language. 1. Sabdatattva: the ultimate reality; 2. Sabdatattva: the Sphota of language; 3. Heidegger's concept of reality; 4. Language: the saying of being; General conclusion; Being and language in Bhartrhari and Heidegger: a synthesis; Glossary; Appendix; Bibliography. Index.

    "This is a study of the concepts of Being (Reality) and Language (Meaning) as has been envisioned by Bhartrhari, the Indian linguistic Philosopher and Martin Heidegger, a great independent German thinker. For both, the question of Being is essentially interwoven into the experience of the question of language. For them, there is no philosophy of Being without a philosophy of Language. Hence a thinking of Being is simultaneously a thinking of Language; to experience the truth of the one is necessarily to experience the truth of the other.

    In Bhartrhari's vision the language we speak is the medium of the self-expression of the ultimate Reality communicated through all meaning-bearing words. It leads us across the external appearance to the core of reality which is the source and the underlying unity beneath everything. This approach depends for its validity upon the presupposition that the real is a luminous Truth which needs to be discovered by every

speaker and in every speech. The real breaks-forth (sphut) through the medium of speech *(sabda*). This *sabda* is not merely a means to a truth or reality but it is the Truth and Reality. The awareness of this fact leads one to the realization of the meaningfullnes of Being." (p. 1)

21. Ananthanarayana, H. S. 1992. "Bhartṛhari on Semantics and Pragmatics." *Bulletin of the Deccan College Post-Graduate and Research Institute* no. 51/52:211-219.

    "The present paper makes an attempt to bring to the notice of the students of modern linguistics, as they seem to be unaware of their great heritage, some of the finer points in Bhartṛhari's discussion of semantics which is interpreted syntactically and determined to an extent also pragmatically. We may quote Bhartṛhari himself on this who warns that the Goddess of learning does not smile on those students who would neglect their own ancients (11.485). There is close similarity between Bhartṛhari and modern linguistics in many issues discussed in Vākyapadīya. The paper makes a reference also to these similarities to the extent possible and suggests that a closer study of the Indian tradition is worth its trouble and makes us proud of our heritage. Bhartṛhari starts from the observation that a linguistic unit say, a word, can be considered under two aspects, viz. sound and meaning bearer (1.44). He terms the first as *dhvani* which the speaker utters and which are the *nimitta* 'manifestors' of the real word. The second is called *sphoṭa* which, when manifested by the d*hvanis*, conveys the meaning. It is the meaning bearing aspect of the word, an indivisible entity which is over and above the sounds. The latter are many in number and are uttered by the speaker in a temporal sequence in order to manifest the sphoṭa. *Sphota* is eternal while *dhvani* is transitory. The unit of expression as well as the unit of meaning is, for Bhartṛhari, the sentence since it is only the sentence that is real and meaningful. Individual words for him have no reality and, thus, do not convey meaning. He says 'sounds have no separate existence in words nor do component features within the sounds; nor have the words any separate existence apart from the sentence' (1.73)." (pp. 211-212)

22. Antil, Ritoo Kartari, and Gautam, Vikas Singh. 2022. "Bhartṛhari's Linguistic Philosophy: Śabda Brahman and the Question from Ineffability." *International Journal of Sanskrit Research* no. 8:280-283.

Abstract: "Bhartṛhari mainly focuses on correct interpretation of Vedic literature through grammar and creates the notion of verbal holism, which describes the ultimate reality as a universal language (śabda) without any components. According to his philosophy, śabda is absolute reality, and the universe expresses itself in the shape of language; that is, objective reality is nothing more than the linguistic explanation of any kind of experience. We can only know something if we are able to cognise it verbally, whether in mind or orally. There is, nevertheless, a sense of ineffability, and there are experiences that do not fit within the realm of linguistic cognition and can only be described in terms of raw sensations. As a result, Bhartṛhari's philosophical argument that absolute reality only exists in a word form, i.e. Śabda Brahman, is called into doubt. The paper briefly discusses the scope of ineffability in verbal holism, as well as some alternative remedies from other philosophical traditions, in order to keep the notion of effability alive in Bhartṛhari's Śabda Brahman theory."

23. Bandyopadhyay, Nandsita. 1988. *Being, Meaning, and Proposition: A Comparative Study of Bhartṛhari, Russell, Frege, and Strawson*. Calcutta: Sanskrit Pustak Bhandar.

24. Behera, Pitambar. 2015. "The Sphoṭa Theory in the Indic Philosophy: The Ancient vs the Modern." In *Proceedings of Twenty Second International Congress on Vedanta*, 223-235. New Delhi: D. K. Print World Publications.

Abstract: "Since the advent of the period of the great grammarians, Patañjali and Pāṇini, in the Indic philosophy, the concept of meaning has been a primordial concern. Different schools of philosophers have attempted to address the said conceptual issue in various ways in consonance with the philosophy of language ranging from the ancient to the modern. Almost all the schools of philosophy (the Vedic,

Vedāntic, Buddhist and Jaina) have participated in the deliberation on the origin of meaning in semantics, which encapsulated the larger chunk of the Indian philosophy on language. The mystic and whimsical doctrine of the articulation of sounds *(sphoṭa*) and the meanings that they respectively convey has been revisited and demystified with a special reference to Bhart¦hari's exponential theory of *sphoṭa*."

25. Bhate, Saroja. 1993. "Bhartṛhari on Language and Reality." *Asiatische Studien / Études Asiatiques* no. 47:67-73.

    Reprinted in Saroja Bhate, Johannes Bronkhorst (eds.), *Bhartṛhari, Philosopher and Grammarian*, Delhi: Motilal Banarsidass 1994, pp. 67-73.

    "The present paper is an attempt to sum up Bhartrhari's views on the relation of language with reality. It is, in fact, a further extention of the problem posed by Dr. J. Kelley in his paper, namely, whether the Vâkyapadïya (VP) can be looked upon as an argument about the limitations of a formal system of analysis to describe linguistic phenomena.(1) I would like to go a step further and pose the problem whether the VP represents an argument about the limitations of language to describe reality.

    Bhartṛhari accepts perception, inference and word as valid means of knowledge. However, he acknowledges highest authority to word. He declares in the Brahmakända that there is no knowledge which does not assume the form of a word(2). All knowledge must culminate in verbal knowledge. No object which is not expressed in words exists. Language is the only window to the world. Our knowledge of reality is shaped by the language we use. Thus Bhartṛhari has initially accepted an intimate relationship of language with reality.

    However, Bhartṛhari shows the superficial character of this intimacy by pointing out how language falls short of reality. At several places in the VP he describes language not only as an inadequate tool to represent reality but also as a wrong means, which, in fact, never takes us to reality.

It is very intriguing that the VP begins with a declaration that there is no world beyond language, whereas it ends up with a note of disharmony between the two and declares that reality transcends language. What follows is a résumé of the views presented in the VP about the nature of language in relation to reality." (p. 67)

(1) John D. Kelly's paper entitled 'Meaning and the limits of analysis: Bhartṛhari and the Buddhists, and post-structuralism' elsewhere in this volume [pp. 171-194].

(2) VP. 1.123:

na so 'sti pratyayo loke yah sabdänugamäd rie /

anuviddham iva jnânam sarvam iabdena bhäsate //

26. Bhate, Saroja, and Bronkhorst, Johannes, eds. 1994. *Bhartṛharii, Philosopher and Grammarian: Proceedings of the First International Conference on Bhartṛhari (University of Poona, January 6-8, 1992)*. Delhi: Motilal Banarsidass.

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Mahābhāṣya-Dīpīka m the matter of sphoṭa 215; Anna Radicchi: Vivakṣā in the Vākyapadīya 221; Yvves Ramseier: Bibliography on Bhartṛhari 235; Index of references 262.

27. Bhattacharya, Bishnupada. 1985. *Bhartṛhari's Vākyapadīya and Linguistic Monism*. Poona: Bhandarkar Oriental Research Institute.

    The *Vakyapadiya*, the magnum opus of the great Bhartṛhari, is not only the most authoritative text on the analytic aspect of Sanskrit language as such, but also one of the most important philosophical works dealing with some of the basic problems of linguistic philosophy, which has also engaged the attention of some of the most eminent linguistic philosophers of our age. The question of the relation of language with the external reality on the one hand and with the internal thought-process on the other is one of the fundamental problems of philosophy. We are aware that there have been various trends of metaphysical quest in India from the very earliest times, and they can be usually classed under two broad heads viz. dualism-pluralism and monism. The Sāmkhya-Yoga, Nyāya-Vaiśeṣika, and Purva-Mīmāṃsā systems are examples of dualistic/pluralistic metaphysics, while the Vedanta of the school of Śaṅkara is the most outstanding example of monism. But besides Śaṅkara's advaita, which is usually known as *brahmādvaita* there have been several other attempts at explaining the phenomenal universe of diversity from one absolute principle without any second. Several variants of monism, however, can be traced in the ancient philosophical literature of India, of which *śabdādvaita-vādā*, *vijñānādvaita-vāda*, and *sattādvaita-vāda* have been noticed in authoritative texts, besides the well-known *brahmādvaita-vāda* or *ātmādvaita-vāda* as taught in the Upaniṣads according to the interpretation of the school with which Śaṅkara is affiliated. Bhartṛhari is the propounder of the theory of *śabdādvaita* or Linguistic Monism, which is a novel doctrine altogether, though the origin of the doctrine is traceable in the Vedic Saṃhitās. Thus Bhartrhari is a great exponent of Monism, though of a different sort, beside Śaṅkara." (pp. 1-2)

28. Bhattacharyya, Gaurinath. 1937. "A Study in the Dialectics of Sphoṭa." *Journal of the Department of Letters. University of Calcutta* no. 29:1-121.

    "We do not know when and by whom the doctrine of *sphoṭa* was first promulgated. There is no reference to it in the *sūtras* of Pāṇini nor in the *vārtikas* of Kātyāyana, But in the Pān. Su. VI. 1. 123, there is the name of a grammarian named Sphoṭāyana. The name may suggest that the grammarian was an exponent of the doctrine of sphoṭa. It is, however, Patañjali who for the first time appears to make a reference to sphoṭa in his epoch-making work on Sanskrit grammar, the *Vyākarana-mahābhāṣya*. Therein he acknowledges in clear terms the distinction between two kinds of word (*śabda*)-permanent (*nītya*) and created (*kārya*); and it is "vith reference to the former that he uses such epithets as "abiding" (*dhruva*), "unchangeable" (*kūṭasta*), etc., epithets that are ascribed to Brahman with which Sphoṭa bas been identified. But Patañjali has not only hinted at *sphoṭa* by noticing the distinction referred to above; he has also actuaJly used the term in his work and has given us a definition of the same. Thus Patañjali observes a distinction between *sphoṭa* and sound by holding that the latter is only a quality of the former and serves to manifest it. And he defines *sphoṭa* as what is perceived by the auditory organs, apprehended by the intellect, manifested by the auditory organs, apprehended by the intellect, manifested by sound and pertaining to ether.

    It is Bhartṛhari, the celebrated author of the Vākyapadīya, who, to our knowledlge, is the first grammarian to have presented to us a systematic treatment of the conception of *sphoṭa*. Bhartṛhari has looked at *sphoṭa* from two standpoints - metaphysical and empirical. From the metaphysical standpoint, Bhartṛhari conceives *Sphoṭa* as identical with the *Brahman* of the Vedāintists, the material cause of the phenomenal world. From the empirical point of view, *sphota* is an indivisible sentence which is expressive of sense.

His attitude towards word, syllable and letter is that they are no better then mere artifices resorted to for the purpose of helping the subject to grasp the indivisble character of *sphoṭa*." (pp. 1-2)

29. Bhattacharyya, Sibajiban, ed. 2002. *Word and Sentence: Two Perspectives. Bhartṛhari and Wittgenstein*. New Delhi: Sahitya Akademi.

    Contents: Preface 5; K.G. Shah: Word and sentence: Two prespeclives: Bhartṛhari and Wittgenstein 9; ndra Nath Choudhuri: Welcome Speech 18; Vidya Niwas Misra: Key-note Address 21; Hiranmoy Banerjee: Understanding Bhartṛhari A Modem Perspective 27; S. 8hattacharyya: Word and Sentence: Wittgenstein, Bhartṛhari and Jagadiśa 34; Arindam Chakravarty: The 'glory' and impenetrability of the Peacock-egg: Eternalism versus Conventionalism about the Word-Meaning Relationship 45; D.P. Chattopadhyaya: Wittgenstein on Language: Some Remarks 55; Probal Dasgupta: The Sentence as Freedom 63; V.N. Jha: Word and Meaning: Identical? 67; Ashok R. Kelkar: What has Bhartṛhari got to say on Language? 78; Lachman M. Khunchandani: Speech as an Ongoing Activity Comparing Bhartṛhari and Wit!genstein 104; P.K. .Mukhopadhyay: Allemalive Conceptions of Sentence and Conflicting Perspectives of Language 123; R.C. Pradhan: Meaning Holism in Wittgenstein and Bhartṛhari: A Study in Two Semantic Perspectives 134; M. Sreemannarayana Murti: Sphoṭa Theory Vis-a-Vis Picture Theory 162-185.

30. Bronkhorst, Johannes. 1989. "Studies on Bhartṛhari, 2: Bhartṛhari and Mīmāṃsā." *Studien zur Indologie und Iranistik* no. 15:101-117.

    [Studies 1 and 4 are in French].

    Reprinted in R. C. Dwivedi (ed.), *Studies in Mīmāṃsā. Dr. Mandan Mishra Felicitation Volume*, Delhi: Motilal Banarsidass, 1994, pp. 371–388.

    "Both Bhartṛhari and Śabara pay a good deal of attention to the subject of *ūha* 'modification, adjustment'. Bhartrhari discusses

it in the first Āhnika of his ·commentary on the Mahābhāṣya (AL 5.18-8.17, Sw 6.17-9.27, Ms 2b9-3c1, while parts of Adhyāya 9 of Sahara's Bhāṣya deal with it. Two cases in particular are treated by both the authors and allow of a detailed comparison." (p. 101)

(...)

"The conclusion must be that Bhartṛhari's description of *uha*, or rather of the absence of, in *aditiḥ pāśān pramoktu* does not represent the position of any group of Mimāṃsakas, but rather the po.sition of the Maitrāyaṇīya branch of the Yajurveda. The Mimāṃsakas on the other hand, or at any rate Śabara , did not confine their attention to one Vedic school." (p. 104)

(...)

"The above observations, if correct, allow us to draw the following conclusions.

Bhartṛhari was acquainted with Mimāṃsa, but did not use it where we would expect him to use it. In the context of ritual details he rather draws upon another tradition, most probably on the traditional manuals current in his Vedic school, that of the Maitrāyaṇīyas. And where he makes references to Mimāṃsa, it is never to Śabara's Bhāṣya, but rather to a Mimāṃsa work in verse, or containing verse, which has not survived, but may have been Bhavadāsa' s Vṛi. He may have known the Pūrva Mimāṃsa Sūtra, or a part of it, but this is not certain." (p. 114)

31. ———. 1991. "Studies on Bhartṛhari, 3: Bhartṛhari on *Sphoṭa* and Universals." *Asiatische Studien / Études Asiatiques* no. 45:5-18.

"Both Brough and Herzberger worked from 'below' 'upward' in their attempt to understand Bhartṛhari's thought. Brough never reaches the metaphysical 'superstructure', whose existence he none-the-less does not deny. For Herzberger the 'superstructure' is the 'top' of a construction built by her 'from below'. For Bhartṛhari, however, we can be sure that the

metaphysical superstructure did not come at the end, but rather at the beginning. It comes at the beginning literally, for the first stanzas of the Vākyapadīya speak of Brahman.

But it must have come at the beginning in another sense as well: Bhartṛhari wrote his work starting from a vision, in which the metaphysical aspects of his thought were already clearly represented. This at any rate seems an extremely reasonable assumption to make." (p. 12)

(...)

"The picture which thus evolves of universals is hardly that of an abstract entity different from the things in which it manifests itself, like the universals of the Vaiśeṣika philosophy. In an important way Bhartṛhari's universal rather is the thing. It is not correct to think that there is a pot, and the universal potness which is different from it. Quite on the contrary, the pot in as far as it really exists is the universal; its not really existing shadow in the phenomenal world is the individual. It is therefore not possible to say that pot and potness are different, even though the former has a spatial and a temporal dimension, which the latter has not. Universals, seen in this way, can most easily be compared with Plato's ideas: they are real and unchanging, while the things that figure in our experience are their unreal reflections.

Returning now to Bhartṛhari's sphoṭa, if the real pot is the universal, the same must be true of words: the real word, i.e. the sphoṭa, is a universal." (p. 14)

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John Brough, "Theories of general linguistics in the Sanskrit grammarians", *Transactions of the Philological Society*, 1951, pp. 27-46. Reprinted in *A Reader on the Sanskrit Grammarians,* edited by J.F. Staal, MIT Press, Cambridge - Massachusetts and London - England, 1972, pp. 4()2-414.

Radhika Herzberger, *Bhartṛhari and the Buddhists, An Essay in the Development of Fifth and Sixth Century Indian Thought*,

Dordrecht /Boston/ Lancaster / Tokyo: D. Reidel. 1986. (Studies of Classical India. 8.)

32. ———. 1993. "Studies on Bhartṛhari, 5: Bhartṛhari and Vaiśeṣika." *Asiatische Studien / Études Asiatiques* no. 47:75-94.

Reprinted in Saroja Bhate, Johannes Bronkhorst (eds), *Bhartṛhari, Philosopher and Grammarian: Proceedings of the First International Conference on Bhartṛhari* (University of Poona, January 6–8, 1992), Delhi: Motilal Banarsidass, 1994, pp. 75–94.

"There are reasons to think that Bhartṛhari's writings may shed light on the early history of Vaiśeṣika. One of these is that he obviously knew the Vaiśeṣika system. Almost all of its categories play a role in his work.

Separate sections (*samuddeśa*) of the Vākyapadīya are dedicated to the categories *jāti, dravya, guṇa* and *kriyā*. The relationship called *samavāya* - a special feature of Vaiśeṣika - is mentioned and used repeatedly.

Vaiśeṣika substances appear as 'powers' (*śakti*), most notably *kāla* (time) and *diś* (space).

A second reason is Bhartṛhari's chonological position. I have argued in another publication that Prasaśtapāda's *Padārthadharmaṁsagraha*; as well as Dignāga's *Pramāṇasamuccayavṛtti* before it, were heavily indebted to the Kaṭandī, a work written not long before Dignāga. This Kaṭandī, further argued, exerted a dominating influence on all Vaiśeṣika literature that came after it, including perhaps the versions of the Vaiśeṣika Sūtra

itself, not to speak of the surviving commentaries on this Sūtra work.(2)

Bhartṛhari, on the other hand, lived long enough before Dignāga that someone different from Bhartṛhari could write a commentary on the first two kāṇḍas of his Viikyapadiya still

before Dignaga. Bhartṛhari, therefore, lived and worked most probably before the *Kaṭāndi*! If his work provides information on Vaiśeṣika, it would then be one of the very few sources of information dating form the pre-*Kaṭāndi* period of this system.

In what follows we shall consider some possible links between Bhartṛhari's Vākyapadīya and the Vaiśeṣika of his days." (p. 75)

(2) See Bronkhorst, forthcoming."The Vaiśeṣika vākya and bhāṣya." Annals of the Bhandatkar Oriental Research Institute.

33. ———. 1994. "Studies on Bhartṛhari, 6: The Author of the Three Centuries." In *Vācaspatyam. Pt. Vamanshastri Bhagwat Felicitation Volume*, edited by Bhate, Saroja and Deshpande, Madhav, 32-41. Pune: Vaidika Samshodhana Mandala.

"There seems to be a tendency among recent scholars to consider as possible, or even probable, the identity of Bhartṛhari, supposedly the author of the Three Centuries (śatakatraya, subhāṣitatriśat), with the grammarian-philosopher of the same name.

This article is meant to draw attention to the fact that the arguments adduced to support this position are far weaker than is generally realized." (p. 32)

34. ———. 1995. "Studies on Bhartṛhari, 7: Grammar as the Door to Liberation." *Annals of the Bhandarkar Oriental Research Institute* no. 76:97-106.

"In the beginning of his *Vākyapadīya*, Bhartṛhari describes grammar as *dvāram apavargasya* 'the door to liberation'. This remark has drawn the attention of several scholars, none of whom have been able to explain how the study of grammar could possibly lead to the highest aim of Indian religions, liberation from this world. Some complain about the lack of information about this in the *Vākyapadīya*. (p. 97)

(...)

"There are many aspects of Bhartṛhari's thought where the influence of Buddhism is clearly noticeable. His conception of the highest reality is an example, as I have tried to show

elsewhere.(21) His view as to to what extent the world of our daily experience is determined by language, is another example(.22) The present paper has tried to show that even his ideas about the ultimate religious aim, and how to reach it, may have been borrowed from the Buddhists. To all this we must however add that Bhartṛhari never borrows ideas without thoroughly adjusting them to their new surroundings. Many of his ideas may be Buddhist in origin, together they constitute Bhartṛhari's philosophy which, as such, is not Buddhist at all. His is the philosophy of a traditional Brahmin, who manages to adjust the Buddhist and other ideas in such a way, that they come to contribute to a Veda-centered view of the world." (pp. 104-105)

(21) Bronkhorst, 1992.

(22) Bronkhorst, 1996.

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Bronkhorst, Johannes (1992): "Études sur Bhartṛhari, 4: L'absolu dans le *Vākyapadīya* et son lien avec le Madhyamaka." *Asiatische Studien / Études Asiatiques* 46.1 (Études bouddhiques offertes à Jacques May), 6-80.

Bronkhorst, Johannes (1996): "Sanskrit and reality: the Buddhist contribution." *Ideology and Status of Sanskrit: Contributions to the history of the Sanskrit language*. Ed. Jan E. M. Houben. Leiden etc.: E.J. Brill. Pp. 09-135.

35. ———. 1996. "Sanskrit and Reality: the Buddhist Contribution." In *Ideology and Status of Sanskrit: Contributions to the History of the Sanskrit Language*, edited by Houben, Jan E. M., 109-135. Leiden: Brill.

"With this in mind we turn to another Brahmanical thinker who, as it seems to me, has been profoundly influenced by Buddhist ideas.(53) This is Bhartṛhari, the linguistic thinker par excellence of classical India.

Bhartṛhari stood, in fact, under the influence of both Vaiśeṣika and Buddhism, not to speak of several other currents of thought. The extent to which he is indebted to Vaiśeṣika is

evident on almost every page of his Vâkyapadïya. The Buddhist influence is less immediately obvious, but not any the less important, as it appears to me. I have drawn attention to Bhartṛhari's indebtedness to Buddhist thought in an earlier publication.(54)

In the present lecture I will try to show how Bhartrhari, at least where ideas concerning the relationship between language and phenomenal reality are concerned, remains closer to the Buddhists than to the Vaiśeṣikas. I will also point out how he adapts these essentially Buddhist ideas to his own vision of the world. We will see that Bhartrhari accepts the close correspondence between language and phenomenal reality, that, like the Buddhists, he looks upon phenomenal reality as ultimately unreal, and that, like Nägärjuna, he includes sentences in the parts of language that correspond to the phenomenal world." (p. 125)

(53) For the argument here presented it is not important to know whether Bhartṛhari was directly acquainted with Nägärjuna's works. Nägärjuna's style of reasoning left a profound impression on Buddhist thought after him, so that Bhartrhari may have undergone his influence indirectly. Some features of Bhartrhari's thought suggest that he may have been acquainted with one or more Yogäcära thinkers; see note 81 below.

(54) Bronkhorst 1992a. [1992a "Études sur Bhartrhari, 4: L'absolu dans le Vâkyapadïya et son lien avec le Madhyamaka." *Asian Studies/Études Asiatiques* 46.1 (Études bouddhiques offertes à Jacques May): 56-80.

(81) One is of course reminded of the *abhilapaväsana* of the Yogäcäras, which is responsible for a number of percepts (*vijnapti*) besides the one of linguistic usage (*vyavahäravijnapti*). Cf. Lamotte [*La Somme du Grand Véhicule d'Asanga (Mahäyänasamgraha)*. Tome II:traduction et commentaire. Publications de l'Institut Orientaliste de Louvain, 8 Louvain-la-Neuve: Institut Orientaliste] 1973: 88-89, 108 (= Mahäyänasamgraha II, 2; II, 16).

36. ———. 1999. "Studies on Bhartṛhari, 8: *prākṛta dhvani* and the Sāṃkhya *tanmātras*." *Journal of Indian Philosophy* no. 27:23-33.

"Bhartṛhari distinguishes between the word itself (sometimes called *sphoṭa*) and the sounds that manifest it. These sounds themselves are subdivided in one passage of the Vākyapadīya into *prākṛta dhvani* and *vaikṛta dhvani*. These two expressions have puzzled modern scholarship." (p. 23)

(...)

"To conclude. For a correct understanding of Bhartṛhari's *prākṛta* and *vaikṛta dhvani*, his intellectual context must first be taken into consideration. Comparison with theories of modern linguistics is delicate, and should not be made until Bhartṛhari's own intellectual background has been properly explored.

It seems likely that the notions of *prākṛta* and *vaikṛta* forms of sound come from Sāṃkhya, where these notions appear to have been current until the revision of that philosophy during which the qualities as final evolutes were replaced by the five elements.

This hypothesis explains both Bhartṛharis terminology and the ideas it covers: both Sāṃkhya and Bhartṛhari distinguish between two perceptible forms of sound, the one "pure", the other one "impure". Questions remain as to their temporal relationship: does the *vaikṛta dhvani*, come into being after the *prākṛta dhvani*? Neither Bhartṛhari's text nor our limited knowledge about the Sāṃkhya known to him allow us to reach a clear and certain answer to this question.

The revision of Sāṃkhya referred to above did away with both *prākṛta* and *vaikṛta dhvani*. Not surprisingly, the commentator Vṛṣabhadeva no longer understood Bhartṛhari's short and enigmatic passage, and gave it a different interpretation." (pp. 32-33)

37. ———. 2001. "The Peacock's Egg: Bhartrhari on Language and Reality." *Philosophy East and West* no. 51:474-491.

    "Bhartrhari was not only a clever and well-informed philosopher but also a conservative Brahmin who maintained his own tradition's superiority against the philosophies developed in his time. He exploited a problem that occupied all his philosophical contemporaries to promote his own ideas, in which the Veda played a central role. Bhartrhari and his thought are situated in their philosophical context. As it turns out, he dealt with issues that others had dealt with before him in India and suggested solutions to existing problems. Indeed it becomes clear that he was both a philosopher who dealt with current problems and challenges and a traditionalist who used the philosophical debate of his time to gain respectability for his own Vedic tradition."

38. ———. 2009. "Bhartṛhari and His Vedic Tradition." In *Bhartṛhari: Language, Thought and Reality*, edited by Chaturvedi, Mithilesh, 99-118. Delhi: Motilal Banarsidass.

    "In this paper I wish to concentrate on one thinker and explore to what extent his thought may have been influenced, or even determined, by the Vedic school to which he belonged. This thinker is Bhartṛhari — a Brahmanical philosopher belonging to the fifth century of the common era, author of the Vākyapadīya and of a commentary, Tikā, on the Mahābhāṣya, nowadays often referred to as Mahābhāṣya-dīpikā. The Vedic school to which he belonged is that of the Mānava-Maitrāyaṇīyas. Is it possible that this famous thinker may have borrowed, or rather inherited, some of his key ideas from this, his own, Vedic tradition? (p. 102)

    (...)

    "What can we conclude from the preceding? Not very much, ! fear. It seems possible, even likely, that Bhartṛhari looked upon his Vedic school, that of the Mānava-Maitrāyaṇīyas, as one of his sources of inspiration which he refers to as authoritative

tradition, *āgama*. The specific texts belonging to that tradition which he used probably include the Maitrāyaṇīya Upaniṣad.

He also used other treatises of the Mānava school, among them probably a Mānava Dharmaśāstra. Whether he derived philosophical ideas from these treatises is not clear. The Manusmṝti — assuming that it is based on the Mānava Dharmaśāstra known to Bhartṛhari — does not provide much information that might support this." (p. 112)

39. ———. 2011. *Language and Reality: On an Episode in Indian Tought*. Leiden: Brill.

Revised and updated English edition of: *Langage et réalité : sur un épisode de la pensée indienne*, Turnhout: Brepols 1999.

Chapter Two, § 15: *Bhartṛhari*, pp. 108-117.

"Bhartṛhari, according to a few verses added at the end of the second book of his principal work, the Vākyapadīya (“Treatise on Sentences and Words”), played an important role in the resurgence of the Mahābhāṣya in the fifth century of the common era. The Vākyapadīya was aware of the problems relating to the correspondence principle, particularly the problem of the impossibility of the arising of things.

Bhartṛhari proposes several solutions. We should not be surprised to find him making greater use, in comparison with other thinkers we have discussed, of the ideas found in the Mahābhāṣya.

A verse from the third book of the Vākyapadīya articulates the central problem as follows: “What we call origination is the fact of attaining one’s own nature, and only something existent attains what is to be attained. If [this thing] exists [already], why does it arise? But if it does not exist, how does it arise?”(271) The problem is easily recognizable: for something to arise, it has to exist; but if it already exists, why would it arise? To quote once again the words of Nāgārjuna: “If there existed anywhere something unarisen, it could arise. Since no such thing exists, what is it that arises?”(272)" (P. 108, Sanskrit omitted)

(271) [Bhartṛhari, Vākyapadīya, ed. W. Rau, Wiesbaden 1977] 3.3.4.

(272) [Nāgārjuna, Mūlamadhyamakakārikā, ed. J. W. de Jong, The Adyar Library and Research Centre, Madras 1977 7.17:

40. ———. 2012. "Studies on Bhartṛhari, 9: Vākyapadīya 2.119 and the Early History of Mīmāṃsā." *Journal of Indian Philosophy* no. 40:411-425.

Abstract: "This article argues that in early Mīmāṃsā the view was current that there are objects in the world corresponding to all words of the Sanskrit language. Evidence to that effect is primarily found in passages from Bhartṛhari's works, and in some classical Nyāya texts. Interestingly, Śabara's classical work on Mīmāṃsā has abandoned this position, apparently for an entirely non-philosophical reason: the distaste felt for the newly arising group of Brahmanical temple-priests."

41. Cardona, George. 1976. *Pāṇini: A Survey of Research*. The Hague: Mouton.

VI.2. Bhartṛhari 295; VI.2.1, The Vākya-padīya: editions and translations. 295; VI.2.2. The authorship of the Vṛtti 297; VI.2,3, The dates of Bhartṛhari and his

commentators 298; VI.2 4 Studies on the doctrines set forth in the Vākya-padīya 299; VI.2.5. Evaluations of Bhartṛhari and his commentators 304-305.

"The major text on semantics and philosophy of grammar in the Paninian school is Bhartṛhari's Vākya-padīya. This, together with the Mahā-bhāsya, is the basic work for later treatments of topics in the treatises of Kauṇḍabhaṭṭa and Nāgeśa. Not only this, the Vākya-padīya is also referred to extensively in later treatises of many schools.

The text is composed in verses (*kärika*) and divided into three parts (*kānda*)'. the Āgama-samuccya ('compendium of traditional teaching') also called the Brahma-kaṇḍa, the Väkya-kaṇḍa, and the Pada-kaṇḍa or Prakirnakaṇḍa ('miscellaneous part'). The third part is further subdivided into fourteen

sections called *samudeśa* in which are treated; generic properties (*jāti*), substance (*dravya*), relation (*sambandha*) between items and their meanings, substance again (*bhūyo-dravya-samuddeśa*), properties (*guṇa*), spatial concepts (*dik*), kārakas (*sādhana*), action (*kriyā*), time (*kāla*), the concept of person (*puruṣa*), number (*saṃkhyā*), the semantics associated with active and middle endings (*upagraha*), gender (*liñga*), derivatives such as compounds (*vṛtti*, see note 263). The last kāṇḍa is considered by both commentators and most modern scholars to be lacking sections originally included therein. Ther term *vākya-padīya* was used to refer to the first two kaṇḍas and the term *trikāṇḍi* to refer to the whole work.

The following commentaries on the Vākya-padīya are extant: the Vṛtti on the first and second parts, the latter fragmentary; the Ṭīkā on the second part, usually attributed to Punyaräja. Helärāja's Prakäśa on the third kāṇḍa. In addition, the Vṛtti on the first section itself has a commentary, the Paddhati of Vṝṣabhadeva." (pp. 295-296, notes omitted)

"It is generally agreed that Bhartṛhari deserves his reputation for his insights into language. There has, nevertheless, been some disagreement on how one should evaluate him. In particular, should one approach him as a linguist or as a philosopher, through his commentaries in addition to the Vākya-padīya and the Tripädi or through these alone?" (p. 304)

42. ———. 1999. "Approaching the Vākyapadīya." *The Journal of the American Oriental Society* no. 119:88-125.

This is a review-article of: *The Sambandha-Samuddesa (Chapter on Relation) and Bhartrhari's Philosophy of Language: A Study of Bhartrhari's Sambandha-samuddesa in the Context of the Vakyapadiya with a Translation of Heldrdja's Commentary, Prakirna-prakasa*. B y Jan E. M. Houbeng. Gonda Indological Studies, vol. II. Groningen: Egbert Forsten, ,995. Pp. 460 + xv.

Abstract: "In connection with a recent work on the *Sambandhasamuddeśa* of the *Vākyapadīya*, I consider some major issues concerning Bhartṛhari, the tradition he represents,

and how a modern scholar might approach the *Vākyapadīya*. I discuss theoretical principles which have been set forth as a basis for dealing with Bhartṛhari and evidence from the *Vākyapadīya* in connection with these principles, chiefly what is referred to as Bhartṛhari's perspectivism. I take up in some detail one large issue: the status of the received high language, associated with a group of model speakers called *sista*, who use speech forms characterized as "correct" (*sādhu*) linguistic units (*śabda*) opposed to incorrect linguistic units (*asadhusabda, apaśabda*), that are viewed as corruptions *(apabhramsa*) with respect to how meanings are understood by users. The principal issue here is: do *apaśabdas* directly signify meanings for *sista*s when they communicate with someone using a vernacular, or do these speakers resort to a translation technique such that the *apaśabda* used calls to mind a *sadhusabda*, which then directly signifies a meaning? This topic also involves another important question: how one should consider the *Vrtti* and other commentaries in relation to what is said in the kārikā text."

43. ———. 2000. "Addendum to JAOS 119.1: Approaching the Vākyapadīya." *The Journal of the American Oriental Society* no. 120:234.

    "Interpretation and paraphrase of Vākyapadīya 2.7-8 clarified."

44. ———. 2009. "Bhartṛhari and Patanjali: Traditions Preserved." In *Bhartṛhari: Language, Thought and Reality*, edited by Chaturvedi, Mithilesh, 119-162. Delhi: Motilal Banarsidass.

    "While remaining faithful to the tradition of his predecessors in grammar, Bhartṛhari ranges widely in his treatment of pertinent topics, to the extent that he has been characterized as embracing an attitude of accomodation towards the views of others and of being not only encyclopedic but also perspectivistic.

    Scholars who have, with some justification, emphasized this aspect of Bhartṛhari’s approach, though they acknowledge Bhartṛhari’s close affiliation with the Mahābhāṣya, to the point where in many places—especially in the third kaṇḍa—the

Vākyapadīya takes on aspects of a learned commentary on this work, have not, in my opinion, sufficiently emphasized the degree to which Patanjali anticipates Bhartṛhari in devoting attention to various points of view. In addition, insufficient attention has been paid to the manner in which both authors can make known their sharp disagreements with views they find unacceptable. In the present contribution, | consider examples from the Mahābhāṣya and the Vākyapadīya to illustrate the similarity in approach, then discuss some general issues concerning Bhartṛhari's attitude." (pp. 120-121, note omitted)

45. ———. 2012. "A Note on Vākyapadīya 1.45/46: ātmabhedas tayoḥ kecid ..." In *Saṃskṛta-Sādhutā. Goodness of Sanskrit: Studies in Honour of Professor Ashok Aklujkar*, edited by Watanabe, Chikafuma, Desmarais, Michele M. and Honda, Yoshichika, 100-109. New Delhi: D. K. Printworld.

46. Chattopadhyay, Madhumita. 2010. "Nature of Cognition in the Philosophy of Bhartrhari: A Short Note." *International Journal on Humanistic Ideology* no. 1:181-191.

    Abstract: "In the history of Indian philosophy Bhartṛhari occupies a very distinguished position for relating grammar to philosophy and elaborating the language-philosophical ideas which were hinted at in the grammatical traditions of Pāṇini, Kātyāyana and Patañjali"

47. Chaturvedi, Mithilesh, ed. 2009. *Bhartṛhari: Language, Thought and Reality*. Delhi: Motilal Banarsidass.

    Proceedings of the International Seminar Delhi, December 12-14, 2003.

    Contents: Publisher's Note IX; G. C. Pande: Foreword XI; V. N. Jha: Keynote Address XV; Editor's Introduction XXV-XXXII; Ashok Aklujkar: Veda Revelation according to Bhartṛhari 1; Johannes Bronkhorst: Bhartrhari and His Vedic Tradition 99; George Cardona: Bhartṛhari and Patanjali: Traditions Preserved 19; Madhav M. Deshpande: Revisiting the Notion of Sista in Bhartrhari 163; K. D. Tripathi: Thought, Language and

Consciousness: Bhartrhari's View of Language 177; Tandra Patnaik: Thought and Language: The Bhartrharian Perspective 185; Mithilesh Chaturvedi: Does Language Map the Reality: Bhartrhari View 205; Pierre-Sylvain Filliozat: Time as Power of Word according to Bhartrhari 215; Hideyo Ogawa: On Bhartrhari's Notion of 'Power'(sakti) 225; Vladimir P. Ivanov: Vidyā and Avidyā in Bhartrhari's Vākyapadīya 253; P. K. Mukhopadhyay: Did Bhartrhari Give Us a Philosophy of Language 259; R. C. Pradahan: Bhartrhari as a Philosopher of Language 281; Karunasindhu Das: Changing Approaches to Language in Indian Schools of Thought vis-a-vis Bhartrhari 's Vākyapadīya 291; Navjivan Rastogi: Vak as Pratyavamarśa: Bhartrhari from Abhinavan Perspective 301; Raffaele Torella: From an Adversary to the Main Ally: The Place of Bhartrhari in the Kashmirian Śaiva Advaita 343; Anna Radiccchi: Dhvani in Bhartrhari and Abhinavagupta's Philosophical Works 355; Jan E. M. Housen: Bhartrhari and the Jainas 383; Toshiya Unebe: Mimāmsā and Buddhist Criticism on Bhartrhari's Vākyapadīya 2.119 and His Counterarguments 415; Brendan S. Gillon: Bhartrhari and the Syntax of Sanskrit Gerunds 433; Arindam Chakrabarti: The Case of the Accusative: Contemporary Relevance of Bhartrhari on the Kārakas 447; Vincenzo Vergiani; Bhartrhari on Śesa relationships 459; Yoshie Kobayashi: All Words Denote the Universal (jāti): Bhartrhari's Approach 483; Fernando Tola and Carmen Dragonetti: The Conception of Liṅga in Vākyapadīya III.13 499; Noriyuli Kudo: Some Remarks on the Term 'vākyabheda' in Bhartrhariās Mahabhāsya-dīpikā 507; Jan E. M. Housen: Bhartrhari as a 'Cognitive Linguist' 523; Ana Agud: Comparing Humboldt and Bhartrhari 545; Yves Ramseier: A Bibliography on Bhartrhari 557; Contributors 613-615.

Digital Quadrivium Project



History of Logic

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Bibliography on Bhartrhari, grammarian-philosopher (Second part)

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1. Coward, Harold G. 1976. *Bhartṛhari*. Boston: Twayne Publishers.

   Contents: About the Author; Preface; Chronology; 1. Bhartrhari in His Own Day 13; 2. The Vakyapadlya's Theory of Language 31; 3. The Yoga Psychology Underlying Bhartrhari's Vakyapadlya 53; 4. Bhartrhari's Dhvani as Central to Indian Aesthetics 80; 5. Yoga in the Vairagya-Sataka of Bhartrhari 95; 6. The Contribution of Bhartrhari 105; Notes and Beferences 125; Selected Bibliography 139; Glossary of Sanskrit Terms 141; Index 147-150.

   "The Vākyapadīya, Bhartṛhari's great work on language and metaphysics, is technical Indian Sanskrit philosophy at its best. I have done my best to make it understandable to the beginning English reader, but have also included in the text the key Sanskrit terms (with translations) since some of these concepts are not always clearly expressible in English. A glossary of Sanskrit terms is provided. All quotations from and references to the Vākyapadīya are based upon K. A. Subramania Iyer's excellent English translation. It should be noted, however, that his numbering of verses is sometimes different from the usual numbering. Bhartrhari's philosophy of language, and the Yoga psychology assumed, is complex and may prove to be heavy going for those not philosophically inclined.

Readers more interested in Bhartrhari's poetry or contribution to Indian aesthetics can safely omit the more difficult parts of Chapters 2 and 3 and go on to Chapter 4. In Chapters 4 and 5, brief summaries or reviews of Bhartṛhari's philosophy and psychology have been included." (from the *Preface*)

2. ———. 1977. "Bhartrhari versus Sankara on the overcoming of error." In *Buddhist Thought and Asian Civilization: Essays in Honor of Herbert V. Guenther on His Sixtieth Birthday*, edited by Kawamura, L. S. and Scott, K., 1-15. Emeryville, Cal.: Dharma Publishing.

3. ———. 1980. *The Sphota Theory of Language: A Philosophical Analysis*. Delhi: Motilal Banarsidass.

   "Sanskrit grammar was an attempt to discipline and explain the behaviour of a spoken language, so that the inner meaning could shine forth unobstructed.

   It was this latter aspect, the perceiving of the intended meaning, that commanded the attention of the Indian philosophers of language. Among the many excellent Indian philosophers of language (e.g. Maṇḍana Miśra, Kumārila, Kauṇḍa Bhaṭṭha, Abhinavagupta, etc.) Bhartṛhari(5) (580 a.d.) consistently ranks as the most important. In Bhartrhari's major work, the Vākyapadīya, the ways in which Indian philosophy conceives the

   outer word form to be united with its inner meaning are discussed.

   Bhartrhari's own position has come to be known as the *Sphoṭa* Theory after the Sanskrit term sphuṭ, which means " to burst forth" or when applied to language "a bursting forth of illumination or insight." V. S. Apte in his Sanskrit-English Dictionary defines sphoṭa as the idea that bursts out or flashes on the mind when a sound is uttered.(*)" (pp. 10-11)

   (5) For a beginner's Introduction see Harold G. Coward, *Bhartṛhari.*

   (*) V. S. Aple, *The Practical Sanskrit-English Dictionary*, p. 1013.

4. ———. 1982. "Time (Kala) in Bhartrhari's "Vakyapadiya"." *Journal of Indian Philosophy* no. 10:277-287.

"Summary and Conclusion.

Behind the discussion of the levels of language in the *Vākyapadīya* is Bhartṛhari's notion of the dynamic limiting function of time (*kālaśakti*). After setting forth the absolute nature of Brahman as being the one eternal essence of word and consciousness Bhartṛhari then introduces the notion of time as the power or means by which this one unchanging absolute (sabdatattva-Brahman) manifests itself as the dynamic diversity mankind experiences as

creation. Time is the creative power of Brahman, and thus is responsible for the birth, death and continuity of everything in the cosmos. Time is one, but when broken or limited into sequences appears as moments or actions. These segments of time are mentally categorized as seconds or minutes. Such limited segments of time are then mentally unified into day, week, month and year. In the same fashion notions of past, present, and future are developed. When time is thought of as an action not yet completed, the notion of the present is established. An action that has been completed is time as past; and an action yet to be completed is time as future. All of ordinary life is sequenced by these three powers of time. Yet all the while, declares Bhartṛhari, there is really no sequence at all. From the ultimate viewpoint all three powers of time are constantly present. Time is One. Although the effects of the three powers of time (i.e., past, present, and future) are mutually contradictory, they function without causing any disorder in the cosmos. They are like three paths on which objects move about without any confusion. Similarities and differences with the Advaita Vedānta, Nyāya-Vaiśeṣika, Sāṅkhya-Yoga and Buddhist views of *Kāla* were briefly explored.

Bhartṛhari enters into this deep discussion of time in relation to the absolute, not as a fascinating metaphysical aside, but to explain how the unitary Word (*Sabda-brahman*) manifests

itself in experience as the diversity of words called language. As a grammarian, he is also providing a metaphysical basis for the experience of the tenses past, present and future in language.

And, it is past and future that have the veiling function of keeping one apart from the absolute eternal present. In religious terms union with the eternal present is union with the Divine, and, for Bhartṛhari, this is the inherent goal toward which all language, all grammar, is reaching." (pp. 285-286)

5. ———. 1982. "The Meaning and Power of *Mantras* in Bhartṛhari's *Vākyapadīya*." *Studies in Religion* no. 11:365-375.

   "Bhartṛhari, the fifth century systematizer of the Grammarian School, presents a philosophy of language which proves helpful in understanding both the factual and the intuitive levels of language. Bhartṛhari's *Vākyapadīya* offers a metaphysical, philosophical, and psychological analysis of language which spans the Vedic through to the Tantric experience of *mantra*. All the views of *mantra* summarized above (including *mantra* as 'meaningful' and *mantra* as 'meaningless') are encompassed by Bhartṛhari within one understanding in which language is seen to function at various levels." (p. 367)

6. ———. 1990. "Derrida and Bhartṛhari's Vākyapadīya on the Origin of Language." *Philosophy East and West* no. 40:3-16.

   Reprinted in H. G. Coward, *Derrida and Indian Philosophy*, Albany: State University of New York Press 1990, pp. 27-48.

   "Professor T. R. V. Murti, in his 1963 presidential address(1) to the Indian Philosophical Congress, presented a challenge to Indian philosophy - a challenge that seems to have fallen on deaf ears. Murti challenged the traditional schools of Indian philosophy to rethink themselves and their relationships with one another from the perspective of language.

   Not only would this breathe fresh air into the stale situation obtaining in Indian philosophy-because the Kantian and Hegelian reinterpretations of basic Indian metaphysics had about run their course - it would also allow a significant engagement between Indian philosophy and the contemporary

Western concern with the philosophy of language. This chapter takes up that challenge by entering a dialogue between traditional Indian philosophy as formulated by Bhartṛhari and the modern Western deconstructionist thought of Jacques Derrida. In approaching this dialogue I will follow the insightful suggestions of Professor Murti as to one point on which this dialogue should be focused, namely, the issue of the origin of language." (pp. 27-28 of the reprint)

(1) T. R. V. Murti, "Some Thoughts on the Indian Philosophy of Language. " Presidential Address to the 37th Session of the Indian Philosophical Congress held in Chandigarh in 1963, and reprinted in *Studies in Indian Thought: The Collected Papers of Professor T. R. V. Murti*, ed. Harold Coward. Delhi: Motilal Banarsidass, 1983, pp. 355-376 .

7. ———. 1991. ""Speech versus Writing" in Derrida and Bhartrhari." *Philosophy East and West* no. 41 (2):141-162.

   Reprinted in H. G. Coward, *Derrida and Indian Philosophy*, Albany: State University of New York Press 1990, pp. 49-79.

   "Both Derrida and Bhartṛhari agree that, since philosophy must be done in language, literary analysis is as important and perhaps more important than logical analysis. As Derrida puts it, philosophers have been able to impose their various conceptual systems only by ignoring or suppressing the disruptive effects of language.(20)

   Bhartṛhari in Vākyapadīya 1 : 14 describes Grammar as the "purifier of all the sciences." It is through the use of correct forms of language-as identified by the Grammarians-that philosophic or any other kind of knowledge can be obtained. Both Bhartṛhari and Derrida break down the barrier between literary criticism and philosophy." (p. 56 of the reprint)

   (20) Christopher Norris, *Deconstruction: Theory and Practice*. London: Methuen, 1982, p. 18.

8. ———. 1994. "Kumārila's theory of word meaning in relation to the sphoṭa theory of Bhartṛhari." In *Studies in Mīmāṃsā, Dr.*

Mandan Mishra Felicitation Volume, edited by Dwivedi, R. C., 215-219. Delhi: Motilal Banarsidass.

"Kumārila of the Mīmāṃsā school and Bhartṛhari of the Grammarian school share many points of agreement with reg:ird to word meaning. Over against schools such as the *Cārvāka, Jaina, Nyāya and Buddhists*, that see the relationship between word and meaning as human-made or conventional, Kumārila and Bhartṛhari agree that the relationship between the word (*śabda*) and its meaning (*artha*) is inborn, eternal and therefore not subject to creation by any person including even God.(1)" (p. 215)

(...)

"Kumārila, arguing against Bhartṛhari, maintains that the word or *śabda*, whether it be the sentence or the individual word, is nothing more than a collection of word-sounds or spoken letters, and it is with this collection alone that the word-meaning is associated. When such a coIIection is brought to the mind of the hearer by the sounds uttered by the speaker, the hearer understands the meaning from the sounds alone. No mystical entity, such as *sphoṭa*, need be postulated at all.(6) According to Bhartṛhari, however, "the essence of the *Sphoṭa* doctrine is the idea that the word, mainly in the form of the sentence and secondarily in the form of the individual word and the phoneme (the articulated letter sound), is an entity over and above the sounds and not a mere collection of them and that it is this entity which is the bearer of the meaning.(7)"

(...)

"The debate between Kumārila and Bhartṛhari as to how words reveal their meaning is clearly summarized in the *Sphoṭasiddhi* of Maṇḍana Misra.(4)" (p. 216)

(...)

"Although Maṇḍana in presenting this debate clearly favours the Grammarian position, a dispassionate reading of the analysis suggests a draw rather than a victory for one side or

the other. Neither Kumārila nor Bhartṛhari solve the question of how words convey meaning on purely logical grounds. Both take recourse to non-logical argument. For Kumārila it is the postulation of *apūrva*, based on the revelation of the Veda, that is found to be necessary for words to convey meaning. For Bhartṛhari it is the postulation of the *sphoṭa*, based on the intuitive experience of the speaker and hearer, that is found to be necessary for words to convey meaning. Both Kumārila and Bhartṛhari ground themselves upon the Vedas and argue that their respective schools provide the true understanding and prescription for life offered by the Vedic revelation." (pp. 218-219, a note omitted)

(1) See the *Śabara Bhāṣya* in Ganganatha Jha, *Purva-Mīmāṃsā in Its Sources* (Varanasi: Banaras Hindu University, 2nd Edition, 1964). p. 98.

(6) *Ślokavārtika* of Kumarilābhatta, trans. by Ganganatha Jha (Calcutta: Asiatic Society of Bengal, 1909), sūtra v, section 12, pp. 261-68. Śaṅkarā offers essentially the same argument against the *Sphoṭa* Theory (see Śaṅkarā 's *Bhāṣya* on the *Brahma Sūtras* 1.3.28).

(7) K.A. Subramania Iyer, 'Introduction' to *Sphoṭasiddhi*, of Maṇḍana Miśra, trans. by K.A.S. Iyer (Poona: Deccan College, 1966), p. 3.

9. Das, Nilanjan. 2022. "Pratibhā, Intuition, and Practical Knowledge." *British Journal for the History of Philosophy*:1-27.

   First online 9 June 2022.

   Abstract: "In Sanskrit philosophy, the closest analogue of intuition is pratibhā. Here, I will focus on the theory of pratibhā offered by the Sanskrit grammarian Bhartṛhari (fifth century CE). On this account, states of pratibhā play two distinct psychological roles. First, they serve as sources of linguistic understanding. They are the states by means of which linguistically competent agents effortlessly understand the meaning of novel sentences. Second, states of pratibhā serve as

sources of practical knowledge. On the basis of such states, both human and non-human agents unreflectively know which actions they should perform under which circumstances. Given these two roles of pratibhā, modern commentators have often claimed that states of pratibhā, as understood by Bhartṛhari, are intuitions. In this article, I will reconstruct Bhartṛhari's view and to explore its consequences, I will argue that, if Bhartṛhari's theory of pratibhā is right, then a form of human exceptionalism – which makes rationality a unique trait of human beings – becomes difficult to maintain."

10. Dash, Narendra Kumar. 1998. Bhartṛhari's Critism [sic] in Jain Logic: a study. 1-9.

    Available on at Jain Quantum.

    "The grammarian-philosopher Bhartṛhari opines that *Sabda* is the substratum of the world of appearance and thus he accepts the theory of *Sabdāvaita*. However this key-stone of the Grammarians' system of Metaphysics has elaborately been controverted by the rival schools. Here we propose to record the dialectics of the Jains Philosophers, one of the rival schools of Metaphysics.

    This theory of Bhartṛhari has been subjected to severe criticism by the Naiyayikas, Mimamsajas, Buddhists and Jains. Now, for our practical purpose we discuss the view of the Jaina logicians like Vidyanandi (9th century A.D.), Abhayadev Suri (11th century A.D.), Prabhacandra (1st half 12th Century A.D.), Vadideva Suri (later half of 12th Century, A.D.) and Shree Yasovijaya jee (18th Century A.D.)." (p. 1)

11. Davis, Lawrence Ward. 1978. *Studies in Bhartrhari's Vakyapadiya*, University of Massachusetts.

    Doctoral dissertation.

    Absract: "Bhartṛhari's *Vākyapadīya* was the work in which the speculations of the Indian Grammarians found their fullest expression. In this dissertation three topics treated in the *Vākyapadīya* are explicated: ākānksā, sphoṭa, and sabda-brahman. A Montague-style categorial grammar for a fragment

of Sanskrit is given to provide an explication of the term ākānksā. The semantics of that fragment is discussed in connection with the concept sphota and it is argued that Bhartrhari's theory of sphota was not the one currently attributed to him by scholars of his work. The concept of sabdabrahman is discussed with reference to two questions: Why did Bhartṛhari think that the study of Grammar leads to salvation, and how can a monistic position be consistently asserted? The formal machinery of the earlier chapters is employed in these discussions. Another concept—that of metalanguage hierarchies—is discussed but the intent is to demonstrate that such hierarchies need not be employed in a formal treatment of Bhartṛhari's work and a different system is given within which such hierarchies may be accommodated without recourse to a different language."

12. Deshpande, Madhav. 1992. "Bhartṛhari (ca. 450—510)." In *Sprachphilosophie / Philosophy of Language / La philosophie du langage. Vol. 1*, edited by Dascal, Marcelo, Gerhardus, Dietfried, Lorenz, Kuno and Meggle, Georg, 269-278. Berlin: Walter de Gruyter.

    1. Introduction 269; 2. Summary of the *Vākyapadīya* 271; 3. Assessment of Bhartṛhari’s contribution to

    philosophy of language 277; 4. Selected references 278.

    "We know from the tradition that a work called *Saṅgraha* by Vyāḍi was the first known massive work devoted to general issues such as the eternal or non-eternal nature of language, and whether a word denoted a universal or a particular. However, this work which existed before Patañjali’s time was soon lost. Among available texts, Bhartṛhari’s *Vākyapadīya* is the very first devoted to a systematic investigation of issues relating to language.

    While many such discussions are scattered in the works of Kātyāyana, Patañjali, Jaimini etc., Bhartṛhari deals with them in a systematic fashion. While he explains hundreds of different theories, there are some theories for which he is particularly well known. Among these, we must include his notion of

Brahman, the ultimate reality, as a language-principle, the evolution of the material world from the *Brahman* being likened to the manifestation of meanings by words.

While this notion existed in a rudimentary form before Bhartṛhari, he presents it in a decisive shape. The second significant contribution of Bhartṛhari is the notion of *sphoṭa*, ›real word‹, being without parts and sequence, and yet being manifested by sounds which appear in a particular sequence. A related notion is that of a sentence being indivisible and its meaning also being indivisible. If the sentence-meaning is indivisible, then it is certainly not understood as a sequence of the constituent word-meanings. Bhartṛhari's notion is that the sentence-meaning is understood in a flash of understanding (*pratibhā*).

While granting this unitary character of a sentence, its meaning etc., Bhartṛhari also admits that subsequent analysis allows us to isolate components of sentences and words, as well as those of sentence-meanings and word-meanings. Such an analytical understanding is valued for theoretical purposes, but one is warned that in the actual linguistic communication in the real world, such analysed entities do not occur." (p. 277)

13. ———. 1998. "Evolution of the Notion of Authority (*Prāmāṇya*) in the Pāṇinian Tradition." *Histoire Épistémologie Langage* no. 20:5-28.

    Abstract: "The Paninian tradition assumes a special structure of authority for the three founding grammarians, i.e. Pânini, Kâtyâyana, and Patanjali. It is assumed that among these founding grammarians, Patanjali has the highest authority. Then comes Kâtyâyana, and then comes Pânini himself. It is also assumed that these three grammarians are sages (*muni*) and hold a special status, while the tradition after Patanjali is believed to fall into decline and does not command the same high authority. This paper traces the historical evolution of these notions. It first points out that Pânini had not deified (or rather muni-fied) the grammarians who are cited in his grammar. Similarly, Pânini himself was not muni-fied by Kâtyâyana and Patanjali. However, they ascribe some special

respect for him, and treat his grammar as being like the Vedas, the scriptures of the Hindus. It is in Bhartrhari's works (500 A.D.) that we see the first signs of muni-fication of the early grammarians and a feeling that contemporary scholars do not have a native command of Sanskrit. In Kaiyata, we have the full statement of authority of the three early grammarians, with indications of Patanjali being considered an incarnation of the snake divinity Sesa. In the works of Nâgesabhatta, we have the full development of these conceptions, with the inspiration for the grammar of Pânini being attributed to Shiva and his grammar acquiring the status of Veda."

14. Desnitskaya, Evgeniya. 2006. "Antinomy of One and Many in Bhartṛhari's Vākyapadīya." *Acta Orientalia Vilnensia* no. 7:209-221.

    Abstract: "Bhartṛhari's *Vākyapadīya* (VP) is notorious for the multiplicity of the mutually exclusive doctrines expounded there, without any final solution. This paper aims to demonstrate that in the case of every controversial question discussed in VP, the variety of views on it can be reduced to a basic antinomy which serves as a kind of proposition for the problem under consideration. These antinomies are sometimes expressed explicitly but very often they are hidden in the text of VP. The fundamental dichotomy is the opposition between pluralism and monism, the origin of which in turn can be traced in the contradiction between the grammatical background and ontological trends of Bhartṛhari's philosophy.

    The way in which Bhartṛhari integrates these extremities into a total system is analyzed in this paper on the basis of some passages, dealing with a certain semantic problem, from the 1st and the 3rd *kāndas* of VP. Attention is focused on the concept of activity and its role in Bhartṛhari's philosophical discourse."

15. ———. 2016. "*Paśyantī, Pratibhā, Sphoţa and Jāti*: Ontology and Epistemology in the Vākyapadīya." *Journal of Indian Philosophy* no. 44:325-335.

    Abstract: "Eli Franco has recently suggested to distinguish the two main periods in the history of Indian philosophy, i.e. the

older ontological and the new epistemological.

In the Vākyapadīya, however, ontology and epistemology are evidently intertwined and interrelated. In this paper ontological and epistemological features of the concepts of *paśyantī, pratibhā, sphoţa* and *jāti* are analyzed in order to demonstrate that all these concepts, while being ontologically different, are engaged in similar epistemological processes, i.e. the cognition of a verbal utterance. Thus the identification of *sphoţa* and *jāti* as well as of *paśyantī* and *pratibhā* met with in some passages of VP and the commentaries implies not the absolute identity of these concepts, but only their overlapping in the sphere of epistemology. Considering concepts of different origin in one epistemological perspective enables to escape controversies in interpretation and provides a kind of consistency in a bit but amorphous work of Bhartṛhari."

References

Franco, E. (2013). On the periodization and historiography of Indian Philosophy. In E. Franco (Ed.). Periodization and historiography of Indian Philosophy (pp. 1–34). Verein “Sammlung de Nobili, Arbeitsgemeinschaft fŭr Indologie und Religionsforschung”, Institut för Sŭdasien-, Tibet-und Buddhismuskunde der Universität Wien.

16. ———. 2018. "Bhartrhari's Perspectivism as a Philosophical Strategy: Its Origins and Possible Interpretations." *Advances in Social Science, Education and Humanities Research* no. 233:9-11.

Abstract: "The 'Vakyapadiya' of Bhartṛhari, the famous Indian linguistic philosopher (5th CE), presents many different, often mutually exclusive, views on language and its relationship with cognitive processes and extra-linguistic relation. Modern scholars designate this methodological approach as perspectivism. This paper provides the analysis of perspectivism as a philosophical strategy. Two general features of Bhartṛhari's perspectivism have been identified, namely the functional attitude and the idea of the relative incompleteness of every single doctrine. The origin of both features has been

traced in the works of the ancient grammarians as well as in the earlier Brahmanic texts."

17. ———. 2018. "Language and Extra-linguistic Reality in Bhartṛhari's Vākyapadīya." *Sophia* no. 57:643-659.

    Abstract: "Relation between language and extra-linguistic reality is an important problem of Bhartṛhari's linguistic philosophy. In the 'Vākyapadīya,' [VP] this problem is discussed several times, but in accordance with the general perspectivist trend of Bhartṛhari's philosophy each time it is framed through different concepts and different solutions are provided. In this essay, an attempt is undertaken to summarize the variety of different and mutually exclusive views on language and extra-linguistic reality in VP and to formulate the hidden presuppositions on which the actual viewpoints expressed in the *kārikās* are based. As a result, the following approaches are formulated: (A1) Language is coextensive with external reality. (A2a) Language, designated as *kalpanā/vikalpa,* is distinct from reality. (A2b) Language refers to the secondary/metaphorical reality (*upacārasattā/aupacārikī sattā*). (A3) Language and reality somehow correlate, because otherwise, practical/linguistic activity (*vyavahāra*) would be impossible. The origin of these approaches and their affinities with different schools of Indian philosophy (Nyāya-Vaiśeṣika and Buddhist Pramāṇavāda) are examined. Approach (A3), according to which correlation between language and reality is functional and not ontological, seems very close to Dharmakīrti's concept of *arthakriyā*. This approach accords with Bhartṛhari's perspectivist philosophical strategy. It enabled him to explain how effective linguistic activity is possible, capturing language in its dynamic aspect, without limitative static ontological constructions."

18. ———. 2021. "Atman as Substance in the *Vākyapadīya* and Beyond." *Philosophy East & West*:287-308.

    "The "Dravyasamuddeśa" is a chapter of Bhartṛhari's *Vākyapadīya* (VP) that considers substance (*dravya*) to be the referent of all words and the ultimate essence of all phenomena. In the first *kārikā* of this chapter (VP 3.2.1)

Bhartṛhari lists several synonyms of *dravya*, with *Ātman* being the first among them. It follows from Helārāja's commentary that each member of this list is the central concept of some philosophical tradition—*Ātma*n in particular belongs to the Advaitavādins. Being a traditional commentator, Helārāja could not have cared less for the chronology, but approaching his explanation critically one may wonder what particular form of Advaita he might have in mind and whether Bhartṛhari, who flourished circa the fifth century C.E., could have been familiar with this teaching. Moreover, there is another question that may arise with respect to this *kārikā* and Helārāja's explanation: what generally is the reason to identify *Ātman* with substance?"

(...)

"The present essay attempts to clarify the meaning of this doctrine and the possible reasons for it to appear. An attempt is also made to trace possible origins of this doctrine in the tradition prior to Bhartṛhari. In what follows, I will dwell, first, on the immediate context of *kārikā* 3.2.1. Second, I will focus attention on the concepts of *dravya* and *Ātman* as they appear in the VP and in some earlier works, namely in the *Mahābhāṣya*, in the Upaniṣads, and in some other works. Finally, I will analyze possible reasons for *dravya* and *Ātman* to be equated, arguing that the clay or gold analogy widely used in different texts can be considered a clue to this equation." (pp. 287-288)

19. Devi, Shantipriya. 2020. "Transmission of Language in the Metaphysical Framework of Bhartṛhari." *International Journal of Trend in Scientific Research and Development (IJTSRD)* no. 4:386-387.

Abstract: "As the traditional texts have shown many lights on the theory of language, the Vedas have shown the path to a large extent. The people started communicating with each other and it became the medium of expression. When language started then systematization started slowly and grammatical treatises became possible and were made available through transmission. In the grammatical tradition Bhartṛhari became

the champion in analyzing the metaphysical framework of it in detail. The paper discusses that very aspect here."

20. Dobre, Florina. 2007. "The Sphoṭa Theory of the Indian Grammarians and Structural Linguistics Theories." In *Proceedings of the International symposium, University of Valahia, Targoviste, 3-4 november 2006*, 1-9. Targoviste: Valhai University Press.

    "The sphoṭa theory is a rather wide topic of discussion among the Indian linguistics theories given its role on both the phonetic as well as the semantic plan of language. In this paper, I do not plan to take care of all aspects of the theory but rather focus on certain similarities and disagreements between the Indian grammarians' theories on sphoṭa and some interpretations of the linguistic sign as envisaged by the structural linguistics schools of Saussure and Hjelmslev.

    The sphoṭa doctrine is generally considered as one of the most important contributions of the old Indian grammarians to the central problem of general linguistic as well as philosophy of language(1). According to it, the word or the sentence when taken as an indivisible meaning-unit is the sphoṭa. It's not certain whether Pāṇini knew the term in its full complexity, but in the sūtra 6.1.123 "avaṅ sphoṭāyanasya”(2) of the *Aṣṭādhyāyī* he refers an early grammarian called Sphoṭāyana. The later grammarians such as the 10th century Harādātta or the 16th century Nāgeśa Bhaṭṭa are of the opinion that this Sphoṭāyana fathered the doctrine. On the other hand, Yāska(3) who is generally placed one century earlier than Pāṇini holds that another grammarian Audumbarāyaṇa is the forerunner of the sphoṭa theory." (p. 1)

    (1) B.K. Matilal, *The Word and the World. India’s Contribution to the Study of Language*, Delhi: Oxford University Press, 1990.1989, p. 77.

    (2) Pā 6.1.123: avaṅ sphoṭāyanasya "According to the opinion of Sphoṭāyana, there is a substitution of avaṅ for the *o* of *go* when it is follwed by any vowel”.

(3) The Nighaṇṭu and the Nirukta of Yāska., I.1-2, 1998, p. 29.

21. Dravid, Raja Ram. 1972. *The Problem of Universals in Indian Philosophy*. Delhi: Motilal Banarsidass.

    Chapter IX: *The Grammarian's view of word and meaning*, pp. 209-263.

    "The Grammarian has made significant contribution to the study of word and meaning. Our discussion of the Grammarian's view would be based mainly on Bhartṛhari's Vākyapadīya and the commentaries thereon by the author himself, Puṇyāraja and Helārāja. It is necessary to state at the very outset that the philosophical standpoint of the Grammarian is absolutistic. The ultimate reality (Brahman), as Bhartṛhari describes it, is of the nature of the word; it is without beginning or end, it is the cause of the manifested phonemes, it is what appears as the objects, and it is from which the creation of the world proceeds. The word-Absolute

    is said to have dual aspects of unity (vydiā) and diversity (avydiā), but, of these, the former alone is real, while the latter is merely apparent. In itself the Word-Absolute is undifferentiated, but due to the power of *nescience* it appears as diverse.

    Thus, the world of objects, according to the Grammarian, is nothing but the appearance of the Absolute Word." (p. 209, note omitted)

22. Dwivedi, Prabha Shankar. 2016. "Signification and Resolution of Absolute in a Textual Structure: A Study in Relation to Bhartṛhari and Jacques Lacan." *Journal of Comparative Literature and Aesthetics* no. 39:123-133.

    Abstract: "This paper intends to explore affinity and interface between Indian and Western concepts of the signification and configuration of meaning in conceptual forms by focusing the attention on Bhartṛhari (Indian Grammarian, Linguist and Philosopher of c. 5th Century A.D.) and Jacques Lacan (A French psychoanalyst and early Poststructuralist critic). This comparative study of historically and culturally wide apart

Indian and Western epistemology and linguistics aims to provide exegesis to those unearthed concepts, which could only be explained in relation to each other. Both, Bhartṛhari and Lacan confer the ultimate eminence to language, according to them the governing power of the whole world is contained in language/word/*śabda*. Bhartṛhari concedes śabda to be a seed of the entire universe, everything evolves from it. It is this śabda that expresses itself in all the forms; all the three states of *bhoktā* (enjoyer), bokta (enjoyed) and *bhoga* (enjoyment) are its varied manifestations. As per Bhartṛhari, who considers it Brahman, it is this śabda Brahman that prevails everywhere. It simultaneously is the cause of reality and illusion in one and the same thing. Lacan, like Bhartṛhari, has full faith over the power of language which in itself sufficiently deals with all the transactions of the world and proffers it its immediate existence which particularly by human beings is viewed as organized, systematic, coherent and to a large extent real.

(...)

The paper concludes as Bhartṛharian ideas/expositions present in the *Vākyapadīyam*, unequivocally, have the universal appeal and extant acceptance irrespective of physical limitations, spatial contexts and temporal boundaries; that is why his stand in respect of language studies precedes all the major theoreticians in the field regardless of cultural and historical variations."

23. ———. 2017. "Thinking Dialectically on Indian Tradition of Knowledge and Western Knowledge System with Special Reference to Bhartrhari and Saussure." *Litterit*:133-143.

    Abstract: "This paper aims at the dialectical study of Indian and Western traditions of knowledge with special reference to Bhartṛharian philosophy of language and Saussure's conception of linguistics. Philosophico-linguistic study of both the systems of knowledge leads the researcher to a point where postulation of one is clearly perceived to be corresponding with the other. Opinions of the scholars in language study won"t be divided on the fact that Saussure's theory of language and meaning was much influenced with his study of Sanskrit grammar and

linguistic philosophy propounded and taken forward by Pāṇinian school and particulaly by Bhartṛhari, which the present paper supports with textual evidences. Both Bhartṛhari and Saussure consider meaning to be the result of the interplay of relations among individual linguistic units in a structure of the system of language.

This paper also uncovers the conceptual growth of the idea establishing the structural notion of language in respect of configuration of meaning through constitutive linguistic units. Bhartṛhari in his *Vākyapadīyam* deals with many ground-breaking linguistic facts in which the idea of language as structure is centrally located. Both, Bhartṛhari and Saussure consider meaning to be the result of the interplay of relations among individual linguistic units in a structure of the system of language. The paper also gives a detailed account of how Saussure's thought the founding-stone of structuralism, pre-figure in those of Bhartṛhari"s pronouncements in his monumental treatise, the *Vākyapadīyam*."

24. ———. 2019. *Bhartṛhari, Structuralism and Poststructuralism*. Delhi: Motilal Banarsidass.

Contents: Preface VII; 1. Vâkyapadîya and (Post)Structuralism 1; 2. Bhartṛhari and Saussure 33; 3. Bhartṛhari and Derrida 77; 4. Bhartṛhari and Lacan 117; 5. Conclusion 149; Appendix 169; Bibliography 175; Index 185-188.

"The convergence of content into being is actually the consequence of the contextual value inscription, which supposedly commences after the valid permutations, authorised by the existing rules and laws of the language in the construction of a textual structure. In a textual form, value is not generated; instead it is configured for having been due upon varied contextual conditions, as in different contexts and relational associations, a linguistic unit hardly stands for the same meaning. That is why, Ferdinand de Saussure observes it to be arbitrary, and Bhartṛhari considers smaller units as 'unreal' before the structure obtained by the authorized permutations of the contents, which for the similar reasons is

viewed as 'erratic' and 'unreal' by Jacques Derrida and Jacques Lacan. But these poststructuralist theoreticians vary from Bhartṛhari in the final resolution of this semantic event, where for Bhartṛhari the forms/structures consecutively emerged bear meanings, and if the event continues, the finally obtained value would be considered 'real' against the forms obtained at different steps. This state, which in Bhartṛhari, is being addressed as final, never arrives in Derrida, and even for that matter in Lacan. Both the theoreticians view the whole process as a chain of endless signification, where each content is constitutive of some other content, and thus, the process attains a state of infinity. Here, the value obtained, being aberration leads to another value, which further directs to some other, and in this way a constant event of perpetual postponement of meaning begins, not to be resolved at any point, while structuralism, like Bhartṛhari, always procures a meaning that can be considered to be final by the authority of the logos, where the process of signification may end for the given conceptual form. In the subsequent pages of the present book, an effort has been made to comprehend the nature of meaning as it is obtained in the views expressed by Bhartṛhari, and European structuralist and poststructuralist theorists so as to establish the nature of affinity between discursive formation inherent upon Indian and Western traditions of thought." (from the *Preface*)

25. Ferrante, Marco. 2013. "Vṛṣabhadeva's Sphuṭākṣarā on Bhartṛhari's Metaphysics: Commentarial Strategy and New Interpretations." *Journal of Indian Philosophy* no. 41:133-149.

    Abstract: "Although somewhat neglected in the scholarly debate, Vṛṣabhadeva's commentary (known as *Sphuṭākṣarā* or *Paddhati,* possibly 8th c. CE) on Vākyapadīya's first chapter, offers a remarkable analysis of Bhartṛhari's views on metaphysics and philosophy of language. Vākyapadīya's first four *kārikās* deal with ontological issues, defining the key elements of Bhartṛhari's non-dualistic edifice such as the properties of the unitary principle, its powers, the role of time and the ontological status of worldly objects. Vṛṣabhadeva's

interpretation of the *kārikās* in question is intriguing and seems to be guided by the urgency to find a solution to the riddle which every non-dualistic theory has to face: how is it possible to postulate a unitary principle of reality when reality is cognized as multiple? In accomplishing the task Vṛṣabhadeva proposes various solutions (some of them based on concepts which are hardly detectable in Vākyapadīya and appear close to the ones propounded in certain trends of Advaita Vedānta), finally suggesting an explanation which, focusing on the pragmatic aspect of language, is altogether consistent with Bhartṛhari's theoretical picture."

26. ———. 2014. "How ro Obtain Salvation Through Language? Bhartṛhari on *śabdapūrvayoga*." *Rivista di Studi Orientali* no. 87 - Supplemento n* 2:161-176.

    Abstract: "Bhartṛhari's *Vākyapadīya* (5th century AD) is a seminal work in the history of Sanskrit grammatical tradition. It offers an original blending of linguistic and philosophical ideas that will have a strong impact in the ensuing history of Indian speculation. Among other issues, the work endorses the idea that language is capable to bring about spiritual consequences that goes far beyond the boundaries of the ordinary experience. In a nutshell, language has a soteriological import. In particular the article deals with a puzzling expression contained in the first chapter of the work — *śabdapūrvayoga* — which seems to embody Bhartṛhari’s peculiar conception of language as a tool for obtaining “salvation”."

27. ———. 2015. "Vṛṣabhadeva on the Status of Ordinary Phenomena: Between Bhartṛhari and Advaita Vedānta." *Journal of Indian Philosophy* no. 43:61-83.

    Abstract: "Vṛṣabhadeva’s *Sphuṭākṣarā,* a commentary on the first chapter of Bhartṛhari's *Vākyapadīya* and its *Vṛtti*, offers a peculiar interpretation of the monistic ideas exposed at the beginning of the *mūla* text. The reflection on the status of ordinary reality and its relation with the unitary metaphysical principle is particularly interesting. Although according to

Bhartṛhari's perspective the entities of the world are real, the *Sphuṭākṣarā* offers a more intricate picture in which different degrees of reality seem involved. Furthermore, the author adopts hermeneutical tools that are unusual in Bhartṛhari's texts, and comparable to those of Advaita Vedānta. In particular, the article will deal with Vṛṣabhadeva's use of the notion of 'inexpressibility' (*anirvacanīyatva*), as well as with other concepts which are typical of the scholastic phase of Advaita. In discussing these affinities the paper will also touch upon the problem of Vṛṣabhadeva's historical collocation."

28. ———. 2017. "Studies on Bhartṛhari and the Pratyabhijñā: The Case of *svasaṃvedana*." *Religions* no. 8:1-25.

    Abstract: "The article addresses a critical problem in the history of South Asian philosophy, namely the nature of the 'knowledge of knowledge' (*svasaṃvedana*). In particular, it investigates how the ´Saiva tantric school of the Pratyabhijñā (10th–11th c. CE) used the notion as an argument against the Buddhists' ideas on the nature of the self. The paper then considers the possibility that the source of the ´Saivas' discussion was the work of the philosopher/grammarian Bhartṛhari (5th c. CE)."

29. ———. 2017. "Bhartṛhari and verbal testimony: a 'hyper-antireductionist' approach?" *Kervan – International Journal of Afro-Asiatic Studies* no. 21:227-246.

    Abstract: "The grammarian and philosopher Bhartṛhari (5th. c. CE) developed a philosophy that is essentially characterized by the prominent role language has in structuring humans' efforts to cope with reality. Within this broader picture, he adopted an epistemological standpoint that was somehow at odds with the standard view of other South Asian thinkers, usually founded on a careful and systematic distinction of the means able to lead to a reliable cognitive event (technically called pramāṇas). Bhartṛhari claimed that such an interpretation is rather artificial, and that a cognition is actually a multifaceted process, whose single components are almost always hard to pinpoint. His main theoretical contribution consists of affirming that

such a multifaceted cognitive act is informed and shaped by language.

The article deals with Bhartṛhari's epistemology by discussing the author's opinion on the nature of testimony. Furthermore, it addresses the question whether pure inference should always be regarded as an accurate way of acquiring knowledge."

30. ———. 2020. "Studies on Bhartṛhari and the Pratyabhijñā: Language, Knowledge and Consciousness." *Journal of Indian Philosophy*:147-159.

    Abstract. "The article examines the impact the grammarian/philosopher Bhartṛhari (460–510) had on the way the 'School of Recognition' (Pratyabhijñā, tenth/eleventh c. CE) elaborated the notion that knowledge and consciousness have a close relationship with language. The paper first lays out Bhartṛhari's ideas, showing that his theses are rationally defensible and philosophically refined. More specifically, it claims that the grammarian is defending a view which is in many respects similar to 'higher-order theories' of consciousness advanced by some contemporary philosophers of mind. In the second part, the paper shows how Utpaladeva and Abhinavagupta adopted Bhartṛhari's scheme without significant alteration."

31. ———. 2020. "The Place of Language in the Philosophy of the Recognition." In *The Bloomsbury Research Handbook of Indian Philosophy of Language*, edited by Graheli, Alessandro, 135-149. New York: Bloomsbury.

    § 4. *The Influence of Bhartṛhari and Pratyabhijñā's Innovations*, p. 142.

    "Bhartṛhari's discussion of the issue [the necessary relationship that obtains between knowledge and language] takes place around a well-known stanza of his Vākyapadīya (VP), the one in which the author claims that language pervades all knowledge. (20) In regard to this, Bhartṛhari holds that the criterion of veridical cognition is causal efficiency.(21)

He maintains that there is no knowledge without a cognitive synthesis that binds together nonconscious cognitions, and that this higher order cognitive synthesis is conceptual and linguistic.(22)" (p. 142, sanskrit in the notes omitted)

(20) 20 VP, 1.131: “In the world there is no cognition without the pervasion of language. All knowledge shines as if pierced by language.”

(21) VP, 1.129: “In the world all that is required to be done is dependent on language. A child too understands it on the basis of the traces of previous births.” See *Vākyapadīya-Vṛtti* on 1.131: “Just like one has a verbal potentiality in a contracted form, similarly no effect is produced by indeterminate knowledge, even if it arises in relation with objects that are [already] known.” And finally VP, 1.135: “Language urges all creatures towards successful activities. If it were to disappear, all this world would appear as unconscious as a piece of wood.”

(22) *Vṛtti* on VP, 1.132: “If knowledge were not by nature linguistic, that very vague cognition that has been produced, being unable to contribute to another cognition, would not function as a means to accomplish the action of knowing. In fact, once there is a cognition of a bare object, whose different parts are not functional to each other and are mutually independent, immediately after comes a unification, a synthesis, the production of a unitary content, that is, the grasping of conjoined capacities as undifferentiated; all this is connected to the linguistic nature of knowledge.”

32. Gajjam, Jayashree Aanand, Kanojia, Diptesh, and Kulkarni, Malhar. 2018. New Vistas to study Bhartṛhari: Cognitive NLP. *World Sanskrit Conference (WSC 2018)*: 1-19.

    Abstract: "The Sanskrit grammatical tradition which has commenced with Pāṇini’s *Aṣṭādhyāyī* mostly as a *Padaśāstra* has culminated as a *Vākyaśāstra,* at the hands of *Bhartṛhari*. The grammarian-philosopher *Bhartṛhari* and his authoritative work ‘Vākyapadīya’ have been a matter of study for modern scholars, at least for more than 50 years, since Ashok Aklujkar submitted his Ph.D. dissertation at Harvard University.[*] The

notions of a sentence and a word as a meaningful linguistic unit in the language have been a subject matter for the discussion in many works that followed later on. While some scholars have applied philological techniques to critically establish the text of the works of *Bhartṛhari,* some others have devoted themselves to exploring philosophical insights from them. Some others have studied his works from the point of view of modern linguistics, and psychology.

Few others have tried to justify the views by logical discussions.

In this paper, we present a fresh view to study *Bhartṛhari,* and his works, especially the 'Vākyapadīya'. This view is from the field of Natural Language Processing (NLP), more specifically, what is called as Cognitive NLP. We have studied the definitions of a sentence given by Bhartṛhari at the beginning of the second chapter of 'Vākyapadīya'. We have researched one of these definitions by conducting an experiment and following the methodology of silent-reading of Sanskrit paragraphs. We collect the Gaze-behavior data of participants and analyze it to understand the underlying comprehension procedure in the human mind and present our results. We evaluate the statistical significance of our results using T-test, and discuss the caveats of our work. We also present some general remarks on this experiment and usefulness of this method for gaining more insights in the work of *Bhartṛhari*."

[*] Ashok Aklujkar, *The philosophy of Bhartṛhari's Trikāṇḍī*, unpublished dissertation, Harvard Univesity, 1970.

33. Gajjam, Jayashree Aanand, and Kulkarni, Malhar. 2019. A Novel Outlook for Studying 'Vakyapadiya': A point of Departure. In *Proceedings of Academics World 106th International Conference, Pune, India, 24th - 25th November, 2018*.

    Abstract: "The 'Vākyapadīya' written by ancient Indian grammarian-philosopher Bhartṛhari in the fifth century CE ranks among the principal authoritative works in Sanskrit Grammar. This phenomenal text has been the topic of research for various grammarians, philosophers, philologists, and

linguists since then. While various modern scholars have applied different methods to critically examine the theories stated in the ‘Vākyapadīya’, we propose a novel approach to study them i.e. psycholinguistics perspective. We present the theoretical discussion of the sentence-definitions given in the ‘Vākyapadīya’ along with the experimental design for each of them to analyze them from a cognitive point of view. This preliminary work is the first of its kind of work in Sanskrit grammar and can be considered as a bridge which brings two disciplines together i.e. Sanskrit grammar and the psycholinguistics. The approach in this paper is to provide a point of departure for the researchers working in these two fields. We also present guidelines for the experimental procedure and the methodology that is to be followed. We discuss the caveats of this work and suggest possible future work."

34. Ganguli, Hemanta Kuma. 1963. *Philosophy of Logical Construction: An Examination of Logical Atomism and Logical Positivism in the Light of the Philosophies of Bhartṛhari, Dharmakīrti and Prajñākaragupta*. Calcutta: Sanskrit Pustak Bhandar.

    "The author of the present treatise has tried to view the matter from a new angle of vision. It is perhaps the first attempt of its kind to examine some fundamental tenets of modern positivism in the light of some systems of ancient Indian Philosophy. Bhartṛhari was the greatest theoretician of Nominalistic Idealism as it is understood in Indian Philosophy, and Dharmakīrti the most formidable figure of Yogacara Buddhism, along with his most competent commentator Prajñākaragupta, was perhaps more enthusiastic about the status of the 'pure given' than many among the modern positivists.

    Without entertaining any mission for murdering metaphysics, but with an unsurpassed zeal for hair-splitting analysis, they discussed some basic problems which are still plaguing the minds of the modern positivists, such as, the relation between language and reality, the role of language in shaping human

knowledge, the nature of logical fictions, the status of meaning, the essence of the 'given' and the possibility of its representation in language, and lastly, the problem of verification and contradiction.

They reached their respective conclusions which received from them a full-throated declaration, but which might have also been announced by the modern positivists had they been less afraid of being called metaphysicians or subjective idealists. These ancient philosophers might have been right or wrong, but they were at least more consistent than most of the modern positivists. This is the matter in the main that I have attempted to show in this book." (*Introduction*, pp. IV-V)

35. Haag-Bernede, Pascale. 2001. "Conflicting Views in the Interpretation of Bhartṛhari? The Case of *Madhyamapurusa* in the *Vākyapadīya*." *Annals of the Bhandarkar Oriental Research Institute* no. 82:233-242.

"This paper aims to draw attention to a problem of interpretation in the *Purusasamuddeśa* (PS), which is the 10th chapter of the *Praklrnakanda*, the third part of the Vākyapadīya (VP). This *samuddeśa* is one of the shortest chapters of the whole work, as it contains only nine *kãrikãs*. The PS can be divided into three parts: the first three *kãrikãs* deal with the meanings of the three persons (*prathama*, *madhyama* and *uttamapuruṣa*). The first *kãrikã* establishes that *uttamapuruṣa* expresses the state of *pratyañc*, that is to say, according to Helārāja's commentary, the ego-sense, or the individual soul. *Madhyamapuruṣa* expresses the state of being different from that *pratyañc* (*parabhāva*). The second and third *kãrikãs* state that these two persons alone are able to convey the meaning of *caitanya*, "consciousness", whereas *prathamapuruṣa* in the remaining cases (i.e. when the meaning of *caitanya* by the verbal-ending). The second part is devoted to one special feature of the second person: some hold that the sense of (*sambodhana*) is always understood when the verbal-is used. This question is discussed in three *kãrikãs* (be dealt with in the present paper. The third part of the last three *kãrikãs*, does not actually concern the but constitutes a general

statement about the interpretation rules. The above mentioned problem lies in the last *kãrikã* section, which I find difficult to interpret: it appears the quotation of another view by Bhartṛhari, or his refutation view." (pp. 233-234, notes omitted)

36. Halbfass, Wilhelm. 1991. *Tradition and Reflection: Explorations in Indian Thought*. Albany: State University of New York Press.

    Chapter 2: *The Presence of the Veda in Indian Philosophical Reflection,* pp. 23-50 (On Bhartṛhari pp. 37-41).

    Chapter 3: *Vedic Orthodoxy and the Plurality of Religious Traditions*, pp. 51-85 (On Bhartṛhari pp. 59-66).

37. Hattori, Maasaki. 1980. "Apoha and Pratibhā." In *Sanskrit and Indian Studies: Essays in Honour of Daniel H.H. Ingalls*, edited by Nagatomi, M., Matilal, Bimal Krishna, Masson, J. M. and Dimock Jr., E. C., 61-73. Dordrecht: Reidel.

    "The apoha-theory which aroused much controversy concerning the meaning of the word among the Indian philosophers in the classical period was first expounded by Dignāga in his Pramāṇasamuccaya. The fifth chapter of this comprehensive work, which is devoted to the elucidation of the apoha theory, begins with the following verse [*Sanskrit omitted*]:(1)

    That [means of cognition] which is based on word is not an [independent] means of cognition other than inference. Because [the word as the basis of] it expresses its own object through the exclusion of the other [things], just as [the inferential mark] '*krtakatva*' or the like [establishes the object to be proved through the exclusion of what is not a possessor of that inferential mark].

    As is clear in this verse, the function of a word is recognized by Dignāga as identical with the function of a *linga* (inferential mark) in the process of inference." (p. 61)

    (...)

"It is to be noted that pratibhd is recognized in this statement as the meaning of the sentence. The concept of pratibhd is of great importance in the philosophy of word and meaning of the grammarian-philosopher Bhartṛhari.

In the Vākyakāṇḍa of the Vākyapadīya, Bhartṛhari sets forth his doctrine of pratibhā in some verses, beginning with: [*Sanskrit omitted*](8)

When the meanings [of the words in a sentence] are understood by separating [the words from the sentence], there arises pratibhā which is different [from the meanings of the words]' That [pratibhā] effected by the meanings of the words is called the meaning of the sentence." (p. 63)

(1) PS: *Pramāṇasamuccaya*, V, k. 1, cited in TSP: *Tattvasamgrahapaṇjikā* (Bauddha Bharati Ser., 1), p. 539.17-18.

(8) VP: *Vākyapadīya*, II. 143. The verse number of VP is given in accordance with M. Biardeau, *Vākyapadīya Brahmakāṇḍa, avec la vṛitti de Harivṛṣabha,* Paris 1964 for I (*Brahmakāṇḍa*) and with K.V. Abhyankar and V.P. Limaye (ed.), *Vākyapadīya* of Bhartṛhari, Poona 1965 for II *(Vākyakāṇḍa*). The doctrine of pratibhā is expounded in VP, 11.143-152. Cf. also ibid., I.118, II.117, etc.

38. Herzberger, Hans Georg, and Herzberger, Radikha. 1981. "Bhartṛhari's Paradox." *Journal of Indian Philosophy* no. 9:1-17.

Reprinted in Roy W. Perrett (ed.), *Indian Philosophy. A Collection of Readings: Vol. 2. Logic and Philosophy of Language*, New York: Routledge 2001, pp. 311-327.

"Assuming that many things in our experience and in the world can be named, one may consider whether there are any limits to this process, and whether there are any things which cannot be named. This was a standing question in traditional Indian philosophy, with some schools of thought affirming that everything could be named while others denied it. The

affirmative position was especially characteristic of the Nyaya-Vai§esika school:(1)

"Naiyāyikās are fond of a saying, which is sometimes found at the head of their works: whatever is, is knowable and nameable".

The negative position was characteristic of the Buddhist philosophers and may have been held by others as well. In its most general terms it may be formulated by an existential statement:

Unnameability Thesis: There are some things which are unnameable.

While it may be surprising and to some extent counter to commonsense, this unnameability thesis belongs to the theory of language and should be subject to rational inquiry. But perplexities arise as soon as one tries to verify it by positive instances, for any positive instance of the unnameability thesis seems bound to name that which it declares to be unnameable. This is the problem we call "Bhartṛhari's paradox", after the fifth century grammarian and philosopher of language, who clearly enunciated it in his *Vākyapadīya*." (p. 311 of the reprint)

(1) See K. Potter, 1977, p. 48. Further discussion is to be found in K. Potter, 1968, which also describes a contradiction having some affinity with Bhartṛhari's paradox, but arising within a rather different philosophical context.

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Potter, Karl (1977). *Encyclopedia of Indian Philosophies*. Volume 2 (Princeton

39. Herzberger, Radhika. 1986. *Bhartṛhari and the Buddhists: An Essay in the Development of Fifth and Sixth Century Indian*

Thought. Dordrecht: Reidel.

"The Vākyapadīya of Bhartṛhari and the Pramāṇasamuccaya of Dignāga(*) are seminal texts in the history of ancient Indian philosophy. One text deals with grammar, the other with logic, both are the work of committed metaphysicians. Written within a span of less than a hundred years, between the fifth and the sixth centuries A.D., these texts have generally been treated separately, as representing independent schools of thought.

This essay attempts to interpret these texts jointly, as a dialogue between a grammarian and a logician. This way of approaching these texts highlights unexpected facets of Bhartṛhari and Dignāga's theories of language and is intended to identify the individual achievements of each. Above all, this treatment is an exercise in writing the intellectual history of a period in time, rather than a history of a school of philosophy.

The prevailing view of Bhartṛhari holds that his linguistic techniques are not intrinsic to his metaphysics. The conclusions reached in the present essay are that Bhartṛhari's metaphysics underlie his linguistic techniques and articulate their presuppositions.

The prevailing view of Dignāga maintains that for him language deals with illusory entities and must falsify what is real. The conclusions reached in the present essay are that Dignāga's logical rules are designed to ensure that in using language one is not committed to a belief in fictional entities." (from the *Preface,* p. IX)

(*) *Note*: I follow the current practice of spelling the logician's name Dignāga rather than Dinnāga.

40. ———. 1986. "Apoha and Śimśapāvrksa." In *Buddhist Logic and Epistemology: Studies in the Buddhist Analysis of Inference and Language*, edited by Matilal, Bimal Krishna and Evans, Robert D., 143-169. Dordrecht: Reidel.

"... I shall try in the course of this paper to identify the philosophical problems that Dinnaga's *apoha* doctrines were designed to solve, and to locate the problem so identified within

a historical frame of reference; a part of my overall concern will be to articulate the relevant philosophical issues in universally recognizable terms.

The major theories regarding names can be identified as predating Dinnaga's writings on *apoha*: the first can be traced to Bhartṛhari, a philosophical grammarian belonging to the fifth century A.D. whose name ancient tradition associated with that of a celebrated poet: the second is attributed to Katyāyana, a grammarian who belonged to the second or third century B.C. My attempt in this paper will be to find a place for Dinnaga's *apoha* doctrines within the tensions arising between Bhartṛhar's and Katyāyana's theories." (p. 143)

41. Ho, Chien-hsing. 2006. "Saying the Unsayable." *Philosophy East and West* no. 56:409-427.

    Abstract: "A number of traditional philosophers and religious thinkers advocated an ineffability thesis to the effect that the ultimate reality cannot be expressed as it truly is by human concepts and words. However, if X is ineffable, the question arises as to how words can be used to gesture toward it. We can't even say that X is unsayable, because in doing so, we would have made it sayable. In this article, I examine the solution offered by the fifth-century Indian grammarian-philosopher Bhartrhari and develop it into a linguistic strategy based on the imposition-cum-negation method. The purpose is to show how we can non-contradictorily say, or rather indicate, the unsayable."

42. Ho, Cheh-hsing. 2014. "Meaning, Understanding, and Knowing-what: An Indian Grammarian Notion of Intuition (*Pratibhā*)." *Philosophy East and West* no. 64:404-424.

    "For Bhartṛhari, a fifth-century philosopher of the Indian Grammarian (Vaiyākaraṇika) school, all conscious beings — beasts, birds and humans — are capable of what he called *pratibhā*, a flash of indescribable intuitive understanding such that one knows what the present object “means” and what to do with it. Contemporary scholars writing on pratibhā generally translate the Sanskrit term as “intuition,” not in the sense

understood by many analytical philosophers as an a priori judgment appealed to in thought experiments to test philosophical hypotheses, but in the sense of a spontaneously arising awareness that is immediate, reliable, indescribable, and pregnant with meaning. Significantly, our instantaneous understanding of a sentence or complete utterance already counts as an instance of pratibhā. Given that to understand a sentence is to know its meaning, such an understanding, if correct, amounts to a mode of knowing that may best be termed knowing-what, to distinguish it from both knowing-that and knowing-how.

This essay attempts to expound Bhartṛhari's conception of pratibhā in relation to the notions of meaning, understanding, and knowing laid out in his magnum opus, the Vākyapadīya (henceforth VP).(1) The conception is philosophically intriguing and contemporarily relevant. Yet, it has not hitherto been subjected to a systematic analytical philosophical treatment.(2) Here, I hope to fill this lacuna." (p. 404)

(1) For a critical edition of the Sanskrit text of the *Vākyapadīya*, see Rau 1977. Verse numbers in the present article are given according to that edition.

(29 Bhartṛhari's presentation of the topic is laconic and requires hermeneutic elucidation, for which one may refer to Subramania Iyer 1982, Tola and Dragonetti 1990, and Akamatsu 1994. However, the approach of these works is more philological than philosophical. Readers may also consult Coward and Raja 1990 for discussions of the relevant issues in the Grammarian school.

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Coward, Harold G., and K. Kunjunni Raja, eds. 1990. *Encyclopedia of Indian Philosophies*. Vol. 5, *The Philosophy of*

the Grammarians. Princeton, NJ: Princeton University Press.

Rau, Wilhelm, ed. 1977. *Bhartṛharis Vākyapadīya: Die Mūlakārikās nach den Handschriften herausgegeben und mit einem Pāda-Index versehen*. Wiesbaden: Kommissionsverlag Franz Steiner GMBH.

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Tola, Fernando, and Carmen Dragonetti. 1990. “Some Remarks on Bhartṛhari’s Concept of Pratibhā.” *Journal of Indian Philosophy* 18, no. 2 : 95–112.

43. Honda, Yoshichika. 1998. "Bhartrhari on Sentence (*vākya*) and Its Meaning (*vakyārtha*) as *Pratibhā*." *Journal of Indian and Buddhist Studies* no. 46:1033-1044.

"Bhartrhari, a grammarian-philosopher, is well known as the upholder of the view that a sentence is an indivisible unit (*akhandavākyavāda*).

According to him, it is not the word (*pada*) but the sentence (*vākya*) that really conveys the meaning in our verbal communication; the meaning of the sentence (*vākyārtha*) is pratibhā. The word pratibhā is usually rendered as 'intuition', 'flash of insight', 'flash of understanding', 'instinct' and so on. These renderings are not able to give us an accurate understanding of pratibhā; rather, they are very misleading. The pratibhā Bhartrhari considers to be the sentence-meaning is properly the cognition by which all its constituent word-meanings are unified into an integrated whole and in which they are connected with one another through the qualificand-qualifier relation (*viśesanaviśeyabhāva*)." (p. 1044)

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History of Logic

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   "Since J. Brough's article *Theories of General Linguistics in the Sanskrit Grammarians*, TPS, 1951, pp. 27-46 and K. Kunjunni Raja's, *Indian Theories of Meaning*, Madras, 1963, it is habitual in the study and interpretation of the concept of śabda in Bhartṛhari's Vākyapadīya (short: VP) or Trikāṇḍī(1) to refer to de Saussure's theory of the sign, or to use a saussurean terminology(2). But what we still miss is a systematic comparison between the two philosophies of language. In this paper I want to give a small contribution to such a comparison.

   A systematic comparison of Bhartṛhari with especially de Saussure is useful, because de Saussure expresses by way of the *Cours de Linguistique Générale* (Course in General Linguistics) many ideas that still form to a considerable extent the methodological basis of modern linguistics." (p. 119)

   (1) I. Aklujkar, 1969.

   2. Ruegg, 1959: 55-56; Joshi, 1967: 49; Aklujkar; 1970; R. Herzberger; 1986: 10, 21, repeats what Brough has said in this

context.

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Brough, J., «Theories of General Linguistics in the Sanskrit Grammarians», *Transactions of the Philological Society* (1951, 27-46). Also in: Staal: *A reader on the Sanskrit Grammarians* (MIT press, 1972): 402-414.

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2. ———. 1992. "Bhartṛhari's *Samaya* / Helārāja *Samketa*: A Contribution to the Reconstruction of the Grammarians' Discussion with the Vaiśeṣikas on the Relation between 'śabda' and 'artha'." *Journal of Indian Philosophy* no. 20:219-242.

"In the Saṃbandhasamuddeśa (VP book 3, chapter 3) Bhartṛhari uses the word *samaya* in a discussion of the relation between *śabda* (word) and *artha* (meaning or object)(1) (VP 3.3.31cd). It is used by the Vaiśeṣikas and Naiyāyikas to explain that an *artha* is understood from a *śabda*, and it may usually be translated as 'convention'. The relevant sūtra of the Vaiśeṣikas(2) is *sāmayikaḥ śabdād arthapratyayaḥ* according to two of the three main recensions of the *Vaiśeṣika Sūtra* (VS (1) 7.2.24 and (3) 7.2.20) corresponding to *sāmayikaḥ śabdārthapratyayaḥ* in the other recension (VS (2) 7.2.24). Both versions of the sūtra may be translated as: "The

understanding of an *artha* from a *śabda* is based on *samaya*, 'convention'."

(1) The fact that *artha* may mean 'linguistic meaning' as well as 'concrete object' makes it impossible to adopt a single translation for this word. In general, Bhartṛhari and the grammarians would tend to accept *artha* in the first place as 'linguistic meaning' and the Vaiśeṣikas in the first place as a 'concrete object' or 'really existing entity', but for both groups the other meaning cannot be neglected. Similarly, it is not without importance that *śabda* is for the Vaiśeṣikas also 'sound' in general, thought of mainly as a *guna* 'quality' of *ākāśa* 'space' (at least since the classical period inaugurated by Praśastapāda). In the context of language *śabda* may refer to a sentence, a word, or a phoneme. Since the third book of the VP is devoted to problems relating to words and their meanings, the translation 'word' for *śabda* is here quite appropriate.

(2) In the course of this article several ideas will be attributed to the Vaiśeṣikas on the basis of some of their sūtras. Because the origins of the Vaiśeṣika-system and its sūtras are so much shrouded in darkness (e.g. Matilal, 1977: 53—62), this should imply no more than that the Vaiśeṣikas (or some of them) apparently supported these ideas at some stage in their evolution, but in any case at the time of Bhartṛhari's literary activity. It should be noted, however, that the sūtras referred to here do not seem to belong to the oldest kernel of the *Vaiśeṣika Sūtra*. They belong to a passage (sūtras 7.2.14—20 in VS (3)) which looks very much like an insertion, as was already noted by Faddegon, 1918: 29. Faddegon (*loc. cit.*) described the passage as: "Polemics on the relation between word and meaning against the Mīmāṃsākas," and added that "this passage is inserted, in a forced way . . ." Finally, the date of Bhartṛhari ("Bhartṛhari lived no later than the fifth century A.D.", Cardona, 1976: 299) makes it very likely that several important old Vaiśeṣika-texts of which we know only the names (cf. Matilal, 1977: 59—62) were still available to him.

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3. ———. 1993. "Bhartṛhari's Perspectivism (3): on the structure of the third Kāṇḍa of the Vâkyapadîya." *Sambodhi*:1-32.

Abstract: "The present article is part 3 in a series on “perspectivism” in the philosophy of language of the grammarian-philosopher Bhartṛhari (India, early fifth century C.E.). It is part 3 in the sequence in which the series is meant to be read, although it is the one which was published before all others, in 1993, in volume XVIII of the journal *Sambodhi* of the L.D. Institute of Indology, Ahmedabad (edited by J.B. Shah and N.M.Kansara) pertaining to 1992-1993. The discussion in this article is parallel to pp. 81-122 and pp. 132-134 ofThe *Saṁbandha-samuddeśa* (chapter on relation) and Bhartṛhari's philosophy of language (Houben 1995b). Parallel means: the discussion in this article contains less and more, it is more compact and more focused on“perspectivism” as the guiding principle in the structuring of the Third Kāṇḍa of the Vākyapadīya, esp. regarding the 13 Samuddeśas preceding the final Vṛtti-samuddeśa (on the structure of which see pp. 123-131 in Houben 1995b). Other articles in the series of studies on “perspectivism” in the philosopy of language of Bhartṛhari appeared in 1994, 1995 and 1997."

4. ———. 1994. "[Bhartṛhari's Perspectivism (4):] Bhartṛhari's familiarity with Jainism." *Annals of the Bhandarkar Oriental Research Institute* no. 75:1-24.

"In comparison with many authors of Indian philosophical texts, is remarkably non-polemic. His attitude, both in the Mahābhāṣya-Dipikā and in the Vākyapadīya, may be described

not only as 'encyclopedic' in the sense that he seems to be eager to discuss all important views on a certain subject, but also as 'perspectivistic' in the sense that he seems to acknowledge that each view represents a possible and in its own theoretical context valid perspective.(1) Different views are enumerated and contrasted, and sometimes positively or negatively reassessed, but hardly ever fully rejected.(2) Bhartṛhari refers to the different views in a very concise way, and for modern students of his works the precise identity of those who held the views remains often unclear. Of those (apart from grammarians, and authors of Šikṣā and Nirukta) whose views Bhartrhari frequently takes up for discussion, K. A. Subramania Iyer has mentioned Vaiśeṣikas, Mīmāṃsākas, Sāṃkhyas and Buddhists (Iyer, 1969 : 72). Iyer has not mentioned the Jainas, and one may wonder whether they remained outside the scope of Bhartṛhari's encyclopedic approach. This, however, is not the case. Bhartṛhari is aware of Jaina philosophers and refers to them explicitly in at least one place ia the Mahãbhãsya-Dípikã. Other passages in the Mahãbhãsya-Dípikã and Vākyapadīya are remarkably well compatible with Jaina ideas. They may have been intended as references to their views, although their name is not explicitly mentioned." (pp. 1-2)

(...)

"In this paper, without aiming completeness, I will discuss a few indications and possible indications of Bhartṛhari's familiarity with Jainism in the Mahābhāṣya-Dipikā (MBhD) and Vākyapadīya (VP), including two places in VP Kāṇḍa 2 which seem to refer to a technicality in Jainendra-vyākaraṇa. This would show that Bhartṛhari was not only familiar with the Jaina doctrines, but also with their literature in the field of grammar. Finally, in the concluding section I will mention some possible implications of Bhartṛhari's familiarity with Jainism for our understanding of Bhartṛhari's perspectivism and his philosophy of language."

1 See my article, "Bhartṛhari's Perspectivism (1) : The Vṛtti and Bhartṛhari's Perspectivism in the first Kãnja of the

Vākyapadīya" for a provisionary discussion of Bhartṛhari's perspectivism. I hope to discuss it in a philosophically more comprehensive way in a future article.

2 Cf. Houben, 1992 : 23-24. K. A. S. Iyer speaks of Bhartrhari's "spirit of accommodation "(K. A. S. Iyer, *Bhartṛhari, a Study of the Vākyapadīya in the light of the ancient commentaries*, Poona, 1969; 75-82).

5. ———. 1994. "Early Indian Authors and Linguistic Change (Postscript ot Bhartrhari's Familiarity With Jainism)." *Annals of the Bhandarkar Oriental Research Institute* no. 75:255-279.

   "I am very gratrful to Professor A. Wezler (Hamburg) and Dr. Ch. Werba (Vienna) to have pointed out to me that the problems discussed in sections 1. 2. 1 - 1. 2. 6 of my article " Bhartrhari's perspectivism (4) ; Bhartrhari's familiarity with Jainism " have also been addressed, in a different context, by Eivind Kahrs in an article entitled "What is a *tadbhava* word?" (*Indo-Iranian Journal* 35 (1992 : 225-249). The passages cited by me in these sections are also cited by Kahrs. It is Kahrs' purpose to find out what the term *tadbhava* (usually referring to Prakrit words derived from Sanskrit words, as opposed to those similar to them, *tatsama*, and regional or deśī words) must have originally meant in the context of Indian thought about language." (p. 255)

6. ———. 1995. "Bhartṛhari's Solution to the Liar and Some Other Paradoxes." *Journal of Indian Philosophy* no. 23:381-401.

   "Fully aware of these modern developments and inspired Bhartṛhari's treatment of paradoxes in Bhartṛhari's Vākyapadīya (VP), especially in the Saṁbandha-samuddeśa,(2) Hans and Herzberger have presented a lucid exposition of what "Bhartṛhari's paradox' (Herzberger and Herzberger, 1981), special kind of paradox involving self-reference. But the under discussion contains also (see kārikā 25) nothing than the classical 'Liar paradox' ("everything I am saying otherwise known as the paradox of Epimenides the Cretan "All Cretans are liars"). In our view, what is of special the Saṁbandha-samuddeśa, passage, is not so much that adds a new member to

a well-known family of paradoxes, he provides us with the key to an interesting and elegant to them. It would probably prove worthwhile to go deeper implications for modern treatments of these paradoxes, place we will focus on the interpretation of the relevant their own context. Before turning to the kārikās themselves, review some discussions and interpretations of the passage previous works and articles.(3)" (p. 382, a note omitted)

(2) The Saṁbandha-samuddeśa is the third Samuddeśa of the third Kānda of Bhartrhari's Vàkyapadïya (short: VP). I will refer mainly to Wilhelm Rau's edition for the kārikās (Rau, 1977), and to Iyer's edition for Helâràja's commen tary Prakïrnaka-Prakâsa (Iyer, 1963).

7. ———. 1995. *The Sambandha-samuddeśa (Chapter on Relation) and Bhartṛhari's Philosophy of Language*. Groningen: Egbert Forsten.

"The themes of the Sambandha-samuddeśa pervade the entire third Kāṇḍa and even the whole of the VP. Because of Bhartṛhari's perspectivism, and his awareness of the limits of philosophical and theoretical discourse (cf. above, section 2), it is of the utmost importance never to lose sight of the place a certain passage occupies in a larger argumentative complex. To provide material for this, much more is needed than just a translation of the kārikās with Helārāja's commentary. Moreover, a very critical attitude towards Helārāja's commentary is indispensible. By taking other parts of the VP into account, it is to some extent possible to check Helārāja's interpretations. Usually this leads to a justitication of Helārāja's views, occasionally they turn out to be questionable.

The approach sketched above determines the form of the present work.

After this Introduction about Bhartṛhari and the Vākyapadīya, the body of the work is formed by three parts: (1) A discussion of *sambandha* in some early Indian traditions and in Bhartṛhari's philosophy of language; (2) A discussion of the third Kāṇḍa and the immediate context of the Sambandha-

samuddeśa; (3) The Sambandha-samuddeśa, translation and discussion of the kārikās. Finally, in an appendix, Helārāja's commentary on the Sambandha-samuddeśa will be given in translation. (In this organisation of the work it was unavoidable that the kārikās of the Sambandha-samuddeśa be given (at least) twice: once in part 3 with my own discussion, once in the appendix with Helārāja's comments.)" (p. 27)

8. ———. 1995. "Bhartṛhari's Perspectivism (2): Bhartṛhari on the Primary Unit of Language." In *History and Rationality: the Skoevde Papers in the Historiography of Linguistics*, edited by Dutz, Klaus D. and Forsgren, Kjell-Åke, 29-62. Münster: Nodus Publikationen.

   "As for its subject matter, the present article is to be studied in tandem with the conceptual and theoretical Introduction to the Sanskrit tradition of linguistic and semantic thought in J.E.M. Houben, "The Sanskrit Tradition," in: *The Emergence of Semantics in Four Linguistic Traditions* (by W. van Bekkum, J.E.M. Houben, I. Sluiter, and K. Versteegh): 49-145. Amsterdam: John Benjamins, 1997, esp. section 2 "Terminology" (pp. 56-61)." Additional note (30 January 2018).

   "According to Saussure, "the linguistic entity is not accurately defined until it is delimited, i.e. separated from everything that surrounds it on the phonic chain" (Saussure 1916: 145 [103]). However, what are the units to be isolated? The question is important, pragmatically, for anyone trying to learn an entirely new language from the speakers of that language. And it is of crucial theoretical importance for anyone setting out to describe, analyse and study a language." (pp. 29-30)

   (...)

   "The view of the grammarian-philosopher Bhartrhari (India, ca. 5th century C.E.) on this problem has been described in 1951 by John Brough in a pioneering article as follows: "In Bhartrhari's view, then, the primary linguistic fact is the undivided sentence-sphoṭa. Just as a bare root has no meaning in the world, so also the meanings of individual words are merely hints or stepping stones to the meaning of the sentence." (Brough 1951: 45-46)." (p. 30)

(...)

"Unfortunately for the lovers of pure and simple, well-defined ideas, and fortunately for the lovers of major intellectual challenges, the Vākyapadīya is a difficult work with an extremely complex argumentative structure."

(...)

Those who expect on the basis of the indications by Punyaraja, Brough, Robins, Siderits and others to find in the *VP* a straightforward exposition and defence of the idea that the sentence is the indivisible unit of language will be somewhat surprised when they are confronted with the text of the *VP*." (p. 32)

(...)

"Yet, there is perhaps another way to make Bhartṛhari's exposition more perspicuous and I will attempt to follow this way in the present paper. I will focus not on the details of the exposition and description of theories in the sequence in which we find them in the text, but I will try to see what arguments Bhartṛhari uses to evaluate different theories on the sentence and the word. We will see that the types of argument used are very limited in number and by focusing on these we can perceive, in spite of all difficulties, a comparatively clear plan at the basis of the extremely complex exposition in the second book of the *VP*." (p. 33)

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"In this paper I will first discuss some aspects of the sociolinguistic context in which the Sanskrit grammarians, and especially Bhartṛhari, the grammarian-philosopher of ca. the 5th century C.E., were working, and

next study in the light of this context the statements Bhartṛhari and some of his interpreters made regarding Sanskrit and its relation to non-Sanskrit. Although, as someone with a philological training, I believe

that one should let the texts speak for themselves as much as possible, I also agree with Popper that all knowledge is theory-impregnated.(1)

At some point it is always necessary to reflect on the scope and limits ofthe theories with which we approach a text. Acts and utterances to which our texts refer are understood in a social and sociolinguistic

context. This context is to be reconstructed on the basis of (1) the incomplete and often problematic data available for the period; and (2) unavoidably, either intuitively or methodicaly, some theories and concepts

are brought in to organize the data and to predict aspects of the situation about which no direct information is available." (pp. 157-158)

(1) Popper [*Objective Knowledge. An Evolutionary Approach*. London: Oxford University Press] 1972:104-105: "Since all knowledge is theory-impregnated, it is all built on sand; but its foundations can be improved by critically digging deeper; and by not taking any alleged 'data' for granted."

10. ———. 1997. "Bhartṛhari's Perspectivism (1): The Vṛtti and Bhartṛhari's perspectivism in the first Kānda of the Vâkyapadîya." In *Beyond Orientalism: the Impact of the work of W. Halbfass on Indian and Cross-cultural Studies*, edited by Preisendanz, Karl and Franco, Eli, 317-358. Amsterdam: Rodopi.

[*Bhartṛhari's Perspectivism* (6) is in French].

"The present article is part 1 in a series on "perspectivism" in the philosophy of language of the grammarian-philosopher Bhartṛhari (India, early fifth century C.E.). It is part 1 in the sequence in which the series is meant to be read, although it appeared later than the other articles which appeared in 1995, 1993 and 1994.

These articles are to be studied in tandem with another series of articles, on "Bhartṛhari's Vākyapadīya and the Ancient Vṛtti", of which three parts appeared between 1997 and 1999.! Additional note (22 December 2017)."

"There is a simple principle which pervades the whole of the Vākyapadīya (short: VP, which will usually mean in this article: the *Vākyapadīya-kārlkās*, or VP-*kārlkās*).1t is reflected in its structure from beginning to end, and finds sometimes more explicit expression in specific *kārlkās*s, The principle is that, in a very fundamental way, the validity of different perspectives is accepted. Throughout the Vakyapadiya, different viewpoints are discussed in their mutual opposition and complementariness. Sometimes the viewpoints are simply enumerated.

Sometimes Bhartṛhari adds a statement of what would be acceptable from two opposed points of view. Sometimes he has an undeniable preference for one view or the other. And sometimes he seems to develop his own view by integrating the opposed views of other thinkers. But even if he prefers one view or develops a new synthesis, others are not totally discarded. His preferences are generally pronounced against the background of a relativizing attitude. With this approach Bhartrhari differs from the familiar, more openly polemic approach in Indian philosophical works in which other systems are unequivocally refuted and one's own system is defended." (pp. 317-318, notes omitted)

11. ———. 1997. "Bhartṛhari's Vākyapadīya and the Ancient Vṛtti (2): The Vedic background of the author of the Vākyapadīya-Vṛtti " *Studien zur Indologie und Iranistik* no. 21:71-77.

12. ———. 1997. "Bhartṛhari's Vākyapadīya and the Ancient Vṛtti (3): On syntactic and stylistic evidence regarding the authorship of the Vākyapadīya-Vṛtti " *Wiener Zeitschrift für die Kunde Südasiens* no. 43:167-197.

"With Iyer (1965 and 1969) and Aklujkar (1972 and 1993b) arguing for the identity of the Vākyapadīya (VP)-Kārikā-author and the Vṝtti-author (the 'single authorship thesis'), and Biardeau (1964) and Bronkhorst (1988 and 1991a) for différent authors (the 'separate authorship thesis'), the issue of the authorship of the VP-Vṝtti can be considered to be still open. (1)" (p. 167)

(...)

"In what follows we will discuss first (sections 2-4) the arguments brought forward by A. Aklujkar in 1972 and refer to Bronkhorsts criticism and Aklujkar's answers. Next, we will discuss a few other stylistic arguments which have played a rôle in the discussion so far, and draw attention to some aspects and additional points which have been largely neglected so far. These may give a décisive turn to our final judgment." (p. 169)

(...)

"While the argument developed in this article is greatly the discussions in the main studies referred to, we had to reject especially some of the conclusions of Aklujkar 1972. In a future article in this séries, I hope to demonstrate that this study was nevertheless right in rejecting the great différence in time and doctrine Biardeau 1964 suspected to exist between the VP-*kārikās* (even if there are indeed some diverging trends in these two works; cf. Houben 1996 and 1997a). Without claiming that it can be proven beyond any doubt, I contend that all this suits perfectly and naturally the historical hypothesis (HH) which has been formulated in the first article of this series,(45 but which may be repeated here for the convenience of the reader:

HH The Vṝtti on the first two Kārikās was written by a close follower of Bhartṛhari (author of BhD [Mahābhāṣya-Dīpikā] and VP-kārikās), e.g. a direct pupil of his, who finalized his

commentary not long after Bhartṛhari finished the VP-kārikās (three Kārikās), and who explained Bhartṛhari quite honestly and faithfully, although hedoes have his own intellectual character which shows in a few diverging trends in the Vṝtti as compared to the kārikās (and MBhD)." (p. 192)

(1) Cf. Torella 1994: XXV n. 36, who "provisionally accept[s] the thesis of identity". The most important early formulation of the VP-Vṝtti-authorship issue can be found in Shastri 1934: Introduction (cf. also id. 1930).

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9: Bhartṛhari’s discussion of linguistic and semantic theories: major issues and parameters, pp. 110-119.

"Bhartṛhari, who became famous with his Vākyapadīya, has also been credited with another work, viz. the *Mahābhāṣya-Dīpikā* or “light on the Mahābhāṣya”. It is a subcommentary on Patañjali’s Mahābhāṣya (Great Commentary) on Pāṇini’s grammar. Because it is the earliest commentary (partly) available on Patañjali’s *Mahābhāṣya* which has greatly influenced later major exponents of the Pāṇninian tradition like Kaiyaṭa and Nāgeśa, this text is of considerable importance. Unfortunately, the work is available only in a single, incomplete manuscript." (p. 110)

14. ———. 1998. "Bhartṛhari's Vākyapadīya and the Ancient Vṛtti (1): The Vṛtti and Vṛṣabhadeva's Paddhati on Vākyapadīya 1.46a *atmabhedam / atmabhedas ...*" *Annals of the Bhandarkar Oriental Research Institute* no. 78:177-198.

"I first started to doubt siagle authorship of kãrikãs and Vṛtti in 1987, when I discovered a passage in the Vṛtti which rather clearly refers to two different versions of the kãrikã (VP. 1. 46a *ãtmabhedam / ãtmabhedah*). For Charudeva Shartri, a strong argument to accept the Vṛtti as the work of Bhartṛhari in spite of some difficulties was that there would be no mention of different readings of the kãrikãs. As other commentaries which are known to stem from a later period frequently do mention different readings, a mention of a different reading would have been a strong indication that the Vṛtti was indeed written after the kãrikãs and by a different author.(6) Because two recent references to this small but important Vṛtti-passage have not yet taken into account all relevant material (Vṛṣabhadeva, for instance, has been largely neglected(7)), and because the evaluation of the passage was quite divergent - Bronkhorst (1988) accepted it as an argument for the 'separate authorship' thesis(8) ; Aklujkar (1993) has sought to explain according to the "single authorship" thesis(9) - it deserves to be studied here in some detail.

This should form the beginning of a series of articles, in which I plan to discuss all main arguments used so far in support of either one of the two theses." (p. 179)

(6) Charudeva Shastri in the Introduction (*Upodghātah*) to his edition of the first Kāṇḍa of the Vākyapadīya and Vṛtti: *etasmin vrttigranthe naikam apt kārikāsu pāthāntaram upāttam / tad api nāma balīyah pramānaṁ tasya ca kārikānāṁ ca samānakartṛkatāyām* // (*Upodghātah*h P. 17). Biardeau (1964:4) accepts Charudeva Shastri's statement that the Vṛtti does not refer to different readings for the kãrikãs but does not consider it a sufficiently strong argument to accept 'single authorship' Iyer 1969 : 19 mentions the point again as an argument in support of 'single authorship'.

(7) Only Aklujkar 1993 : 49 note 9 briefly refers to this subcommentator on kārikās and Vṛtti of Kāṇḍa 1.

(8) Bronkhorst 1988 : 115 and 139 note 13.

(9) Aklujkar 1993 : 46, section 2, 6.

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[= Bhartṛhari's Vākyapadīya and the Ancient Vṛtti (4) = Vākyapadīya's Perspectivism (5)].

"The (Vâkyapadïya) VP, as well as the other important work by Bhartṛhari (ca. 5th cent. C.E.), the MBhD (Mahãbhãsya-

Dlpikã), testify to a rich and mature tradition of reflection on language, meaning and grammar. The same can said of the ancient commentary on the first two books of the VP, the Vṛtti, which is very close to both the VP and the MBhD in the treatment of its subject. The MBhD, the VP, as well as the Vṛtti, frequently refer to the views of different thinkers or groups of thinkers with regard to the numerous issues that are taken up for discussion. Scholars generally agree on the monumental importance Bhartrhari as a grammarian and philosopher. However, it is possible to estimate his real place in Indian philosophy of grammar and language, his own contributions and possibly the developments in his thought, only against the background of his contemporaries, near contemporaries and immediate predecessors. Not only the grammarians are to be taken into account, but also the representatives of different schools of thought in Bhartrhari's time, such as Vaiśeṣika (cfr. Bronkhorst 1993, Houben 1992), Mīmāṁsā (cfr. Bronkhorst 1989), the Jainas (cfr. Houben 1994), and Buddhist schools (cfr. Ruegg 1959:57-93, Lindtner 1993).

Unfortunately, it is often very difficult to decide precisely which persons and texts precede Bhartṛhari and which follow. Some important texts which we know existed and were probably known to Bhartrhari are now irretrievably lost. In the present article, the focus will be on Bhartrhari's predecessors and contemporaries among the grammarians, especially on one «respectable grammarian» to whom Bhartrhari sometimes refers. For information about this respectable grammarian and his colleagues we depend largely on Bhartrhari's own works, and on the Vṛtti." (pp. 101-102, two notes omitted)

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§ 5. Bhartṛhari on language and thought, pp. 149-150.

"Thus, in numerous philosophical schools (not only Buddhist, but also Jaina and Brahminical), problems concerning language and thought posed themselves, but the first extensive treatise in which language and its relation with thought is not a side issue but a major one, can be found not earlier than in the Vākyapadīya , the mature and comprehensive work on semantics, linguistics, and philosophy of language, of the Brahminical grammarian-philosopher Bhartṛhari (5th century CE).

Bhartṛhari’s work can be seen as a systematic investigation of the presuppositions and basic notions and categories of the

grammar composed by Pāṇini (ca. 4th century BCE) and amended and annotated by later grammarians, notably Patanjali (ca. 2nd century BCE). In his investigation, Bhartṛhari takesa grammatical category, for instance ‘time’, ‘gender’, ‘number’ etc., and confronts it with the diverging conceptions of time etc. in the major philosophical schools with which he was familiar. Bhartṛhari’s attitude to the various views is generally non-committal: we find him often engaged in demonstrations of the compatibility of Pāṇinian notions, categories and presuppositions with those of quite diverging philosophical schools and systems.

At the same time, we do see arise certain ‘own’ philosophical positions, or at least preferences, from Bhartṛhari’s careful discussions of the views of different schools." (p. 149)

17. ———. 2007. "Ṛgveda 1.164.23-24 and Bhartṛhari's Philosophy of Language." In *Expanding and Merging Horizons: Contributions to South Asian and Cross-Cultural Studies in Commemoration of Wilhelm Halbfass*, edited by Preisendanz, Karl, 711-719. Wien: Verlag der Österreichischen Akademie der Wissenschaften.

"In a rich and insightful paragraph on Bhartṛhari and the Veda, Wilhelm Halbfass remarked that "Bhartṛhari oes not draw a strict border between the uncreated Veda and the traditions of human thought and exegesis" (Halbfass 1991:37). Nevertheless, we find that there is a significant contrast between the way the grammarian and philosopher Bhartṛhari deals with these two types of texts. He frequently supports his discussion with precise references to the traditions of human thought and exegesis – first of all the Pāṇinian grammatical tradition, but also various philosophical schools in his time (Mīmāṁsā, Vaiśeṣika, buddhist schools). However, it is only to exemplify grammatical points and not on account of the thoughts expressed that he gives quotations from Vedic texts.(1) Bhartṛhari's own work, as is well known, has a direct exegetical relationship with the Pāṇinian tradition: his Mahābhāṣya-Dīpikā (MBhD), to the extent it is available, is a running

commentary on Patañjali's Vyākaraṇa-Mahābhāṣya, while his magnum opus the Vākyapadīya (VP) is a topical commentary on major philosophical issues in the same text of Patañjali. Apart from the occasions where the Veda is a transcendent "entity" nearly identical with Brahman,(2) and apart from Vedic expressions cited only by way of grammatical example or illustration, are there any direct links with Vedic texts, and especially with the oldest and in several respects most important Vedic text, the Ṛgveda?"

(1) That is, Vedic texts in the strict sense: the Saṁhiās and Brāhmaṇas of the various Śākhās (cf. the dictum *mantra-brāhmaṇayor veda-nāmadheyam*, ĀpŚs 24.1.31, and *mantrāś ca brāhmaṇaṁ ca vedaḥ*, Śabara on Mīmāṁsā-Sūtra 2.1.33). Such quotations are predominantly from Yajurvedic texts, and among these especially from the Maitrāyaṇīya-Saṁhitā: cf. Rau 1980 and Bronkhorst 1981, 1987.

(2) VPā1.5ab: *prāptyupāyo 'nukāraś ca tasya* (viz., *brahmaṇaḥ*) *vedo* ... "Of this (Brahman) the Veda is the means of attainment and the image"; VP 1.172ab *anādim anavacchinnāṁ śrutim āhur akartṛkām* "It is said that the authorless Śruti (revealed text, i.e., the Veda) is beginningless and uninterrupted"; cf. also VP 1.173 *avibhāgād virṛttānām abhikhyā svapnavac chrutau* "Those evolved from the undivided (i.e., the primeval *ṛṣis* evolved from *brahman*), (had) a perception with regard to the Śruti as in a dream." See further Houben 1997: 331-336 and cf. Aklujkar 1991.

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18. ———. 2009. "Bhartṛhari as a "Cognitive Linguist"." In *Bhartṛhari: Language, Thought and Reality*, edited by Chaturvedi, Mithilesh, 523-543. Delhi: Motilal Banarsidass.

"The 5th century Sanskrit grammarian and philosopher Bhartṛhari has often been seen as the one who elaborates language-philosophical speculations hinted at in Patañjali's commentary on the grammar (Aṣṭādhyāyī) of Pāṇini.

In such a view Bhartṛhari would carry us away from grammar to philosophy, and he would be introducing his own peculiar viewpoints, for instance the view that the sentence is the main unit in language. Is it possible that Bhartṛhari is in fact all the time focusing on the actual starting points and presuppositions of Panini's Aṣṭādhyāyī, taking into account Patañjali's commentary? Can we see Bhartṛhari as an author offering a very convincing interpretation and exposition of the basic axioms and procedures of Pāṇini's Aṣṭādhyāyī? Can it be that a

simple point has been overlooked by most scholars of Pāṇini's Astadhyayi, namely, that there too the starting point and final aim of the user of grammar has always been the sentence and never a word in isolation, that the starting point is a preliminary sentence that needs to be checked or that needs some little extra refinement? If the latter applies, a fresh look is required, at Bhartṛhari's work, at the Aṣṭādhyāyī, and also at our ideas of what a good grammar should be. At present I start with Bhartṛhari - elsewhere I addressed the Aṣṭādhyāyī and its context, purpose and formal structure (Houben 1999). At crucial points [will have to refer to the Aṣṭādhyāyī, its basic features and current interpretations and representations." (pp. 523-524, a note omitted)

References

Houben, Jan E.M. "'Meaning statements' in Pāṇinian grammar: on the purpose and context of the Aṣṭādhyāyī," *Studien zur Indologre und Iranistik* 22: 23-54.

19. ———. 2009. "Bhartṛhari and the Jainas." In *Bhartṛhari: Language, Thought and Reality*, edited by Chaturvedi, Mithilesh, 383-413. Delhi: Motilal Banarsidass.

    Updated version of *Bhartṛhari's familiarity with Jainism* (1994).

    "Bhartṛhari refers to the different views in a very concise way, and for modern students of his works the precise identity of those who held the views often remains unclear. Of those (apart from grammarians, and authors of Śikṣā-texts and the Nirukta) whose views Bhartṛhari frequently takes up for discussion, K.A. Subramania Iyer has mentioned Vaiśeṣikas,(3) Mīmāṃsākas, (4) Sāṃkhyas(5) and Buddhists(6) (Iyer 1969: 72). Iyer has not mentioned the Jainas, and one may wonder whether they remained outside the scope of Bhartṛhari's encyclopedic approach. This, however, is not the case. Bhartṛhari is very well aware of Jaina authors and refers to them explicitly in at least one place in the Mahābhāṣya Dīpikā. Other passages in the Mahābhāṣya Dīpikā and Vakyapadiya are remarkably well

compatible with Jaina ideas. These passages were no doubt intended as references to their views, although their name is not explicitly mentioned." (p. 384)

(3) Cf. also Houben 1992 and Houben 1995a: 48-53.

(4) Cf. Bronkhorst 1989; Houben 1997b: 278.

(5) Cf. Houben 1995a: 58-63.

(6) Cf. Herzberger 1986; Houben 1995a: 53-58.

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Philosophy 20: 219-249.

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Iyer, K.A.S. (ed.) (1969): *Bhartṛhari, a Study of the Vākyapadīya in the light of the ancient commentaries*, Poona: Deccan College Postgraduate and Research Institute.

20. Hyung, Yi Jae. 2009. "Bhartṛhari on the Action Referred to the Present (*vartamānakriyā*)." *Journal of Indian and Buddhist*

Studies no. 57:1172-1176.

"In his Mahābhāṣya on P3.2.123, Patañjali cites the following verse to answer the argumentsagainst accepting present time:

Ślokavārttika on P3.2.123: kriyāpravṛttau yo hetus tadarthaṃ yad viceṣṭitam / tat samikṣya prayuñjīta

gacchatīty avicāyaran //

"There is a thing which serves as a reason (*hetu*) for which one enters into an action (*kriyāpravṛttau*). One performs an activity (*viceṣṭita*) for the purpose of attaining such a thing. Having in view (*samīkṣya*) such an activity, one should use the finite verb form *gacchati* ' ... is going' without considering (*avicārayan*) something about what one says."

The point to be noted here is that this verse says that one should use the verb form *gacchati* (3rd sg. pres.) without considering something about what one says. The verb form *gacchati*, which is in the present tense (*vartamāna*), signifies the action of going currently taking place. Consequently, it follows that the statement intends to imply that once the action signified by a verb form in the present tense is considered, there occur difficulties in accounting for the use of such a verb form. In VP 3.9.85-90 Bhartṛhari discusses the difficulties.

The aim of this paper is to show how he deals with them in the discussion." (p. 1172)

21. Isayeva, Natalia. 1995. *From Early Vedānta to Kashmir Shaivism. Gauḍapāda, Bhartṛhari and Abhinavagupta*. Albany: State University of New York Press.

Part II: *Bhartṛhari. Speech and the World: Creation or Expression?*, pp. 69-87.

"As it was already said, Bhartṛhari's principal work is his metrical treatise *Vākyapadīya*, that is, "[The Treatise] on theSaying and the Word." It is composed of three chapters (*kaṇḍa*); hence another name by which it became known, *Trikāṇḍī* ("[The Work] in Three Chapters"). The first chapter, "The Chapter on Brahman" ("Brahma-kaṇḍa"), is devoted to

the philosophical investigation of the nature of Brahman and the universe. The second chapter ("Vākya-kaṇḍa," or "The Chapter on the Sentence") deals with the sentences that manifest the meaning of a statement, while the third chapter ("Pada-kaṇḍa, or "The Chapter on the Word") deals with the separate words that are brought together to form the sentence. Besides treating purely linguistical matters, the second and the third chapters include discussions on the nature of time, space, the function and origin of general categories, and so forth. Most of the present essay is based on the material of the first chapter of *Vākyapadīya*, which offers the most concentrated exposition of Bhartṛhari's main ideas." (p. 77)

22. Jha, Vashishtha Narayan. 1985. "Problem of Error: the views of the Grammarians." *Annals of the Bhandarkar Oriental Research Institute*:231-238.

    Reprinted in V. N. Jha, *Studies in Language, Logic, and Epistemology,* Delhi: Pratibha Prakashan, 1986, pp. 92-100.

    "Long before Mādhavācārya (1350 - 75 A. D.)(1) put the label of *darśana* on Pāṇinian System there was, it sems, a conscious effort to establish a philosophy of Grammar(2) till it got established at the hands of Bhartṛhari.(3) Once it was agreed upon that any *śāstra* leads a man to achieve the final aim of his life (*niḥśreyasa*), how is it that the *Vyākaraṇaśāstra* should remain behind? This seems to be the logic behind such an attempt. attempt. But ancient Indian Philosophers cannot close their eyes to such an activity. Thus we find Somānandanātha in his *Śivadṛṣṭi*(4) questioning the propriety on the part of Bhartṛhari to dabble with philosophy. He asks : "You are a grammarian and your job is already defined. Why should you give up that and hunt for *vijñāna* which does not come under your sphere of analysis?" (p. 231)

    (...)

    "To me it seems that Somānanda is not cent per cent correct in holding such a view. Because so far as the description of a language is concerned it is true that a grammarian need not dabble in the question of *yathārthajñāna* and

ayathārthajñāna, which will settle reality and non-reality respectively. But if a grammarian is interested in knowing the relation between language and worldly behaviour and in searching out the truth in it on the background of logic, ontology and metaphysics, one can hardly question his propriety of discussing the question of *pramā* (correct cognition) and *apramā* (erroneous cognition). It is in this light that we should look at the *Pāṇinīyadarśana* literature from Bhartṛhari onwards upto Nāgeśa." (p. 232)

(1) *Sarvadarśanasamgraha* includes the Philosophy of grammar under the name of *Pāṇinīyadarśanam*.

(2) There must have been a long tradition. Today some of the works are known only by name like *Saṁgraha* etc. which are lost.

(3) In his *Vākyapadīya* and its *Vṛtti*.

(4) Ed. by Pdt. Madhusudan Kaul Shastri. Kashmir Series of Texts and Studies, No. 54.

23. Joshi, Narayan R. 2007. "Sphota Doctrine in Sanskrit Semantics Demystified." *Annals of the Bhandarkar Oriental Research Institute* no. 88:183-197.

Abstract: "From the time of the great grammarian Pāṇini (about 400 B. C.E.) to this day, Indian Sanskrit scholars are preoccupied with language on one hand and with philosophy on the other. In the past 2500 years of known history Indian linguists are discussing the semantics of Sanskrit. In this discussion on the philosophy of word and meaning all schools of thought belonging to Vedic, Buddhist and Jain-traditions have participated. The problem of meaning in Indian linguistic philosophy revolves around the ancient *Sphoṭa* doctrine discussed by Patañjali. Different authors have interpreted *Sphoṭa* in various ways from the high level mystic concept down to the physical property of articulated sounds. In this paper the ancient *Sphoṭa* doctrine in Sanskrit semantics is revisited and demystified by using Physics of sound. This step leads us next to the study of *Varnavāda* freeing us from

confusion generated by unnecessary mysticism associated with *Sphoṭa* doctrine."

(...)

"Bhartṛhari on *Sphoṭa*

According to the observations of Dr. S.D. Joshi(4), *Bhartrhari* has used the term *Sphoṭa* only nine times in Vākyapadīya and that too occurs in the first chapter of it. Like Patañjali, Bhartrhari has also invariably used the term *Sphoṭa* in its relation with the *Dhvani*. Without referring to *Dhvanis,* he has nowhere used the term *Sphota*. Bhartṛhari has nowhere clearly stated in his work Vākyapadīya that *Sphoṭa* is over and above the sounds, it is indivisible and without any inner sequence, and it is meaning bearing unit of language' . He stated that *Sphoṭa* did not involve the difference in the speed of utterance (*vṛttibheda*). Bhartṛhari differentiated between the 'form' of the word and its 'object'. According to him it is the 'form' of the word which changes, while its object remains the same. And this unity of 'object' is carried by the Buddhist concept of *Śabda*, which is mentally retained 'self' of the word." (p. 189)

24. Kahrs, Eivind. 2012. "Bhartṛhari and the Tradition: *karmapravacanīya*." In *Devadattīyam. Johannes Bronkhorst Felicitation Volume*, edited by Voegeli, François, Eltschinger, Vincent, Feller, Danielle, Candotti, Maria Piera, Diaconescu, Bogdan and Kulkarni, Malhar, 107-122. Bern: Peter Lang.

"The statement *nāmākhyātayos tu karmopasaṃyogadyotakā bhavanti,* then, I take to mean: “But they indicate (*dyotakā bhavanti*) that a noun or a verb has a specific connection with an action.” If we are talking about *upasargas* that indicate a specific connection with an action, it seems to me possible to put forward the hypothesis that what Śākaṭāyana and Yāska are talking about in the Nirukta is precisely what the Pāṇinīan tradition calls *karmapravacanīya,* and that it is this link back to Śākaṭāyana and Yāska that is reflected in the *Vākyapadīya* and its surrounding literature. This also goes some way to illustrate how and why the *Vākyapadīya* puts forward certain views only to discard them later on. The text serves as a kind of

reference point or origo reflecting the earlier grammatical tradition, bridging over into the works of later authors as if through a looking glass." (p. 120)

25. Kapoor, Kapil. 2000. "Reality and Its Representation: The Verbal Image in Indian Thought and Bhartrhari." In *Signs and Signification. Vol. II*, edited by Gill, Harjeet Singh and Manetti, Giovanni, 9-28. New Delhi: Bahri Publications.

26. Kelkar, Ashok R. 1999. "What Has Bhartṛhari Got to Say on Language?" In *The Yearbook of South Asian Languages and Linguistics*, edited by Singh, Rajendra, 37-52. London: Sage Publications.

    Abstract: "Bhartṛhari has not received due attention for a variety of reasons. After a word about Bhartṛhari and his works, a sketch of the Indian intellectual tradition in which to place him is presented in terms of its key questions, the resulting affiliations, and broad periodization. The difficulties in presenting Bhartṛhari to the modern reader need to be overcome. Thus, no citations; Sanskrit terms are parenthesized; the risk of tidying up his thought is taken.

    A conspectus of Bhartṛhari's thought on language is best presented under three headings in a certain order. Language as communication: Bhartrhari's conceptual framework and ideas of related causal dependencies are touched upon. Language as human practice: For Bhartṛhari it is human practice that sustains speech power and its acquisition and the power of the speech bond.

    Language as cognition: All cognition, even seemingly non-linguistic cognition, is sustained by specific and generalized language competence. Bhartṛhari's position on the interpretative element and on the presence of chains of signation was well-motivated.

    Bhartṛhari's thought on language is considered in the perspective of Indian and Western thought on language."

27. Li, Chalres. 2018. "Sounding out Différance: Derrida, Saussure, and Bhartṛhari." *Philosophy East and West* no. 68:447-459.

"Saussure's explication of the arbitrary and differential nature of the sign, that it articulates its own category rather than naming an independently existing concept,(14) is almost identical to Bhartṛhari's, except that it is not grounded in his non-dual metaphysics.

The overarching thesis in Bhartṛhari's *Vākyapadīya* is structured by his concept of *śabdādvaita*, or word non-dualism, which posits a monistic, eternal, and undifferentiated Reality from which all differences — all words — issue forth. Change is an illusion due to the power of *śabdatattva*, the linguistic potential that prefigures language, to organize the phenomenal world in terms of space (*dik*) and time (*kāla*).(15)

Bhartṛhari's non-dualism is intimately related to one of the main tenets of the grammarians: the eternality or ahistoricity of the Sanskrit language. The grammarians understood Sanskrit as the eternal, divine language, not subject to change, and thus their method of studying the language was purely ahistorical, or synchronic.

Bhartṛhari neatly intertwines this notion with that of an unchanging, underlying Reality at the very beginning of the *Vākyapadīya*, where he qualifies brahman as both *śabdatattva* and *akṣara*, which is an adjective meaning "imperishable" as well as a noun meaning a "syllable" or a "sound."(16) For him, the eternality of the Sanskrit language is equivalent to the eternality of non-dual Reality. (p. 449)

(14) Culler 1976, p. 22.

(15) Subramania Iyer 1969, pp. 125–126.

(16) *anādinidhanaṃ brahma śabadatattvaṃ yad akṣaram* (I.1, p. 1).

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Subramania Iyer, K. A. 1969. *Bhartṛhari: A Study of the Vākyapadīya in Light of the Ancient Commentaries*. Poona: Deccan College Postgraduate and Research Institute.

28. Lindtner, Christian. 1993. "Linking up Bhartrhari and the Bauddhas." *Asiatische Studien : Zeitschrift der Schweizerischen Asiengesellschaft = Études asiatiques : revue de la Société Suisse-Asie* no. 47:195-213.

    "There is, as will be recalled, a good tradition (Punyarāja and Siṃhasūri) to the effect that Vasurāta was at one time the guru of Bhartṛhari.

    According to another source (Paramārtha), the Bauddha teacher Vasubandhu was attacked by Vasurāta, the grammarian, i.e. Bhartṛhari's teacher.(1)

    On the basis of these pieces of independent external evidence only, it would be natural to conclude that Bhartṛhari cannot have been absolutely ignorant about at least some of the writings of "the master of 1000 *śāstra*-s", as the Chinese sources occasionally speak of Vasubandhu (thus, probably, not implying more than that Vasubandhu was an extremely prolific author). When I here speak of Vasubandhu, I am, to be sure, speaking of the author of *Abhidharmakośa, Karmasiddhi, Pañcaskandhaka, Vimśatikā, Triṃśikā, Vyākhyāyukti*, etc. - to mention only the most important of his authentic works.

    Naturally, the question then arises, whether we can detect any palpable pieces of influence from Vasubandhu in Bhartṛhari's magnum opus, the *Vākyapadīya* (VP). We might then find ourselves in a position to understand what I-ching had in mind when he reported that Bhartṛhari was "intimately acquainted with the doctrine of vijnaptimätratä (Chinese: *weishih*)"?" (p. 195, two notesd omitted)

    (1) For the references, see E. Frauwallner, *Kleine Schriften*, Wiesbaden 1982, p. 857 "Landmarks in the History of Indian Logic", in WZKSO [Wiener Zeitschrift für die Kunde Südasiens] 5 (1961), pp. 125-148).

29. Loundo, Dilip. 2015. "Bhartṛhari’s Linguistic Ontology and the Semantics of Ātmanepada." *Sophia* no. 54:165-180.

Abstract: "The distinct function of *ātmanepada* in Sanskrit language remains a sort of linguist mystery in Sanskrit studies. In this article, I analyze the larger implications and subliminal meaning of *ātmanepada* by moving beyond the realm of linguistics, which has been the dominant approach, and entering the territory of philosophy and, more specifically, the purportful approach of traditional Indian philosophy of language represented by Bhartṛhari's *Vākyapadīya*. Bhartṛhari's analytical procedure seeks to unveil the ontological interdependence that binds together the constituent elements of linguistic sentences, understood as modal appearances of the ever present foundational ground of the world/word—Brahman as *Vāc*. This is our referential guide to the semantic reconstruction of *ātmanepada*'s teleology."

30. Matilal, Bimal Krishna. 1992. "The Sphota doctrine of the Indian Grammarians." In *Sprachphilosophie / Philosophy of Language / La philosophie du langage. Vol. 1*, edited by Dascal, Marcelo, Gerhardus, Dietfried, Lorenz, Kuno and Meggle, Georg, 609-620. Berlin: Walter de Gruyter.

    3. *Bhartṛhari view*, pp. 612-616.

    "Bhartṛhari's philosophy of language is ultimately grounded in a monistic and idealistic metaphysical theory. He speaks of a transcendental word-essence (śabdatattva) as the first principle of the universe. His sphoṭa doctrine is finally aligned with the ultimate reality called 'śabda-brahman'. A self-realized person attains unity with the word-principle — a man of perfect knowledge. There is no thought without language, no knowledge without word in it. Consciousness vibrates through words, and such vibrating consciousness or a particular cognitive mode motivates us to act and obtain results. Hence language offers the substratum upon which human activity is based. Language and meaning are not two separate realities such that one conveys the other. They are in essence the two sides of the same coin. The ›sphoṭa‹ is this unitary principle where the symbol and what is signified are one. To understand each other's speech and to communicate, we do separate the inseparable, the sound and its sense.

This is only instrumental to our mutual understanding.

At the ultimate level, they are one. Bhartṛhari talks about three kinds of ›sphoṭa‹: sound-sphoṭa (letter), word-sphoṭa and sentence-sphoṭa, but his primary interest lies with the sentence-sphoṭa. He underlines the importance and primacy of sentence (s. art. 63) in the language analysis, in the second kāṇḍa of *Vākyapadīya*." (p. 616)

31. ———. 2002. "What Bhartrhari Would Have Said about Quine's Indeterminacy Thesis." In *The Collected Essays of Bimal Krishna Matilal: Mind, Language and World*, edited by Ganeri, Jonardon, 333-342. New Delhi: Oxford University Press.

    "Since Quine's thesis of indeterminacy of translation was formulated and defended in his *Word and Object* (1960) about twenty-five years ago, it has generated various sorts of reactions and responses from philosophers." (p. 333)

    "I wish to describe here an old theory of language prevalent in classical Indian writing, which from a slightly different point of view and on different grounds found the notion of meanings as separate and distinct entities unsuitable and superfluous. On the same theory one could have conceded the possibility of the indeterminacy of translation, not on the ground that even when everything is taken into account alternative ways of translating the native's sentence remain open, but on the ground that each translator's linguistic disposition is stimulated in some unique way and one need not match with the other. This theory was championed by Bhartṛhari in AD sixth-century India. In giving an outline of this theory of language and meaning, I shall try to show how this can be seen as a critique of Quine's theory by emphasizing that the elimination of the separate and distinct meaning-entities can be achieved even from a different set of hypotheses.

    There are many ways to skin a cat or a rabbit or a *Gavagai*." (p. 334)

32. Mishra, K. K. . 1986. "Bhartṛhari's Theory of Sphoṭa." *Indologica Taurinensia: Official Organ of the International*

Association of Sanskrit Studies no. 13:115-121.

"The theory of sphoṭa is one of the important contributions of Indian grammarians to the problem of Semantics in General Linguistics.

Its first mention has been traced as early as *Mahābhāṣya* of Patañjali (2nd Cent. B.C.), though the word sphoṭa has been referred to by earlier grammarians like Pāṇini in his pioneer work *Aṣṭādhyāyī*.(1) But it is the *Vākyapadīya* of the great grammarian Bhartṛhari (5th Cent. A.D.) where we get a fully developed and systematized description of the *sphoṭa*-doctrine." (p. 114)

(1) *Avan sphoṭayanasya, Aṣṭādhyāyī* VI, 1, 123.

33. Murti, Srimannarayana. 1997. *Bhartrhari, the Grammarian*. New Delhi: Sahitya Akademi.

Contents: Date and Works of Bhartṛhari; Language, Grammar and Culture; Scope and Scheme of the Vākyapadīya; Communicative and Analytic Language; Sentence; Indivisibility of Sentence; Theory of Sphota; Sentence Sense Pratibha Word; Intention of the Speaker; Referent of the Word; Substance and Universal; The Qualifier and the Qualificant; Basal and Contextual Referents; Negative Particle; Yugapadadhikaranavacana; Abhedaikatvasamkhya; Time Sabdadvaita Philosophy; Epilogue; Bibliography.

"Bhartṛhari, the celebrated grammarian philosopher, is believed to have lived in the 5th century. This monograph presents the linguistic and philosophical theories connecting the analysis of the sentence with the ultimate reality-Sabdabrahman. The linguistic principles dealt with here are applicable not only to Sanskrit but to any language. His magnum opus the Vākyapadīya, even though partly incomplete, is the only extant work comprehensively dealing with the linguistic features of the Sanskrit language and the philosophy of grammar. It contains three kandas-Brahma-kanda or Agama-kanda, Vakya-Kanda and Prakirna-Kanda. The first two kandas together consist of 635 slokas, and deal with the

Sabdabrahman, the creation of the world, jiva, world and language. The Prakirna-kanda running into 1300 slokas, divided into 14 sections called samuddesas, deals with the linguistic categories and semantic speculations prevalent in the Indian grammatical tradition. The other extant works of Bhartṛhari are his fragmentary commentary of the Mahabhasya of Patanjali and auto-commentary on the kandas I and II of the Vākyapadīya."

34. Nakamura, Hajime. 1955. "Tibetan Citations of Bhartṛhari's Verses and the Problem of His Date." In *Studies in Indology and Buddhology presented in Honour of Professor Susumu Yamaguchi on the Occasion of his Sixtieth Birthday*, edited by Nagao, Gajin, 122-136. Kyōto: Hozokan.

    "About twenty years ago, the illustrious scholar to whom we are dedicating this commemoration volume pointed out the fact that some verses of a Vedantin called Bhadrahari (?) is mentioned in the Tibetan version of some philosophical works of later Mahayana Buddhism. The author of the present article wants to elaborate on the problem, gathering Tibetan verses ascribed to him, and collating some of them with Sanskrit originals which have been identified by the author." (p. 122)

35. ———. 1960. "Bhartṛhari the Scholar." *Indo-Iranian Journal* no. 4:282-305.

    "Bhartrhari declared himself to be a grammarian, and contemporary scholars of India looked upon him as one. But the study of grammar originated in the interpretation of the Vedas; orthodox Brahmanic scholars had included grammar in the six *angas* which were supplementary to the Vedas, and from ancient times it had held an important and revered place. Bhartṛhari was also held in high esteem as a Vedänta philosopher and since this philosophy was founded on various orthodox Brahmanic sacred books, the Upanisad in particular, it clearly follows that Bhar trhari, in addition to being a grammarian and a Vedänta philosopher, was also a believer in those sacred books. The question arises as to whether he really believed in the authority of those sacred books. The historical fact that grammar originally developed out of the Vedāngas,

prejudiced his thinking, so that he was obliged to declare that the grammar which he taught was based on the Vedas and that he himself was a follower of the Vedic lore." (p. 282)

36. ———. 1981. "The Concept of Brahman in Bhartṛhari's Philosophy." *Journal of Oriental Research* no. 40-41:135-150.

37. Nicholson, Andrew J. 2018. "Early Vedānta." In *History of Indian Philosophy*, edited by Bilimoria, Purushottama, 223-232. New York: Routledge.

Bhartṛhari, pp. 228-230.

"We can shed more light on the question of the reality or unreality of the world by returning to Bhartṛhari's conception of Word (*śabda*), the essence of Brahman, and its intimate involvement with the process of creation. Word is the energy (*kratu*) that exists within Brahman, just as the yolk exists within the peacock's egg. In its latent state, Word is undifferentiated, just as the yolk is a uniform color (VP 1.51). Yet the yolk contains within itself all of the variegated colors of the peacock, just as Word contains within itself all sentences and words. For Bhartṛhari, as for other grammarians concerned with Vedic exegesis, words and their meanings are eternal (VP 1.23).

The relations between words and their meanings are also eternal, not arbitrary and variable as taught by Saussurean linguistics (as well as Buddhist linguistic philosophy).

According to Bhartṛhari's ontology of Word, Word in its absolute state is the ground of all words, meanings, and indeed all knowledge: "There is no cognition in the world n which Word does not figure. All knowledge is, as it were, intertwined with Word" (VP 1.123).(12)" (p. 229)

(12) Bhartṛhari (1965, 110).

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Bhartṛhari. 1965. The Vākyapadīya (= VP) of Bhartṛhari with the Vṛtti, ch. 1. K. A. Subramania Iyer (trans.).

Poona: Deccan College.

38. Oetke, Claus. 2013. "Inconsistency, Paradox and Linguistic Content. Did Bhartṛhari offer a solution for Truth-Paradoxes?" *Revista de Filosofía de la Universidad de Costa Rica* no. 52:9-39.

    Abstract: "The article attempts to clarify the nature of truth-paradoxes by demonstrating why it cannot be maintained that a particular philosophical treatise offers a way to their solution. In the light of objective qualities of statements leading to paradoxes of truth it emerges that the question of the nature of the content to which properties of (absolute) truth can be ascribed possesses critical relevance. This supports the dismissal of a claim made by some scholars with respect to the pertinent text."

39. ———. 2016. "Is the section of verses 1-29 in Vākyapadīya III.3 based on a sound theoretical motivation?" *Revista Científica Guillermo de Ockham* no. 14:2-21.

    Abstract: "The present article attempts to establish the following propositions: The remarks to be found in the initial segment of the so-called Saṃbandha-Samuddeśa of Bhartṛharti's Vākyapadīya, or Trikāṇḍī, can be interpreted in a way which permits to regard them as the expression of a valid theoretical view. It is important to investigate the possible existence of a sound theoretical motivation in philosophical treatises not only under the perspective of philosophical analysis but even in the framework of traditional textual exegesis irrespective of whether the textual sources represent a Western or a non-Western tradition of thought."

40. Ogawa, Hideyo. 1999. "Bhartṛhari on *Śakti:* the Vaiśeṣika Categories as *Śaktis*." *Journal of Indian and Buddhist Studies* no. 47:15-26.

    Abstract: "According to Bhartṛhari, the phenomenal world is a manifold appearance of *śaktis* which *Śabdabrahman,* the seed of all (sarvabija), is assumed to have and which in themselves are not susceptible of modification (*aparināminī).* In his Vākyapadīya [VP] Bhartrhari describes *śaktis* in the framework

where the Vaiśeṣika categories (*padārtha*) are taken up and equated with them. The aim of this paper is to present, by examining VP III, *sādhana, kk,* 9(-)l 5 where s·uch a framework is observed, a few aspects of the *śakti* Bhartṛhari conceives of. The ontological status of the *śakti* in relation to the ultimately real, that is, its unreality (*asatyatā*) the equivalents for which are *avicāritaramanīyatā*) iyatii ('the state of being beloved without having been well-considered') and *bhedavicārānarhatā* ('the incapability of predicating the difference and non-difference'), shall be kept aside in this paper."

41. ———. 1999. Bhartṛhari on the Non-distinction between Reality and Unreality.

    Paper read at the XIIth conference of the International Association of Buddhist Studies, Lausanne, August 26th, 1999.

    "In view of Bhartṛhari's fundamental thesis that the ultimate reality, the undelimited, appears as delimited, we have to say that the one permanent reality appears as being of the nature of existence and non-existence and not that what is of the nature of existence and non-existence appears as something. For Bhartṛhari, the ultimate reality Brahman is beyond relativization and cannot involve a contradiction in it. Therefore, against the interpretations by Iyer and Houben who understand that Bhartrhari considers Brahman to have the two aspects of *sat* and ā2 I would like to argue that taking *sadasadātmaka* as qualifying the appearances of Brahman (*bahurūpa*) is more consistent with Bhartrhari's thesis. As will be seen later, Helārāja interprets it in that manner. We must give his views careful consideration. To my understanding, his interpretation faithfully reflects the core of Bhartṛhari's linguistic thought.

    The question of the *sadasadātmaka*-interpretation is related to the questions of the verbalization of Brahman, the relativism holding in the domain of the things in the phenomenal world, and the capacities of Brahman underlying its verbalizations.

In this paper, examining these questions, I shall propose a new interpretation of the kārikāunder consideration." (pp. 6-7)

42. ———. 1999. "Bhartṛhari on Representation (buddhyākāra)." In *Dharmakīrti's thought and Its impact on Indian and Tibetan Philosophy: Proceedings of the Third International Dharmakīrti Conference, Hiroshima, November 4-6, 1997*, 267-286. Wien: Verlag der Österreichischen Akademie der Wissenschaften.

"As is well known, Buddhist epistemologists posited as the *śabdārtha* a conceptual representation (*buddhyākāra*) from the viewpoint of appearance (pratibhāsa), an external individual (*svalakṣaṇa*) from the viewpoint of reification or judgement (*adhyavasāya*), and the exclusion of others (*anyāpoha*), where others are either other conceptual representations or other external individuals. This is succinctly summed up by Jñānaśrīmita in his *Apohaprakaraṇa* as follows:

[sanskrit text omitted]

"First of all, an object (*artha*) is primarily conveyed by the word. In that case, *apoha* (‚exclusion'), being subordinate to it [i.e., the object] (*tadguṇatvena*), is to be understood. And the object [is twofold]: One is posited as a denotatum (*vācya*) from the viewpoint of reification or judgement (*adhyāsa = adhyavasya*) and the other from the viewpoint of appearance (*bhāsa = pratibhāsa*).

[But] in reality (*tattvataḥ*) neither [of them] are [the denotatum of the word]." (p. 267)

(...)

"In this paper I shall demonstrate that Bhartṛhari posits a *buddhyākāra* and an external individual as *śabdārthas* from the same points of view as Jñānaśrīmita mentions. Such a semantic position of Bhartṛhari is taken for granted by later Pāṇinīyas like Kaiyaṭa, Helārāja and Puṇyarāja but has not yet been traced back to Bhartṛhari's words themselves so far. As is well known, Dignāga, who is believed to have first advocated

the *apoha* theory, is well acquainted with Bhartṛhari's linguistic thought. And moreover, he is a representationalist, as is shown by his theory of 'appearance' (*ābhāsa*). Naturally, Dignāga did know that the conceptual representation and the external individual were involved in verbal behavior. It is certain, therefore, that clearing up the situation in which Dignāga had to propound the apoha theory will give a new perspective of the so-called historical development of the *apoha* theory and stimulate Buddhists scholars to re-examine it." (p. 269)

43. ———. 2001. "Bhartṛhari on A.1.1.68." *Journal of Indian Philosophy* no. 29:531-543.

    "Bhartr.hari's interpretation of A.1.1.68 in VP 1.60–68 leads to the following conclusion:

    A.1.1.68 is the general rule from which a particular definitional rule such as *agner agniḥ saṃjñā bhavati* is deduced. By this rule, the item in use whose form is equal to that of the item which is uttered in the sūtra is brought in and the relationship of name and the named is established between their own forms. In other words, the rule provides that the form which is understood from the item uttered in the sūtra refers to the form which is differentiated from the item in use when the latter is uttered.

    (...)

    In addition, if we accept that whatever item is uttered has its own form differentiated from it and denotes the form, it will make no sense to say that when a linguistic item is mentioned, its own form is to be understood from it. A.1.1.68 never describes the self-referring nature of the linguistic item, which nature is not determined without the conceptual discrimination between a linguistic item and its form; rather, it makes use of such a nature for building a bridge between the grammar and the practical use of the linguistic item." (p. 536, notes omitted)

44. ———. 2012. "Patañjali's View of a Sentence Meaning and Its Acceptance by Bhartṛhari." In *Devadattīyam. Johannes Bronkhorst Felicitation Volume*, edited by Voegeli, François, Eltschinger, Vincent, Feller, Danielle, Candotti, Maria Piera,

Diaconeswcu, Bogdan and Kulkarni, Malhar, 159-188. Bern: Peter Lang.

"In his Bhāṣya on A 1.2.45, Patañjali advances his view of a sentence meaning as follows:

MBh on A 1.2.45 (I.218.10) *eteṣāṃ padānāṃ sāmānye vartamānānāṃ yadviśeṣe 'vasthānaṃ sa vākyārthaḥ.*

A particular meaning (*viśeṣa*), as a conveyer of which these words conveying a general meaning (*sāmānya*) are established, is a sentence meaning.(1)

In this Bhāṣya Patañjali intends to say that a sentence meaning is a qualifier-qualificand relation (*viśeṣaṇaviśeṣyabhāva*) among the meanings of words in a sentence. Here Patañjali assumes that a sentence is a composite of independently meaningful words and that a sentence is an independent unit which has a sentential meaning separate from word meanings. This is natural, considering that grammarians operate with words as constituents of sentences. Studies of Bhartṛhari's philosophy of language, however, reveal that Bhartṛhari maintains that an impartite sentence is the real unit of actual communication and that he still accepts that through analysis one can and should abstract words and word meanings. It is interesting in this regard to consider how Bhartṛhari deals with Patañjali's view of a sentence meaning in the Bhāṣya. The Bhāṣya is quoted and discussed in the Vṛtti on VP 2.15, 246, 441 and in Helārāja's commentary on VP 3.1.74." (p. 159)

(1) See Ogawa (2004–5). In short, according to this Bhāṣya, the meaning of a sentence is the particular meaning which the words of the sentence, denoting general meanings, convey.

References

Ogawa, Hideyo 2004–2005: "Approaching the sentence meaning in the Mahābhāṣya: the Vṛtti and the Ṭīkā." *Journal of Indological Studies* 16/17, pp. 109–152.

45. ———. 2013. "Bhartṛhari on Three Types of Linguistic Unit-meaning Relations." In *Vyākarana Across the Ages:*

Prtoceedings of the 15th World Sanskrit Conference. Vol. II, edited by Cardona, George, 217-279. New Delhi: Rashtriya Sanskrit Sansthan.

"To summarize the main points Bhartṛhari makes about the relation of 'this-is-that' between a linguistic unit and a meaning:

First, this relation is taught and learned through an utterance of the type so '*yam* 'this-is-that'. Secondly, the relation is established by the identification of the linguistic unit and the meaning. Once the relation is established, the linguistic unit and the meaning appear respectively as identical with the meaning and the linguistic unit.

Thirdly, the identification comes to the restriction on the linguistic units and meanings which can be related to each other.

All this gives the answer to the second question mentioned earlier in §0. Therefore we may be justified in arguing that Helārāja's understanding of the relation between linguistic unit and meaning is thoroughly founded on Bhartṛhari's theory on it." (p. 274)

46. ———. 2016. "Bhartṛhari on Unnameable Things." In *Logic and Belief in Indian Philosophy*, edited by Balcerowicz, Piotr, 415-430. Warsaw: Indological Studies.

"In his *Mahā-bhāṣya* Patañjali declares that for grammarians what words express is their authority. Later Pāṇinîyas from Bhartṛhari onwards illustrate this principle by stating that grammarians are not concerned with things as they are (*vastv-artha*) but as they are spoken of *(śabdārtha*). It is interesting that they recognise that there are things which are unnameable, beyond verbalisation. In his Vṛtti on the Vākyapadīya Bhartṛhari calls them *asaṁvijñāna-padas*—'those which have not words to convey themselves'. In this paper I shall show how Bhartṛhari accounts for the existence of a thing defined as asaôvijñâna-pada and what philosophical significance he

attaches to the issue of whether a certain thing has a word defined as *saṁvijñāna-pada*." (p. 415, a note omitted)

47. ———. 2016. "Bhartrhari on A 3.2.60 *tyadādisu dṛśo 'nālocane kan ca*." In *Vyākaraṇaparipṛcchā: Proceedings of the Vyākaraṇa Section of the 16th World Sanskrit Conference*, edited by Cardona, George and Ogawa, Hideyo, 237-264. New Delhi: DK Publishers.

    Abstract: "In his Bhāṣya on A 3.2.60 Patañjali proposes that in an upapada compound such as *tāḍṛś* 'such-like' the kt affix to be introduced after the verb dṝs 'see' be taken to denote an agent-object (*karmakartṛ*). In VP 3.7.64 Bhartṛhari observes that some Pāṇiniyas try to explain the agent-object construction proposed by Patañjali, on the basis of a logical construction (*parikalpana*) that would attribute to this verb as a meaning the act of becoming the object of seeing (*viṣayatāpatti*). According to Bhartṛhari, however, the logical construction has undesirable consequences in Pāṇini's derivational system. The present paper shows how Pāṇiniyas, accepting that a meaning (*artha*) serves as a cause (*nimitta*) of the explanation (*anvākhyāna*) of a correct speech form, put a limit on semantics.

    For Pāṇiniyas, the meaning which serves as such a cause must be the meaning to convey which a linguistic item is found to be used in actual usage, since their fundamental position is that the denotation of meanings by linguistic items (*abhidhāna*) is a natural thing (*svābhāvika*)."

48. ———. 2019. "Two Truths Theory: What is *vyavahāra*? Language as a Pointer to the Truth." *Journal of Indian Philosophy* no. 47:613-633.

    Abstract: "Mādhyamikas argue that ultimate reality, which is without any delimitation and hence cannot be verbalized in itself (*anakṣara*), can be expressed in words on the basis of the attribution o rsuperimposition (*samāropa*) of the basis for the application of the word (*pravṛttinimitta*). The denotation theory of ultimate reality Bhartṛhari advances in the

Dravyasamuddeśa of his Vākyapadīya convincingly explains that, insofar as ultimate reality is spoken of, we must say that it is denoted by the word; ultimate reality is said to be ineffable only in the sense that it is far from what is conveyed as somethingby the word; language is a pointer to the ultimate reality. The point that the application of a word to ultimate reality depends on the attribution of the basis for the application of the word to it naturally leads to an idea that one should not hypostatize the basis, although without resorting to it any word cannot be used to convey the ultimate reality; otherwise, it would have to be said that the ultimate reality to which the word isapplied has in essence the property which serves asthe basis. Such a property is precisely what theMādhyamikas consider to be the *svabhāva* 'intrinsic nature'. What they understand by the term *śūnyatā* is precisely that everything has no real basis for the application of the word to it."

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History of Logic

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Bibliography (Studies in English) Par-Z

1. Parsons, Terence. 2001. "Bhartṛhari on What Cannot Be Said." *Philosophy East and West* no. 51 (4):525-534.

   "Bhartṛhari claims that certain things cannot be signified -- for example, the signification relation itself. Hans and Radhika Herzberger assert that Bhartṛhari's claim about signification can be validated by an appeal to twentieth-century results in set theory. This appeal is unpersuasive in establishing this view, but arguments akin to the semantic paradoxes (such as the "liar" paradox) come much closer. Unfortunately, these arguments are equally telling against another of his views: that the thatness of the signification relation can be signified. Bhartṛhari also claims that the relation of inherence cannot be signified -- a quite different view that is not borne out by twentieth-century results. Finally, further research is needed to investigate what Bhartṛhari's own reasons might have been for these views."

2. Patnaik, Tandra. 1994. *Śabda, a Study of Bhartrhari's Philosophy of Language*. New Delhi: D. K. Prrintworld.

3. ———. 2014. *Kālaśakti: Bhartṛhari's Philosophy of Time*. New Delhi: D.K. Printworld.

4. R., Pathiraj. 1995. "The Sphota doctrine of Bhartṛhari." *Indian Philosophical Quarterly* no. 22:67-74.

   "The lingustic theory of *sphota* is chiefly associated with the grammarian Bhartṛhari, although he is not the propounder of the doctrine. He gave sphota a metaphysical significance and defended it against its critics.

   One can trace the use of the word '*sphota*' in the ancient writings, around the time of Pāṇini. It is doubted as to whether Pāṇini himself knew of such a thing as *sphota*, though the words '*sphotāyana*' appears once in his work, Aṣṭādhyāyī (6.1.123). Anyway we don't know the propunder of the doctrine. It was Patanjali who, (in his *Mahābhāshya*), for the first time, made a distinction between *sphota* and *dhvan*i. The sound that is produced when the word is uttered he called *dhvani*. It is ephemeral. The permanent element in the word, which is not affected by the peculiarities of the individual speaker, he called *sphota*. The *sphota*, in Patanjali's system, is an unchanging unit of sound. It may be an isolated letter (*Varnasphota*), having a normal and fixed size or a series of such letters (*Padasphota*). (1) Thls is quite diffferent from Bhartṛhari's concept of *sphota*.

   The claim of Bhartṛhari is that "a sentence is to be considered not a concatentaion made up of different sound-units arranged in a particular order but mainly as a single meaningful symbol." (2)

   (1) Cf. K. Kunjunnia Raja, *Indian Theories of Meaning*, (Madras: Adyar Library, 1963) ,p. 102. (Henceforward this book will be referred to as ITM)

   (2) *Ibid*., p. 97

5. Raja, K. Kunjunni. 1969. *Indian Theories of Meaning*. Madras: Adyar Library and Research Centre.

   Second edition; first edition 1963.

   "To Bhartṛhari the linguistic theory of sphoṭa is part of his monistic and idealistic metaphysical theory according to which

the transcendental speech-essence. (*śabda-tattva*)is the First Principle of the universe." (p. 146)

(...)

"According to Bhartṛhari the speech-principle has three stages in the course of its manifestation, namely *paśyantī, madhyamā* and *vaikharī*.(1) *Paśyantī* is the supreme Reality, Śabdabrahman, and has been identified with *pratibhā*, the flash of insight or the principle of consiousness.) The Pratyabhijñā school of philosophy accepted four different stages in the manifestation of the Śabdabrahman, adding a fourth stage called *parā* which is identical with the *paśyantī,* stage in Bhartṛhari's system." (p. 147, two notes omitted)

(1) *VP* I, 144.

6. ———. 1990. "Chapter on Bhartṛhari's Tīkā on Patañjali's Mahābhsāya." In *Encyclopedia of Indian Philosophies. Vol. 5: The Philosophy of the Grammarians*, edited by Coward, Harold G. and Raja, Kuniunni, 172-174. Delhi: Motilal Banarsidass.

"Ṭikā on Patañjali's *Mahābhāṣya*.

Bhartrhari's philosophical ideas are found in their fully developed form in the *Vākyapadīya*, which is his magnum opus; but the germs of his theories may be found in his commentary on the *Mahābhāṣya*, of which a fragmentary manuscript alone is now available. It has been establish ed that this fragmentary manuscript forms a genuine part of Bhartrhari's *Mahābhāṣyaṭikā*. Th.is work was mentioned by ltsing in the seventh century and by Kaiyaṭa as a source book for his *Pradipa* commentary on the *Mahābhāṣya*.

The Ṭikā is not a regular word-for-word commentary on the *Mahābhāṣya*. It contains observations and comments on select words and points raised in them. Some of the ideas that were developed later into a cogent system are found scattered here and there in the commentary on the *Mahābhāṣya*.

In some cases Bhartrhari's comments in the Ṭikā help us to understand his basic standpoint in the *Vākyapadīya*."

7. ———. 1990. "Chapter on Helārāja." In *Encyclopedia of Indian Philosophies. Vol. 5: The Philosophy of the Grammarians*, edited by Coward, Harold G. and Raja, Kuniunni, 193-197. Delhi: Motilal Banarsidass.

   "Helārāja

   This important commentator on Bhartṛhari tells us that he is the son of Bhūtirāja and a descendant of a minister named Lakṣaṇa, or King Muktāpīda of Kashmir. Abhinavagupta, who flourished in 1014, appears to have studied with Bhūtirāja as well as with a son of Bhūtirāja whom Abhinavagupta calls " Indurāja." It 'is clear that Abhinavagupta is referring to Helārāja in some passages, as he is credited with having written a grammatical work called *Prakīrṇakavivaraṇa*, which may have been a commentary on Helārāja's *Prakīrṇakaprakāśa*—at least the title strongly suggests Abhinavagupta's awareness of Helārāja's work. Thus we may place Helārāja's date about A.D. 980.

   Regarding his commentary on Bhartṛhari's *Trikāṇḍi*, it seems clear that such a work was written covering the entire three chapters. There is some doubt about which portions of the work are available to us now. The commentary on book 3 is available in print. Aklujkar argues that its proper title is *Prakīrṇakaprakāśa*, and that Helārāja's commentary on book I was called *Śabdaprabhā*, while that on book 2 was *Vākyakāṇḍaṭikā* or *Vākyapradipa*. Aklujkar further argues that the Tikā on book 2, which is available in print and credited to Punyarāja, is in fact Helārāja's work instead." (p. 193, notes omitted)

8. ———. 1997. "Bhartrhari's Philosophy of Language, *Sphotavada* and *Sabdabrahmavada*: Are they Interrelated?" In *India and Beyond: Aspects of Literature, Meaning, Ritual and Thought: Essays in Honour of Frits Staal*, edited by van der Meij, Dick, 405-407. London: Kegan Paul International.

   "Bhartṛhari, who flourished in the beginning of the fifth century, was an eminent Sanskrit grammarian and a deep and original philosopher of language. He is well known for

enunciating two theories: the *Sphoṭavāda* and the *Śabdabrahmavāda*. They created a storm among thinkers; orthodox schools attacked them severely; modern thinkers of the present century are attracted by the novelty and significance of Bhartṛhari and are trying to understand these views in their proper perspective. Some scholars, like Biardeau, believed that the two theories are interrelated and cannot be explained in isolation. In my book *Indian Theories of Meaning,* l held that even if they are interrelated, each can be studied individually also. I shall try to give a brief summary of the two theories." (p. 405)

9. Rath, Gayatri. 2000. *Linguistic Philosophy in Vākyapadīya: With special reference to first two Kandas*. Delhi: Bharatiya Vidya Prakashan.

10. Ratié, Isabella. 2018. "On the Ṣaḍdhātusamīkṣā, a Lost Work Attributed to Bhartṛhari: An Examination of Testimonies and a List of Fragments." *Journal of the American Oriental Society* no. 138:709-741.

    Abstract: "The fifth-century grammarian-philosopher Bhartṛhari has long attracted scholarly attention, and deservedly so: his magnum opus, the *Vākyapadīya*, had a profound impact on later Indian schools of thought, Brahmanical as well as Buddhist. The *Vākyapadīya* is not, however, the only grammatical and/or philosophical work ascribed to Bhartṛhari in addition to a commentary on Patañjali's *Mahābhāṣya*: according to several sources dating back at least to the tenth century, the same author also composed a *Śabdadhātusamīkṣā* or *Ṣaḍdhātusamīkṣāi*, which, unfortunately, has not come down to us, and which is still shrouded in mystery, as its main topic, and even title and attribution, are considered uncertain to date. The goal of this article is to examine the available fragments and testimonies and to establish on their basis that the work, the original title of which must have been the *Ṣaḍdhātusamīkṣā*, endeavored to show that the whole phenomenal world is made of six elements (earth, fire, water, air, ether, and consciousness) while ultimately defending a nondualistic point of view. Verses

quoted by later authors as belonging to the *Ṣaḍdhātusamīkṣā* are gathered and translated in an appendix to the article."

11. Rukmani, T. S. 1987. "Patañjali's 'Prajñā' and Bhartṛhari's Pratibā. A Comparative Study." *Indian Philosophical Quarterly* no. 14:81-90.

    In this paper I intend to undertake a comparative study of Patañjali's concept of Prajñā and Bhartṛhari's concept of Pratibhā and bring out some of their implications.

    The word *prajñā* occurs in 3 *sūtras*(1) in the 1st *pāda*, in one *sūtra*(2) in the 2nd *pāda*, in one *sūtra* 3 in the 3rd *pāda* and in no *sūtra* in the 4th *pāda* of the *Yogasūtras*. This means that Patañjjali has used the word prajñā in only five *sūtras* in the entire work of about 195 *sūtras*. If one were to deduce the importance of *prajñā* from the number of times the word is used in the *sūtras* then of course the answer is obvious. But the answer is also not correct because the entire system of *Rājayoga* hinges on the concept of *prajñā*." (p. 81)

    (...)

    "lf we now turn to the concept of *pratibhā* in Patañjali's *Yogasūtras*, we find that it occurs for the first time in the *Vibhūtipāda*, *sūtra* 33.(19) Even here it is mainly used to describe the knowledge (*jñāna*) which arises from *pratibhā*. The *sūtra* mentions that 'Due to *pratibhājñāna* the *yogi* knows all'.

    Vyāsa states this is prior to the dawn of *viveka* or discriminate discernment between the '*sattva* intellect' and *Puruṣa*.(20) Thus,*pratibhā* 1s not the highest state of *prajñā* which gives rise to *kaivalya* later." (p. 84)

    (...)

    "In the *Vākyapadīya* Bhartṛhari uses the expression *pratibhā* in a comprehensive manner equating it to istinctive nature at one end of the scale and to the special insight of divine knowledge of *ṛṣis* and sages at the other end.(27) In all, Bhartṛhari has mentioned six kinds of *pratibhā*. What is common to all of them is a flash of understanding and the

difficulty in analysing this process of understanding." (p. 86, sme notes omitted)

(1) *Yogasūtra*, I. 20, 48, 49.

(2) *Yogasūtra*, II. 27.

12. Saito, Akane. 2017. "Internalization of Speech: Pronunciation and Perception of the Word." *Journal of World Philosophies* no. 2:109-120.

    Abstract: "There are various philosophers who have discussed the role of language in ancient India. Among them, Bhartṛhari considered the relation between the superficial appearance of speech and its essential nature. In actual life, we pronounce and perceive the word. He held that there must be some link between ideal logic and worldly truth. His focus in the *Brahmakāṇḍa* of the *Vākyapadīya*, is on the process of communication, the process of the internalization of speech. He differentiates the perspective of the speaker and the hearer, and explains the movement of sounds. The sphoṭa theory addresses both how to pronounce the word and how to perceive it. Traces of his discussion are found in the works of his follower Maṇḍanamiśra in his book, *Sphoṭasiddhi*."

13. ———. 2020. "Mīmāṃsāsūtra 6.5.54 on bādha in Maṇḍanamiśra's Brahmasiddhi." *Journal of Indian Philosophy* no. 48:915-944.

    Abstract: "This paper will show how the philosopher Maṇḍanamiśra discusses in his Brahmasiddhi the cancellation (bādha) of a former element by a latter, which is prescribed in Mīmāṃsāsūtra 6.5.54. We do not have yet a clear idea of what the value of this text holds for him. I would emphasize that probably more than we had expected, it forms an essential part of Maṇḍana's philosophy. Its authority is sometimes stated explicitly and sometimes not; and we easily overlook the fact that his argument is highly dependent on the Mīmāṃsā scheme. This rule, 6.5.54, was originally purely concerned with the performance of the sacrifice, but Maṇḍana applies it to his epistemic analysis, i.e. his discussion on the relative strength of

the valid means of knowledge, giving this rule the status of basic testimony. Furthermore, he interprets therule in his own unique way, or at least differently from Kumārilabhaṭṭa, integrating it with the argument by his famous predecessor Bhartṛhari.

The mutual relationship among Maṇḍana, Kumārila, and Bhartṛhari, will be illuminated by focusing on what Mīmāṃsāsūtra 6.5.54 really means."

14. ———. 2020. "The Theory of the Sphoṭa." In *The Bloomsbury Research Handbook of Indian Philosophy of Language*, edited by Graheli, Alessandro, 76-107. New York: Bloomsbury.

§ 3. *Bhartṛhari on the Sphoṭa*, pp. 79-82.

"The investigation of the word's phonetic form is found in the Vākyapadīya of Bhartṛhari, one of the greatest Grammarians and philosopher, who had a huge influence on the later history of Indian philosophy. Bhartṛhari refined the few remarks on sphoṭa left by Patañjali into an elaborate philosophical theory. His sphoṭa has three characteristics:

1. Phonemes *(varṇa*), sounds (*dhvani*), and bodily resonance (*nāda*) are differentiated.

2. Sphoṭa is the indivisible sound-form manifested in both the utterance and the hearing perception of a word, which are both discussed by Bhartṛhari.

3. Various views on sound, the nature of sphoṭa, and the relation between them, are discussed by Bhartṛhari as alternatives." (p. 79)

15. Sastri, Gaurinath. 1959. *The Philosophy of Word and Meaning: Some Indian approaches with special reference to the philosophy of Bhartṛhari*. Calcutta: Calcutta Sanskrit College Research Series.

"It was Bhartṛhari, author of the *Vākyapadīya*, who was the first grammarian to take upon himself the task of evolving a school of philosophy which is known by the name of Verbal

Monism, *Śabdādvaita* or *Śabdābrahmavāda*. Monism in Indian thought is said to have found expression in three ways -- the *Brahmādvaita* or *Bhāvādvaita* of the Vedāntist, the *Vijñanādvaita* of the Buddhist, and the *Śabdādvaita* of the grammarian. The term *Śabdābrahman* is no new coinage of Bhartṛhari's, for there are texts in the Upaniṣads where we are told that there are two *Brahmans, Para* and *Apara*, and while the *Parabrahman* means the Higher Brahman, i.e., the Transcendental Absolute, the *Aparabrahman* means the Lower Brahman or the *Śabdābrahman*, the realization of which leads one to the attainment of the other. But we must be careful not to identify the *Śabdābrahman* of the grammarian with the *Śabdābrahman* of the Upaniṣads, for according to Bhartṛhari *Śabdābrahman* is identical with the Transcendent Reality.

The present work starts with an attempt to describe the Transcendental Reality of the grammarian, which, though a unitary principle in essence, is yet inseparably associated with *Śaktis* or Powers which lie therein, and of which the most important is the *Kālaśakti* or the Time Power. It is on the eve of creation that these Powers are sundered from the *Śabdābrahman*, as it were, and the cosmic process runs in two directions, viz, that of word (*śabda*) and that of meaning (*artha*). In the first four chapters of the book I have discussed the nature of the *Sabdabrahman* and of *Kālaśakti* and other Powers and have not only examined the cosmic process as presented by the grammarian-philosopher but compared it with parallel schemes in other systems of philosophy as well.

From this I have proceeded to the study of the empiric realities on the *śabda* side, letters, words and sentences, and I have shown that the grammarian understands *sphoṭa*, the indivisible word, as *śabda qua* denoter." (*Introduction*, pp. XXIV-XXV, a note omitted)

16. ———. 1980. *A Study in the Dialectics of Sphota*. Delhi: Motilal Banarsidass.

"To discuss the nature of 'word' or more precisely, 'significany word' (*upādāna śabda*) is a problem that has arrested the attention of Indian philosophers for centuries. Words are used

convey meanings. Now, a word in common parlance is not anything but the sum-total of a few letters and a sentence, which usually held to be the unit of our thoughts and expressions, is an aggregate of a few words. On a careful and scientific analysis, however, it appears that a combination of letters forming a word and, likewise, a combination of words forming a sentence is never possible. Life of letters is only of short duration as they die out the next moment after they are pronounced. And, as combination of objects is possible only in the case of their co-existence, it is not understood how an aggregate of a few lettersmaking up a word or that of some words forming a sentence is obtainable. !f it, however, be presumed that letters are not short-lived entities but are endowed with permanent existence, a combination of letter, constituting a word may be conceivable but the manner in which such combination is to be achieved for purposes of expression of meaning remains to be studied in detail. The Naiyāyikas who believe in the evanescent character of letters and the Mimāṁsakas who are advocates of their etemal character have in their own ways attempted to return suitable answers to the objections that at times seem to have been baffling. But, it is worthy of notice that the grammarians do not find them suitable for acceptance. They adumbrate a theory strikingly original to claim that both word and meaning are indivisible units. The indivisible unit of expression is called *sphoṭa* and the indivisible unit of meaning is also called *sphoṭa* or *pratibhā*. The grammarians do not believe that a word is divisible into letters or a sentence is divisible into words. Likewise. they do not believe that the meaning of a sentence is the sum-total of the meaning of words which are ordinarily described as its parts." (*Preface*, p. IX)

(...)

We have stated that Bhartṛhari has elaborated the Vedic tradition when he describes the Absolute as brahman and *śabdatattva*.

But, may we go a step further to point out that he introduces it as *akṣara* too. Usually, the expression *akṣara* means that

which does not change or perish, i.e., unchanging or imperishable.

The Transcendent is viewed as the prius of the universe that comes out of it but it remains constant in spite of those transformations.

But, as it has been noticed before that the word may be derived from *vaś*, to pervade, meaning thereby 'what is pervasive and ubiquitous'. In this way the identity between brahman and *akṣara* may be understood. And, If brahman and *śabdativā* are conterminous, it is understandable how the Indescribable One is described as *brahman*, *śabdativā* and *akṣara*." (*Preface*, p. XI)

17. Seneviratne, Rohana. 2019. "Bhartṛhari and Wittgenstein on Grammar: A Few Observations." *IRA: International Journal of Education and Multidisciplinary Studies* no. 15:129-140.

Abstract: "Irrespective of spatiotemporal limitations of the world's intellectual history, discussions on the language have attracted considerable attention of philosophers, linguists, and even the public.

The topics of such discussions have also included the meaning, nature or function/s, and necessity of grammar while diverse arguments have been raised both in support and against even its ontic presence. Among the philosophers from all ages who attempted to analyze the foundation of those arguments, i.e. the common notion that grammar is prescriptive and fruit of pedagogical instructions, Bhartṛhari (c. 450 - 510 C.E.) stands significant because of the richness and legitimacy of his arguments at such an early age of history. More than a millennium later, Ludwig Wittgenstein as a highly influential philosopher from the last century shows some relationship with Bhartṛhari in (re)confirming that our common construal of grammar cannot be valid because of its non-prescriptive nature. While attempting to examine the ways in which Bhartṛhari and Wittgenstein have interpreted grammar, this paper succinctly investigates each philosopher approaches towards the language in use."

18. ———. 2019. "Unity of Sentential Meaning: Bhartṛhari's Approach to the Indivisibility Thesis." *Asian Journal of Multidisciplinary Studies (AJMS)* no. 7:18-26.

    Abstract: "A doyen of profound discussions on the Indian philosophy of language, Bhartṛhari (fl. 500 – 700 CE) introduced in the light of the Advaita Vedanta system of philosophy a major theory known as the indivisibility thesis (*akhaṇḍapakṣavāda*) of meaning. His expertise in Sanskrit grammar rooted in the time-honored tradition bolstered with applied approach to the language in use enabled him to establish firmly this theory. Some later grammarians in the mainstream Pāṇinian grammatical tradition and Vedantic philosophers modelled their theories on Bhartṛhari's approach to sentential meaning, while some others criticized him for misusing the Advaita Vedantic theology and its standard line of arguments in order to justify the indivisibility of meaning, whereas primacy of words cannot be ascertained in any context of language use. This paper examines the background of Bhartṛhari's arguments for the legitimacy of his claim that sentence meaning is the primary entity, which is divisible neither syntactically nor semantically. It also seeks to justify that his approach to the indivisibility thesis deserves a significant position among the early thoughts on the derivation of meaning and its composition."

19. Serebryakov, Igor D. 1986. "Bhartṛhari Problem in Contemporary Indology " In *Sanskrit and World Culture: Proceedings of the Fourth World Sanskrit Conference of the International Association of Sanskrit Studies, Weimar, May 23–30, 1979*, 663-666. Berlin: De Gruyter.

    "The interest in studies of Bhartṛhari's scientific and philosophical heritage increased immensely within the last decades. It especially concerns *Vākyapadīya*.

    Many editions of the text itself as a whole or in parts appeared and we should like to remind about the critical text of the *Vakyapadiya* prepared and published by our highly esteemed colleague S. K. Iyer. The net result of all researches concerning

this tract of Bhartṛhari is given in S. K. Iyer's fundamental monograph "*Vākyapadīya* in the Light of Ancient Commentaries".(6) It is worth to note that the *Vākyapadīya* is widely used by scholars dealing particularly with the theory of meaning. It involved some ontological and epistemological problems and brought to attempts to define the place of Bhartṛhari in the ideological field of his time." (pp. 664-665)

(6) K. A. Subramania Iyer, *Bhartṛhari, A Study of Vākyapadīya in the Light of the Ancient Commentaries,* Poona 1969.

20. Shastri, Gaurinath Bhattacharyya. 1991. *The Philosophy of Bhartṛhari.* Delhi: Bharatiya Vidya Prakashan.

    "We propose to review in this monograph the cardinal ·points of this unique system of thought which, in our opinion, brings out Bhartṛhari's stature as one of the most outstanding intellectuals and dialecticians of all times. It is most unfortunate, however, that he could not become the fountain-head of a school like Dharmakirti or Śaṅkarācārya who had a continuous band of eminent writers to develop the central thesis of their original promulgators. Nevertheless, his sparkling originality of thought coupled with an amazingly compelling power of logic secured for him a position of great eminence with a host of outstanding philosophers belonging to rival schools of thought." (p. 1)

    (...)

    "To sum up: Io the opinion of the grammarian, Śabda means both the perishable sound and the Imperishable Word.

    When the Absolute is described as *a-śabda*, śabda means ·'sound'. The grammarian adumbrates that the Absolute is Śabda. In the absence of a suitable expression in the English language, the Absolute in the system of the grammarian is called Word (*Śabda*) or the Eternal Verbum." (p. 7)

21. Shukla, Ved Mitra. 2021. *Meaning in Bhartrhari's Vakyapadiya*. New Delhi: D. K Printworld.

22. Shulman, David. 2008. "Illumination, Imagination, Creativity: Rājasekhara, Kuntaka, and Jagannātha on *Pratibhā*." *Journal of Indian Philosophy* no. 36:481-505.

    Abstract: "Sanskrit poeticians make the visionary faculty of *pratibhā* necessary part of the professional poet's make-up. The term has a pre-history in Bhartṛhari's linguistic metaphysics, where it is used to explain the unitary perception of meaning.

    This essay examines the relation between *pratibhā* and possible theories of the imagination, with a focus on three unusual theoreticians—Rājasekhara, Kuntaka, and Jagannāthaita. Rājasekhara offers an analysis of *pratibhā* that is heavily interactive, requiring the discerning presence of the bhāvaka listener or critic; he also positions *pratibhā* in relation to Bildung (*vyutpatti*) and practice. For Kuntaka, *pratibhā*, never an ex nihilo creation by a poet, serves as the basis for the peculiar forms of intensified insight and experience that constitute poetry; these may also involve the creative scrambling and re-articulation of the object in terms of its systemic composition. At times, Kuntaka's *pratibhā* comes close to a strong notion of imaginative process. But the full-fledged thematization of the imagination, and of *pratibhā* as its support and mechanism, is best seen in the seventeenth-century debates preserved for us by Jagannātha. A link is suggested between the discourse of poetic imagination in Jagannātha and similar themes that turn up in Indo-Persian poets such as Bedil."

23. Subramania Iyer, K. A. 1969. *Bhartṛhari: A Study of Vâkyapadîya in the Light of Ancient Commentaries*. Poona: Deccan College Postgraduate Research Institute.

    "To put it briefly, an attempt has been made in this work, after giving a brief account of the problems relating to the text of Bhartrhari's work, including his commentary on the Mahabhashya of Patañjali and to the commentaries on the Vākyapadīya, to expound briefly the philosophical ideas and the notions pertaining to General Linguistics and those underlying the forms of the Sanskrit language, found mainly in the

Vākyapadīya and to a certain extent, in the commentary on the Mahabhashya. As the whole of even the available fragment of the latter work has not yet been published, it has not been possible to bring out all the linguistic notion lying embedded in it.

But I have taken note of some of the notions found in the published portion and they are found to confirm what one can gather from the Vākyapadīya. The present work is chiefly a study of the Vākyapadīya on the basis of the four available ancient commentaries. It does not claim to expound everything that the Vākyapadīya contains. It deals only with the basic notions found in its three *kāṇḍas*. The last section of the third *kāṇḍa*, the one relating to complex formations (*Vrtti*) is particularly rich in linguistic notions and some of them have been briefly explained here. The rest have not been dealt with, not only because they have been left for later treatment elsewhere, but also because some of them pertain particularly to the Sanskrit language whereas I have been anxious to bring out those notions like that of *sphoṭa* which concern language in general and not any particular language. The reason is that I look upon Bhartrhari as one who has, in a philosophical background, made a contribution to General Linguistics. He may be said to have given a definite shape to the contribution of ancient India to General Linguistics, though his ideas go back to Patañjali in the grammatical and linguistic tradition and to the Vedas themselves as far as the philosophical side is concerned. As I have indicated briefly what I have tried to do here in the section entitled 'Problems of Interpretation', it is not necessary to say anything more here." (*Preface*, pp. IX-X)

24. ———. 1982. *The Vākyapadīya: Some Problems*. Poona: Bhandarkar Oriental Research Institute.

Contents: Lecture I: Some Aspects of Bhartṛhari's Śabdādvaita 1-11; Lecture II: Bhartṛhari on Sphoṭa 12-50; Lecture III: the Vākyapadīya and the Pramāṇas 51-69.

"In *Vāk*. I. 44, according to tradition, Bhartṛhari begins his treatment of two kinds of words, included among the eight

topics declared by himself to form the subject matter of the Vākyapadīya.

There he tells us that in connection with the expressive word, one has to distinguish between two things: (1) that element which is the cause of the manifestation, (2) that element which, when manifested, conveys the meaning. Of these, the latter is the real word, the *vācaka* and the former is what manifests it. It is through the former that the indivisible expressive word is manifested and transferred to the hearer. Patañjali, in his Mahābhāṣya also makes a distinction between that which conveys the object, the meaning and that which is mere sound (*dhvani*); but he does not say anywhere clearly that the latter manifests the former. That element which, when manifested conveys the meaning is the real indivisible word, the *vācaka*.

It already exists in the speaker and the hearer but it has to be awakened or mianifested before it can convey the meaning. That which awakens it is called the *nimitta*. These two aspects exist only in the case of words which are expressive (upādānaśabda) ·and are therefore used for communication. The sounds which are uttered by the speaker awaken or manifest the expressive word, primarily the sentence, which already exists in the hearer.

The manifesting sounds are, therefore, the *nimitta*, the immediate cause of the awakening. It is not they which convey the meaning. That is done by the indivisible, sequenceless word which is manifested because it is eternally associated with it. It always carries, as it were, the reflection of the object and that reflection is the meaning. The main purpose is to convey it." (pp. 18-19)

25. Timalsina, Stfianeshwar. 2009. "Bharṭrhari and Maṇdaṇa on *Avidyā*." *Journal of Indian Philosophy* no. 37:367-382.

Abstract: "The concept of *avidyā* is one of the central categories in the Advaita of Sankara and Maṇdaṇa. Shifting the focus from *māyā*, interpreted either as illusion or as the divine power, this concept brings ignorance to the forefront in describing duality and bondage. Although all Advaitins accept avidyā as a

category, its scope and nature is interpreted in multiple ways. Key elements in Maṇḍana's philosophy include the plurality of avidyā, individual selves as its substrate and the Brahman as its field (*visaya*), and the distinction in *avidyā* between non-apprehension and misapprehension. A closer investigation shows that Maṇḍana is directly influenced by Bhartṛhari's linguistic non-dualism in developing the concept of Bhartṛhari. This study also compares other key constituents such as *vivartta* and *parināma* that are relevant to the analysis of *avidyā*. As the concept of counter-image (*pratibimba*) emerges as a distinct stream of Advaita subsequent to Maṇḍana, this study also compares the application of *pratibimba* in the writings of Bhartṛhari and Maṇḍana."

26. ———. 2009. "The Brahman and the Word Principle (*Śabda*). Influence of the Philosophy of Bhartrhari on Maṇḍana's *Brahmasiddhi*." *Journal of Indian Philosophy* no. 37:189-206.

    Abstract: "The literature of Bhartrhari and Maṇḍana have drawn significant attention in contemporary times. The writings of the prominent linguistic philosopher and grammarian Bhartrhari and of Maṇḍana, an encyclopedic scholar of later seventh century and most likely a senior contemporary of Sankara, shape Indian philosophical thinking to a great extent. On this premise, this study of the influence of Bhartrhari on Maṇḍana's literature, the scope of this essay, allows us to explore the significance of Bhartrhari's writings, not only to comprehend the philosophy of language, but also to understand the contribution of linguistic philosophy in shaping Advaita philosophy in subsequent times. This comparison is not to question originality on the part of Maṇḍana, but rather to explore the interrelationship between linguistic philosophy and the monistic philosophy of the Upaṇisadic tradition. Besides excavating the role of Bhartrhari's writings on the texts of Maṇḍana, this analysis will reveal the interrelatedness of the Advaita school of Sankara, often addressed as 'pure non-dualism' (*Kevalādvaita*) and the Advaita of Bhartrhari, identified as 'non-dualism of the word-principle' (*Śabdādvaita*)."

27. ———. 2014. "Semantics of Nothingness: Bhartṛhari's Philosophy of Negation." In *Nothingness in Asian Philosophy*, edited by Liu, JeeLoo and Berge, Douglas R., 25-43. New York: Routledge.

"Conclusion

This discussion of Sanskrit semantics has multiple philosophical implications.

Bhartṛharii's treatment of negation as ultimately grounded on being, and his assertion that there is no absolute negation of speech, removes it from the paradox that underlies negating something. This speech, or *vāc*, of Bhartṛhari is not just a means of communication though. When speech is identified with the absolute, the Brahman, the consequence is that no negation of the foundational being is possible, a rejection of the Nāgārjunian approach.

Bhartṛhari's treatment of sentence negation and word negation further illuminate other issues. It has been discussed above that negation in a sentence relates to the verb and negation in compounds relate to the second word. The consequence is that word negations do not simply negate something. Bhartṛhari's logic rests on three-tiered negation:

~ P = Q

~ P = ~

~ = P'

(Where P' stands for something that is neither identical to P nor is absolutely different from it, in the sense that P' shares many of the constituents of P but not all.) While Bhartṛhari rejects the position that ~ P = Q , this is only in the context of the compound terms. His analysis of three-tiered negation (which stems from Patañjali's analysis) still has relevance in understanding negation in the issues outside of semantics.

The consequence of Bhartṛhari's conclusion is that ~ P = P' leaves negation as affirming something existing. For the Advaitins, 'ignorance' (*avidyā*) is of the essential character of

being (*bhāvarūpa*). This understanding of ignorance as something phenomenal (while not having its own intrinsic being) would be semantically impossible had not the philosophy of language allowed such interpretation. Along the same lines, the Svātantrika-Prāsangika discourse on negation also stems from the semantic issue of whether the negative terms simply negate being or affirm something else.

The discourse on language is therefore pivotal to understanding a wide range of philosophical issues that originated in classical India. Although I have restricted myself to the philosophy of Bhartṛhari, his answers to the issues regarding negation are relevant for a wider discourse not only on language but also epistemology." (pp. 40-41)

28. ———. 2018. "Bhartṛhari and the Daoists on Paradoxical Statements." *Journal of Indian Philosophy and Religion*:5-24.

    Abstract: "Rather than considering paradox in a literal sense to be unresolvable, both Bhartṛhari and the Daoists develop a distinctive hermeneutics to decipher them, always exploring an overarching meaning where the fundamental differences are contained within. The conversation on paradox escapes the boundary of paradox then, as it relates to interpreting negation, and above all, the philosophy of semantics. Being and non-being, one and many, or something being both true and false at the same time are examples found from their texts. Just as the static and dynamic domains of the Dao remain a key to address paradox in Chinese literature, the stratification of speech, wherein deeper layers of speech are capable of resolving the apparent tension found at the surface level, seems central to Bhartṛhari’s approach."

29. Tiwari, Devendra Nath. 1997. "Bhartṛhari on the Indivisibility of Single-Word Expressions and Subordinate Sentences." *Indian Philosophical Quarterly* no. 24:197-216.

    "The aim of Bhartṛhari' s Philosophy of language is to explain the cognition accomplished by expressions in usual communication. By the term 'expression' Bhartṛhari means the unit of language which illuminates itself (its real nature) and

the meaning as well on the basis of which communications are accomplished.

It as such is a unit of communication comprising utterances, signs, symbols, gestures etc. as instrumental in the manifestation of real language (sphoṭa) and the sphoṭa as well which when manifested by them reveals itself and the meaning as well. Expression is not confined to tokens we utter, write or read because communication is accomplished by it. It is the differences of tokens used that the vitality or otherwise of an expression is decided; though Vaiyākaraṇas give importance to the tokens popularly used in ordinary usages. An expression is expressed in the mind of a speaker before communicating through utterances and reveals meaning when it is revealed in the mind of the audience through hearing and mainfesting sphoṭa. The utterances/tokens by proxy are called expressions. According to his philosophy there is no cognition without śabda (language) and all cognition. is congition shot through and through by *sabda*.(1)" (p. 197)

(1) *Vākyapadīyam*, 1/ 123 edited, Sampurnanand Sanskrit Yisvavidyalya, Varanasi.

30. ———. 2008. *The Central Problems of Bhartrhari 's Philosophy*. New Delhi: Indian Council of Philosophical Research.

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"The present work is a cognitive approach that views Bhartrhari's philosophy in accordance with his goal of

analyzing and interpreting cognition as revealed by language in usual communication. It views even the metaphysical concepts, as they are revealed in the mind by language. Philosophy cannot excel, or there is no possibility of any philosophy, if it is taken to engage with transcendental, non-cognitive and incommunicable things beyond the reach of language. Philosophy is a cognitive activity par excellence in the sense that it is concerned with and is confined to the beings that are awareness in character, and the world of awareness, for a Bhartṛharian, comprises the being of language and that of the meaning revealed non-differently by it in the mind. The language expresses/reveals those beings independently of things in-themselves - empirical or transcendental - and of our allegiances to them. Such beings, as are revealed by language, are alone intelligible and, hence, philosophical beings.

Language (*śabda*) for Bhartṛhari is not confined to what we speak, read or write. It is the light, the unit of awareness, a conscious force, different in character and in function from other lights, viz. sun, lamp, etc. which serve as tools in perception. Unlike other lights, it is awareness and, hence, foundational in character. It functions as the expresser of both itself and its meaning. Lights, other than language, illuminate external things caught in their compass, while language reveals all light, non-light, consciousness, unconsciousness and self-awareness as well. As a lamp illuminates many things falling within its compass, but the thing desired or expected, specifically, is taken primarily as illuminated by it, language (*śabda*) is expressive of all meanings (*sarve sarvārtha vācākāḥ*), but the meaning popularly expected is primarily taken to be known by it and other meanings are known on its basis either by implication or by closeness to the primary meaning. The present work observes that any oversight of the importance of expressive or primary meaning may cause confusion in understanding philosophical excellence of *Vākyapadīya*, because it is the primary meaning on the basis of which secondary and tertiary meanings of the word/language are known by imposition and nearness to it." (*Preface*, p. XIII)

(....)

"In order to impart to the book a pattern of organic unity, it is symmetrically arranged into nine chapters. The presentation contains investigations into the problem of different theories of language, meaning and the relation between the two from the point of view of analysis of cognition as revealed by language in communication. It deals with almost all the major arguments of the Naiyyikas, Bauddhas and the Mīmāṃsakas on the various issues of philosophical semantics and syntactics and answers them persuasively from the point of view of Bhartrhari's philosophy. Attempt has been made to present a philosophical exposition of the concepts without leaving any important verse of *Vākyapadīya* untouched. That is why, it has become a useful monograph not only for scholars, but also for general readers interested in the central philosophy of *Vākyapadīya*. The author is well aware of his limitations. It is up to wise readers to correct him for an improved next edition." (*Preface*, p. XIX)

31. Todeschini, Alberto. 2010. "Bhartṛhari's view of the *pramāṇas* in the Vākyapadīya." *Asian Philosophy: An International Journal of the Philosophical Traditions of the East*:97-109.

Abstract: "This paper is a study of Bhartṛhari's understanding of the *pramāṇas,* i.e. the means whereby knowledge is acquired, as can be evinced from his Vākyapadīya and the corresponding commentary (Vākyapadīya Vṛtti). Both Bhartṛhari's general attitude towards pramāṇas as well as his specific understanding of the individual means of knowledge are analyzed. In particular, it is established that Bhartṛhari accepts exactly three pramāṇas: perception (pratyakṣa), inferential reasoning (anumāna) and tradition (āgama). However, the status of the three is unequal: perception and inferential reasoning are fallible and hence cannot provide reliable guidance with regard to Dharma. These two pramāṇas do have their place and according to Bhartṛhari should not be discarded entirely. As for āgama, it is clear that Bhartṛhari accords it primacy in matters related to Dharma. But again, Bhartṛhari does not discard anumāna and pratyakṣa entirely.

Rather, he seems to suggest that they have to be supplemented by āgama, which is the unimpeacheable judge of tradition."

32. Tola, Fernando, and Dragonetti, Carmen. 1990. "Some Remarks on Bhartṛhari's Concept of Pratibhā." *Journal of Indian Philosophy* no. 18:95-112.

    "Among the meanings which the word *pratibhā* possesses in Bhartṛhari three interest us:

    (1) *Pratibhā* as the meaning of the word (*pāda*) and of the sentence (*vākyārtha*).

    (2) *Pratibhā* as an act of intuitive knowledge, whose object is the meaning of the word and of the sentence. Both aspects of *pratibhā* as the meaning of the word and of the sentence and as an intuitive knowledge are indissolubly connected. This relation is expressed by Punyarāja when he says, ad kārikā II, 13, that *artha*, the meaning is *pratibhārūpa* and, ad kārikā II, 31, that it is *pratibhātmaka*. Bhartṛhari himself affirms that the śabda(2) and the artha are not separated (II, 31, *sabdārthāv apṛthakslhitau*). It is only the conceptual analysis that can separate the meaning of the sentence (*artha*) from its cognition {*pratibhā*)(3)

    (3) *Pratibhā* as an act of intuitive knowledge whose object is not the meaning of the word or of the sentence, but the 'meaning of an action', 'the meaning of a situation', and other objects of diverse kinds. With this third value the semantic sphere covered by the word *pratibhā* becomes much broader. The second and third meanings differ only in relation to the object to which the act of intuition applies. So in what follows we shall treat them together." (pp. 95-96)

    (2) The word śabda comprises words (*pāda*) and sentences (*vākya*).

    (3) This remark on the indissoluble unity of the meaning of the sentence and its cognition is also valid for any other object of *pratibhā*.

33. Unebe, Toshiya. 2000. "Jñānaśrībhadra's Interpretation of Bhartrhari as Found in the *Lankāvatāravrtti* ('*Phags pa*

Langkar gshegs pa'i 'grel pa)." *Journal of Indian Philosophy* no. 28:329-360.

"The *Lankāvatārasūtra* (LAS) is one of the most important scriptures of Mahāyāna Buddhism. It was translated into Chinese four times. Three translations are still extant. Many commentaries on those Chinese versions were written in China, as well as in Japan,(1) whereas only two commentaries on the Sanskrit version have come down to us in the form of Tibetan translations. Jñānaśrībhadra (*Ye shes dpal bzang po*), who is thought to have been active in the eleventh century in Kashmir, wrote one of them: the Ārya-Lankāvatāravrtti (’Phags pa Langkar gshegs pa’i ’grel pa = LAV)." p. 329)

(...)

"In his LAV Jñānaśrībhadra frequently refers to the positions of Bhartṛhari, the Grammarians (vaiyākaraṇa/lung ston pa rnams), or the Śabdabrahmavādin (sgra tshangs par smra ba rnams) holders of the theory of Brahman as language). As far as I am aware, under these names, forty-six verses are directly quoted from the *Vākyapadīya* (VP), the magnum opus of Bhartṛhari. Given the fact that Śāntarakṣita in his *Tattvasaṅgraha*, cited Bhartṛhari’s verses in many places, and even devoted one chapter to refuting his Vedāntic philosophical thought, Buddhists could not ignore Bhartṛhari’s philosophy and linguistic theory.

In this paper I will deal with some of the verses cited by JJñānaśrībhadra and his comments on them to illustrate how this Buddhist scholar understood Bhartṛhari's thought. The paper will also offer some interpretations of LAS passages in the light of the commentary of Indian origin; in addition it will provide material to understand the world of thought of eleventh century Kashmir from a Buddhist perspective." (p. 330, a note omitted)

(1) For this tradition, based on the Chinese versions of the LAS, see Suzuki (1930: 3–11, 51–65).

34. ———. 2004. "The "Grammarian Objection" in Sthiramati's *Triṃśikābhāṣya* and Bhartṛhari's Argument on the Secondary

Application of Words." In *Three Mountains and Seven Rivers: Prof. Musashi Tachikawa's Felicitation Volume*, edited by Hino, Shoun and Wada, Toshihiro, 135-152. Delhi: Motilal Banarsidass.

"My attempt in this paper is only to show that the connection between the objection recorded in the Sthiramati's commentary and the grammatical literature, especially, Bhartṛhari's Vākyapadīya. Using these earlier studies, we shall discuss it further in detail." (p. 136)

(...)

"In conclusion, let us summarize our discussion briefly. As we have examined, the close ideas to the "Grammarian's objection" presented in Sthiramati's *Triṃśikābhāṣya* are recorded in Bhartṛhari's Vākyapadīya. But it is doubtful that he intends to make an objection to the Vijnanavadins per se, as he seems to introduce just various views with reference to the secondary application or secondary meanings of words. Among the various views taken up by Bhartrhari, the one particular to him is that a word primarily refers only to its form (svarupa), a ·particular pattern of phonemes; whatever else the word may refer to is secondary. In spite of Sthiramati's rejection of this view, we can see some kind of affinity between Bhartrhari and the Vijnanavadins on this point, since it is the Vijñānāvadins who assert that whatever a word may refer to is secondary." (p. 146)

35. ———. 2010. "Bhartṛhari on Text and Context." In *Indian Philosophy and Text Science*, edited by Wada, Toshihiro, 115-131. Delhi: Motilal Banarsidass.

"... in this paper, I would like to introduce the ancient Indian counterpart of modern contextualism by presenting how the fifth-century Indian grammarian/philosopher Bhartṛhari treats context in his linguistic theory, widely known as the theory of the indivisible sentence (*akhaṇda-vākya-vāda*). Scholars have clarified that Bhartṛhari considers a sentence (*vākya*) as the indivisible unit of speech and meaning of a sentence (*vakyārtha*) as something indivisibly and instantaneously

perceived as a flash of understanding (*pratibhā*) by the listener of the speech. However; the role of context in his theory has not been sufficiently explained thus far.

As the title of his magnum opus, the *Vākyapadīya* (VP), indicates, Bhartṛhari mainly argues about a sentence (*vākya*) in contrast with a word *(pada*). Therefore, he focuses on the significance of a sentence vis-a-vis the words that constitute it. Thus, there seems to be no independent section in Bhartṛhari's *Vākyapadīya* where he solely explains context. However, this still does not imply that he considers the issue to be an insignificant one. l hope that the idea of this ancient Indian grammarian will prove to be relevant even for the present *Text Science*." (p. 116, a note omitted)

36. ———. 2011. "“*Apūrva*,” “*Devata¯*,” and “*Svarga*”: Arguments on Words Denoting Imperceptible Objects." *Journal of Indian Philosophy* no. 39:535-552.

    Abstract: "We cannot directly perceive and experience objects of words such as “apūrva” “devata¯ ,” and “svarga,” while objects of words such as “cow” and “horse” are perceptible. Therefore in the Indian linguistic context, some assert that there are two categories of words. However, a grammarian philosopher Bhartṛhari (450 CE) in the second book of his Vākyapadīya, introduces a verse stating that there is no difference between them. Other Indian thinkers as well deal with this issue in various contexts. This paper aims at exploring the ideas expressed in Bhartṛhari’s verse and the related arguments found in other treatises of different schools. It consists of discussions of the following: (1) Bhartṛhari's Vākyapadīya 2.119 and its commentarial texts; (2) Kumārila’s Criticism; (3) The Nyāya context; (4) The Sāmkhya and the Buddhist context; (5) Related grammatical passages and the background of the Vākyapadīya 2.119; and (6) Conclusion."

37. ———. 2012. "Cognition and Language: A Discussion of Vākyapadīya 1.131 with Regard to Criticism from the Buddhists." In *Saṃskṛta-Sādhutā. Goodness of Sanskrit: Studies in Honour of Professor Ashok Aklujkar*, edited by

Watanabe, Chikafuma, Desmarais, Michele M. and Honda, Yoshichika, 488-508. New Delhi: D. K. Printworld.

38. ———. 2018. "Cognition and Language: Buddhist Criticism of Bhartṛhari' Thesis." In *History of Indian Philosophy*, edited by Bilimoria, Purushottama, 446-455. New York: Routledge.

"This chapter is primarily concerned with the fifth-century (c. 450– 510 CE) Indian grammarian and philosopher Bhartṛhari. Bhartṛhari's thesis on the relation between cognition and language is frequently visited by various thinkers from other schools. We will examine arguments in a few Buddhist logico-epistemological compendia, in which certain authors criticized Bhartṛhari for neglecting non- conceptual (*avikalpa/ nirvikalpa*) perception.

Bhartṛhari proclaims his thesis in the first book of his magnum opus, the *Vākyapadīya* (V) as follows:

[Sanskrit omitted]

(VP 1.131; VPwr, p. 49; VPI, p. 188)

In the world there is no notion (*pratyaya*) without conforming to/ accompaniment of language. All cognition *(jñāna*) appears as if penetrated by language.

As it reads, Bhartṛhari asserts that all cognition is closely related to language. The relationship between language and cognition intrigued ancient Indian scholars, and Bhartṛhari's theory generated arguments among them. Quoting this verse, many thinkers argue for and against his thesis.(2)" (p. 446)

(2) See Jan Houben, "Language and Thought in the Sanskrit Tradition," in *History of the Language Sciences: An International Handbook on the Evolution of the Study of Language from the Beginnings to the Present*, vol. 1, ed. S. Auroux et al. Berlin and New York: Walter de Gruyter, 2000, pp. 146-157.

Abbreviations

VP *Vākyapadīya* of Bhartṛhari, with the commentaries *Vṛṭti* and the *Paddhati* of Vṛṣabhadeva, Kāṇḍa I, ed. K. A. Subramania Iyer, Deccan College Monograph Series 32. Poona: Deccan College, 1966.

VPI The *Vākyapadīya* of Bhartṛhari with the *Vṛṭti*i: English translation, ch. 1. Deccan College Building Centenary and Silver Jubilee Series 26. Poona: Deccan College, 1965.

VPwr Bhartṛhari's *Vākyapadīya*, ed. Wilhelm Rau, Abhandlungen für die Kunde des Morgenlandes 42.4. Wiesbaden: Franz Steiner, 1977.

39. Vergiani, Vincenzo. 2004. "Two Parallel Passages in the Mahabhayasyatika and the Vakyapadiya of Bhartrhari." *Rivista degli Studi Orientali* no. 77.

"THE six *kāraka* categories are, as is known, a pivotal feature of Pāṇini's grammar. This explains why they have repeatedly drawn the attention of both ancient Grammarians and modern Indologists, stimulating considerable debate on the subject. Despite minor criticisms and modifications, the Pāṇiniyas have basically accepted the *kāraka* system as expounded in the *Aṣṭādhyāyī*, making a clear distinction between *kāraka* and non-*kāraka* syntactic relations.

It is all the more disconcerting, therefore, to come across the mention of «seven *kārakas*» in one of the best-known and most authoritative commentaries on Patañjali's *Mahābhāṣyaṣyaṭīkā*,(1) the *Mahābhāṣyapradīpa*(2) of Kaiyaṭa, even though this occurs within the context of what appears to be an alternative view, which the author rejects.

In all likelihood Kaiyaṭa is inspired by a remark made by Bhartṛhari in his *Mahābhāṣyaṣyaṭīkā*(3) the most ancient extant commentary on the MBh.(4) In Bhartṛhari's *ṭīkā* on the *Paspasāhnika*, in fact, there is a puzzling statement, which is made more difficult to comprehend by the fact that in one place the manuscript has a barely legible akṣara (...). Here I would like to suggest a new interpretation of Bhartṛhari's words(5) by drawing a parallel with v. 44 of the Sādhanasamuddesa,(6) the

chapter on the factors of action in the third *kāṇḍa* of the *Vākyapadīya*.(7) My interpretation is based on a reading of the passage that differs from the one found in the 1987 BORI critical edition of this section of the MBhT by Bronkhorst." (p. 86)

(1) Henceforth, MBh.

(2) Henceforth, MPr.

(3) Henceforth, MBhT.

(4) As is known, the MBhT is preserved in only one incomplete and often corrupt manuscript, the facsimile of which has been published by the Bhandarkar Oriental Research Institute of Pune.

(5) And, consequently, of Kaiyaṭa's.

(6) Henceforth, SaS. Unfortunately, for the understanding of this verse we cannot rely on Helārāja's help, because one of the two gaps occurring in the *Prakīrṇaprakāśa* (henceforth, PrPr) includes the

commentary on this section of the SaS. The gaps are filled in the manuscripts with the text of an otherwise unknown author called Phullarāja.

(7) Henceforth, VP.

40. ———. 2009. "A Quotation from the Mahābhāṣyadīpikā of Bhartṛhari in the Pratyāhāra Section of the Kāśikāvṛtti." In *Studies in the Kasikavrtti. The Section on Pratyaharas Critical Edition, Translation and Other Contributions*, edited by Haag, Pascale and Vergiani, Vincenzo, 161-189. London: Anthem Press.

"In the *Kāśikāvṛtti* (henceforth, KV) on psū. 5, *ha ya va ra ṬT*, a passage occurs that is present in a very similar form in two earlier texts, the *Mahābhāṣyadīpikā* (henceforth, MD) of Bhartṛhari and the Cāndravṛtti (henceforth, CV) on the Cāndravyākaraña (henceforth, C.) of Candragomin. A second passage elaborating on the first is found in almost identical

form in the CV and the KV. Although many scholars, from Kielhorn (1886) onwards, have drawn attentionto the numerous similarities that exist between the C., and especially its commentary, the CV, and the KV, even in the *pratyāhāra* section, these particular passages seem to have gone virtually unnoticed. However, as I will try to show in the following pages, they represent one piece of direct evidence that can help to establish on a more reliable basis the still controversial relative chronology of the authors and texts mentioned above, as well as their relationships to each other. Before examining the passages in question, I will present the terms of the ongoing debate, thus situating their interpretation in a historical perspective." (pp. 161-162, notes omitted)

References

Kielhorn, Franz Lorenz (1886), “The Chāndra-Vyākaraṇa andthe Kāśikā-Vṛtti”, *Indian Antiquary*, 15, pp. 183-85. [Reprint: Rau, W. (Ed.), Franz Kielhorn. *Kleine Schriften*, 2 vols., Steiner, Wiesbaden 1969, pp. 244-46.]

41. ———. 2012. "Bhartṛhari’s Views on the Role of Liminal Perception in Individual Self-awareness." In *Saṃskṛta-Sādhutā. Goodness of Sanskrit: Studies in Honour of Professor Ashok Aklujkar*, edited by Watanabe, Chikafuma, Desmarais, Michele M. and Honda, Yoshichika, 331-349. New Delhi: D. K. Printworld.

"Even sensations and impressions that have hardly been consciously recorded at the time of their occurrence can often be retrieved to some extent by an effort of recollection and therefore verbalised. Thus, a question arises about their status after the sense-object interaction takes place: should they be regarded as unformed perceptions that already possess cognitive value, namely, that are already somewhat imbued with linguistic categories? And is it possible that Bhartṛhari uses the phrase *avikalpa jñāna* to refer to such liminal states of cognition, when one’s attention is either unfocussed or, on the contrary, deeply absorbed in what one is doing whilst generally alert to one’s surroundings?

In order to answer these questions, I will first briefly present Bhartṛhari's views on the physical and physiological aspects of perception, for I think these have a bearing on the topic of this article." (pp. 332-333, a note omitted)

42. ———. 2013. "The Adoption of Bhartṛhari's Classification of the grammatical object in Cēṉāvaraiyar's commentary on the Tolkāppiyam." In *Bilingualism and Cross-cultural Fertilisation: Sanskrit and Tamil in Medieval India*, edited by Cox, Whitney and Vergiani, Vincenzo, 161-197. Pondichéry: Publications de l'Institut Français de Pondichéry.

    "In this article I will look at one episode in the long history of the interaction between the Sanskrit and Tamil grammatical traditions and draw from it some — largely tentative — conclusions in the hope that they may help to cast some light on larger processes at work.

    The episode in question is quite a clear-cut case of conceptual borrowing.

    It consists in the adoption of a semantic classiication of the grammatical object, irst formulated by the Sanskrit author Bhartṛhari (probably 5th century CE), at the hands of Cēṉāvaraiyar (13th–14th century CE), a mediaeval Tamil commentator of the Collatikāram (TC) of the Tolkāppiyam (T.). In order to assess the full significance and the wider implications of this borrowing, I will first have to situate both authors within their respective scholastic traditions. In particular, their views on the grammatical object will need to be seen in the broader context of each school's treatment of cases. his is a vast, complex and a highly technical topic, and even more so in an inter-linguistic perspective like the one attempted here. I will therefore have to be content with providing an inevitably sketchy outline of the two systems before narrowing my focus down to the grammatical object, and with that focus in mind I will also briely discuss other broadly coeval texts and traditions, in the hope that even a simple presentation of textual data will give a sense of the complexity of the underlying socio-cultural dynamics." (pp. 161-162, a note omitted)

43. ———. 2014. "The concept of *prayoktṛdharma* in the *Vākyapadīya* and some later works: The expression of feelings through words: a linguistic and philosophical outlook." *Bulletin d'Études Indiennes* no. 32:267-291.

"It is not uncommon for an utterance in the context of ordinary communication not only to predicate something about a given state of affairs but also to convey something about the speaker's emotional disposition towards the particular situation he/she is talking about. Clearly, any utterance reflects the uniquely subjective point of view of a certain speaker, which depends on the motivation behind his/her speech act as well as on what can be broadly defined as the context in which the communication takes place – and the context itself can be further described or analysed in terms of a number of variables such as the time and place, the level of formality/informality of the exchange, the nature of the relation between the people involved, and so on.

(...)

In an article published in 1991 Saroja Bhate draws attention to this remarkable feature of Pāṇini's work, one more token of his linguistic genius. "In his Aṣṭādhyāyī", she writes, "he showed in at least two hundred rules that a number of emotive and attitudinal meanings were relevant to the form of language" (Bhate 1991: 59).(2)

(...)

In the Pāṇinian tradition, the concept of *vyañjanā* was adopted by one of its greatest later exponents, Nāgeśa, in the 17th century (Bhate 1991: 56), to designate meanings that are not directly expressed but rather suggested or implied. However, long before Nāgeśa, the grammatical tradition, and in particular Bhartṛhari (5th c. CE), had speculated on this elusive aspect of semantics from a linguistic and philosophical point of view, coming up with different insights of great theoretical interest. In this paper I will focus on one such insight – the notion of *prayoktṛdharma* "property of the speaker" – found in the third *kāṇḍa* of the *Vākyapadīya* (VP), Bhartṛhari's major

treatise on philosophical semantics, and look at the use some of the later Pāṇinīyas made of it in their works."

(2) A systematic survey of these rules in the A. is still a desideratum. I intend to carry it out in the future.

References

Bhate, Saroja (1991), “Vyañjanā as reflected in the formal structure of language”. Pāṇinian Studies. Professor S.D. Joshi Felicitation Volume, ed. by Madhav M. Deshpande & Saroja Bhate, 55-64. Ann Arbor, Michigan: Center for South and Southeast Asian Studies, The University of Michigan.

44. ———. 2015. "Āgamārthānusāribhiḥ. Helārāja’s Use of Quotations and Othe Referential Devices in His Commentary on the Vakyapadiya." *Journal of Indian Philosophy* no. 43:191-217.

Abstract: "Examining the function and style of the references to grammatical literature found in a substantial section of Helārāja’s Prakīrṇaprakāśa on Bhartṛhari's third book of the Vākyapadīya, the article argues that the likely ideological motive of this commentary was to establish its *mūla* work firmly within the Brahmanical canon and should therefore be seen in the context of the appropriation of Bhartṛhari's ideas on the part of the roughly contemporary Pratyabhijñā philosophers of Kashmir. Incidentally, it also touches upon the making of the Pāṇinian tradition and the relation between Helārāja and Kaiyaṭa, the Kashmiri commentator of Mahābhāṣya."

45. ———. 2016. "Bhartṛhari on Language, Perception, and Consciousness." In *The Oxford Handbook of Indian Philosophy*, edited by Ganeri, Jonardon, 231-252. New York: Oxford University Press.

"Among the followers of the three sages (*munis*)—Pāṇini, Kātyāyana, and Patañjali—Bhartṛhari is the first whose works are extant. But rather than focusing primarily on the technical side of grammar, in his magnum opus, the Vākyapadīya, Bhartṛhari develops the reflection on semantics initiated by

Patañjali. This reflection is elaborated within the framework of his unique metaphysical vision according to which the very essence of brahman , the Absolute, is language (*śabda*), the ordering principle that is the fountainhead of the light of consciousness shining inside all living beings as well as the ultimate source of the physical world.

If the language principle (śabda-tattva) is the stuff the universe is made of, it follows that its sentient manifestations, and in particular human beings, are never divorced from language, for their capacity for knowledge (in fact their very consciousness and self-awareness, as will be argued below) is innately infused with language. The epistemological counterpart of Bhartṛhari's ontological monism is epitomized in this much-quoted verse from the first book of the VP: "In ordinary experience there is no cognition that does not conform to language. All knowledge appears as if it were transfixed by language." This position certainly has metaphysical underpinnings, as I have mentioned, but at the same time it is rooted—like all of the Grammarians' statements on language and epistemology—in the insightful observation of the actual linguistic practices and mental processes at play in everyday experience. And yet, the content of this particular statement may seem counterintuitive, because we are not normally aware of language playing any evident role in the sensory apprehension of physical objects. For Bhartṛhari's epistemology, it is of crucial importance, then, to show how language operates in a subtle but pervasive way even in perception, the most immediate mode of cognition." (p. 233, notes omitted)

46. Watanabe, Chikafuma. 2012. "Bhartṛhari, Dignāga and the Epimenides Paradox." In *Studies in Logic: A Dialogue between the East and the West: Homage to Bimal Krishna Matilal*, edited by Mitra, Madhabendra Nath, Chakraborty, Mihir Kumar and Sarukkai, Sundar, 115-141. New Delhi: Munshiram Manoharlal.

"For the Indian Grammarians, including Bhartṛhari, a statement represents the speaker's intention.(7) Accordingly, the hearer should not assume in advance that the speaker is

telling a lie or what he is saying is false, as otherwise it would not be possible to establish communication between the speaker and the hearer.

However, when a speaker utters the sentence "all I say is lies" (*sarvaṃ mithyā bravīmi*), if the word "all" refers to the statement itself, then the statement itself would be refuted and the speaker's intention to convey what he has in mind would not be accomplished. In order to prevent this self-refutation, the meaning of the quantifier "all" must be restricted. As a result, the meaning of the statement is understood as "all I say is lies except for this statement."

In this sense, it might be said that Bhartṛhari employs the theory of meta-language as devised from the semantic point of view. But the crucial point in his manner of evading self-reference is his Introduction of the notion of the speaker's intention and his emphasis on the purpose of speech acts. This point is more intimately related to pragmatics than to semantics. It is to be noted that A.P. Martinich tries to solve the liar paradox from the pragmatic point of view. According to him, a statement must fulfill an "essential condition." He explains this technical term as follows:

The essential condition for making a statement is that the speaker intends that the audience will take his utterance as representing how things are. (10)

In the light of this "essential condition" for making a statement, a paradoxical sentence such as "this statement is false" cannot be accepted as an adequate statement, because the hearer of this statement cannot ascertain its truth. It can be said that this "essential condition" for making a statement is considered a means for preventing self-reference, ancl thus, this idea is quite similar to Bhartṛhari's theory described above.

As is this "essential condition," Bhartṛhari 's notion of the speaker's intention is related to the purpose of speech acts, and it confines a speaker to saying something he considers to be true when he makes an utterance. Through such a

presupposition, he precludes self-reference from arising." (pp. 119-120, two notes omitted)

(7) See Ogawa [1999: 270-271, fn 7]

(10) See Martinich [1983: 64).

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   Table des matières: Avant-propos 9; Introduction 11:

   Première partie: Théorie de la connaissance et probèmes du langage avant Bhartṛhari

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   Introduction : Bhartrhari 251; I. L'Etre et les êtres 263; II. La connaissance vraie 311; III. Théorie du langage 357;

   Conclusion 443; Bibliographie 453; Index des termes sanskrits 465; Index des noms propres 472; Répertoire des textes cités 476-481.

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   Summary: "The article takes up anew the question of the authorship of the Vṛtti on the first two kāṇḍas of the

Vākyapadīya. Section 1 reviews the most important relevant passages from classical Sanskrit authors; they are unanimous in ascribing the Vṛtti to the author of the Vākyapadīya. Section 2 shows that there are, on the other hand, very strong internal arguments to show that the Vṛtti and the Vākyapadīya had different authors; the most important of these arguments have not yet been brought forward, or evaluated properly in the literature on this question. Section 3 then deals with the question of the weight which must be given to the unanimity of tradition, and to the other arguments that have been used to prove identity of authorship. Most of these can be shown to be without value, because they can be explained by a stylistic feature of many commentaries from that period which have not been taken into account or even noticed previously. Only one important argument remains at this point, the argument according to which some verses of the Vākyapadīya are incomplete without words added by the Vṛtti; this argument too loses its value once it is seen that these verses remain incomplete even after the words from the Vṛtti have been added. The conclusion is drawn that the Vṛtti and the Vākyapadīya have different authors. Section 4 deals with the text-critical question of how to distinguish verses belonging to the Vākyapadīya from verses cited in the Vṛtti from elsewhere. Section 5 addresses the question of whether the author of the Vākyapadīya or the author of the Vṛtti, if either, wrote the Mahābhāṣya Dīpikā. Some arguments support the view that it was the former. Section 6 reviews some early quotations from the Vṛtti, which indicate that this commentary may be old, even perhaps older than Dignāga."

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   [Bhartṛhari's Perspectivism (6)].

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Bibliographie sur le grammarien-philosophe Indien Bhartrhari

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   "La question de savoir si la *Vṛtti* , le commentaire le plus ancien du *Vākyapadīya* , est l' oeuvre de Bhartṛhari ou celle de Harivṛṣabha a été longuement et anciennement débattue. Pour une grande partie de la tradition indienne, il est incontestable que Bhartṛhari est l'unique auteur du *Vākyapadīya* et de sa *Vṛtt* i. Telle est, en tout cas, nous le verrons, la position d' Abhinavagupta (et, sans doute, d'Utpaladeva), et c'est ce qui justifie le titre du présent article.

   Donnée deux fois, dans deux de ses gloses, par Abhinavagupta, la strophe, retrouvée dans la *Vrtti* , que j'examine ici, est explicitement attribuée à Bhartṛhari dans l'une au moins de ses occurrences, à savoir la *Vivṛtivimarśinī*. En sorte que l'interprétation inédite qu'en propose, à cet endroit, Abhinavagupta constitue bien une «lecture *śaiva* de Bhartṛhari»." (p. 38)

2. Biardeau, Madeleine. 1964. *Théorie de la connaissance et philosophie de la parole dans le brahmanisme classique* . La Haye: Mouton.

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"En gros, les spéculations brahmaniques sur la connaissance se distribueront selon les deux directions ainsi indiquées par la Mïmāmsā et le Nyāya. Cependant, elles seront aussi partiellement influencées par une troisième doctrine qu'elles rejetteront pour l'essentiel et qui, elle aussi, se trouve liée à une discipline particulière : la grammaire.

Il s'agit cette fois, non plus d'une école proprement dite, quoique ce soit la tradition grammaticale issue de Pānini qui en fournisse l'occasion, mais d'une oeuvre attribuée à un auteur plus individualisé : Bhartṛhari.

(...)

Son Vākyapadīya n'a pas fait école, quoiqu'il ait été utilisé de maintes façons, et la moindre raison n'en est pas, sans doute, le fait qu'il a bouleversé la problématique de la Mïmāmsā et du Nyāya. La grammaire est une des « sciences annexes » - *anga* - du Veda, considérée comme nécessaire à l'exacte transmission du texte dans sa matérialité.

Les grammairiens n'ont cependant pas attendu Bhartṛhari pour soulever les problèmes philosophiques liés au langage. Au contraire, ce dernier est placé devant un riche faisceau de spéculations traditionnelles, acceptées par le monde orthodoxe, et qu'il intègre à sa propre réflexion. Pourquoi la Grammaire de Bhartṛhari n'a-t-elle pas été finalement retenue au nombre des darśana, des « points de vue » sur la vérité considérés comme

orthodoxes ? C'est une question à laquelle il faudra essayer de répondre." (pp. 24-25, une note omise)

3. Bronkhorst, Johannes. 1988. "Études sur Bhartṛhari, 1: L'auteur et la date de la Vṛtti." *Bulletin d'Études Indiennes* no. 6:105-143.

   Summary: "The article takes up anew the question of the authorship of the Vṛtti on the first two kāṇḍas of the Vākyapadīya. Section 1 reviews the most important relevant passages from classical Sanskrit authors; they are unanimous in ascribing the Vṛtti to the author of the Vākyapadīya. Section 2 shows that there are, on the other hand, very strong internal arguments to show that the Vṛtti and the Vākyapadīya had different authors; the most important of these arguments have not yet been brought forward, or evaluated properly in the literature on this question. Section 3 then deals with the question of the weight which must be given to the unanimity of tradition, and to the other arguments that have been used to prove identity of authorship. Most of these can be shown to be without value, because they can be explained by a stylistic feature of many commentaries from that period which have not been taken into account or even noticed previously. Only one important argument remains at this point, the argument according to which some verses of the Vākyapadīya are incomplete without words added by the Vṛtti; this argument too loses its value once it is seen that these verses remain incomplete even after the words from the Vṛtti have been added. The conclusion is drawn that the Vṛtti and the Vākyapadīya have different authors. Section 4 deals with the text-critical question of how to distinguish verses belonging to the Vākyapadīya from verses cited in the Vṛtti from elsewhere. Section 5 addresses the question of whether the author of the Vākyapadīya or the author of the Vṛtti, if either, wrote the Mahābhāṣya Dīpikā. Some arguments support the view that it was the former. Section 6 reviews some early quotations from the Vṛtti, which indicate that this commentary may be old, even perhaps older than Dignāga."

4. ———. 1992. "Études sur Bhartṛhari, 4: L'absolu dans le Vākyapadiya et son lien avec le Madhyamaka." *Asiatische Studien = Études Asiatiques* no. 46:56-80.

   "Pour la compréhension de la philosophie de Bhartṛhari telle qu'elle apparaît dans son Vākyapadīya, le concept du Brahman, c'est-à-dire de l'absolu, joue un rôle central.

   Bhartṛhari l'introduit au début même de son ouvrage, et cela indique déjà qu'il serait incorrect d'ignorer cet aspect de sa pensée.

   La strophe initiale du Vākyapadīya décrit le Brahman comme étant *śabdatattvam* .

   L'ambiguïté de ce composé permet deux interprétations tout à fait différentes; toutes les deux ont été acceptées par des chercheurs différents." (p. 56)

   (...)

   "On voit que les deux interprétations du Brahman de Bhartṛhari proposées par la recherche récente ne conviennent pas. La question se pose donc de nouveau: quel était le concept du Brahman de Bhartṛhari?

   Il existe une troisième conception du Brahman qui pourtant, pour autant que je sache, n'a jamais été mentionnée dans le contexte de Bhartṛhari. C'est celle de la totalité de tout ce qui existe, conception qui se trouve dans certaines upaniṣad, et ailleurs, comme par exemple dans la Bhagavad Gitā (où elle porte, naturellement, sur Vāsudeva: 7.19; 11.40). Est-il possible que Bhartṛhari accepte ce concept du Brahman?

   Pour répondre à cette question, il est nécessaire d'étudier d'abord le concept du tout trouvé dans le Vākyapadīya. Pour Bhartṛhari le tout est réel, tandis que ses parties ne le sont pas." (p. 59)

   (...)

   "Pourquoi Bhartṛhari a-t-il élaboré une telle conception du monde? L'idée du Brahman comme totalité existait déjà avant

lui, bien sûr. Mais Bhartṛhari n'a pas simplement emprunté cette idée aux textes antérieurs. Il l'a développée, encadrée dans une vision extraordinaire, vision qui attribue une réalité supérieure à chaque totalité, en comparaison avec ses parties.

Notons d'abord la ressemblance de cette vision avec une autre, cependant opposée à celle-ci. Selon la position adoptée par une grande partie des bouddhistes indiens, aucune totalité n'existe vraiment. Voici l'autre extrême, presque aussi radical que celui de Bhartṛhari. On ne peut guère s'imaginer que les deux extrêmes sont indépendants l'un de l'autre, et il semble donc tout à fait plausible que la position de Bhartṛhari soit une réaction contre celle des bouddhistes.

Il est vrai que Bhartṛhari n'admet nulle part qu'il ait subi l'influence du bouddhisme. Par contre, il se réfère à sa propre tradition, où il essaie de prouver la justesse de sa position par argumentation. La nature de son argumentation nous ramène pourtant au domaine du bouddhisme.

La position de Bhartṛhari n'est pas seulement un extrême opposé à celui des bouddhistes, elle est aussi une défense contre l'attaque lancée par les bouddhistes de l'école Madhyamaka contre tout point de vue possible." (pp. 63-64, note omises)

5. Candiotti, Maria Pia. 1997. "Lieux de réflexion métathéorique : Le langage de la science chez Bhartṛhari." *Asiatische Studien = Études Asiatiques* no. 51:1087-1094.

   "Les données textuelles des pages qui suivent font partie d'un corpus qui a été recueilli en vue d'un travail consacré au concept de langage scientifique dans l'œuvre de Bhartṛhari (B). But de cette brève exposition est d'essayer une première systématisation du matériel, afin d'en déceler des lignes de foi, utiles pour l'interprétation d'un sujet qui a, jusqu'ici, reçu peu d'attention dans la littérature secondaire."

6. ———. 2006. *Interprétations du discours métalinguistique. La fortune du sütra A 1 1 68 chez Patañjali et Bhartṛhari* . Firenze: Firenze Univesity Press.

"Comme il est aisé de le voir, l'ouvrage se structure nettement en trois parties qui sont indépendantes mais fonctionnelles l'une à l'autre :

Sans les conventions qui régissent le langage académique, la première section, intitulée 'Esquisse d'analyse lexicale', aurait tout aussi bien pu s'appeler 'Les mots pour le dire'. Á l'origine de la recherche décrite dans ces chapitres il y a eu la conviction que, si une réflexion métalinguistique s'était développée de façon cohérente dans la tradition grammaticale indienne, cette réflexion avait sans nul doute laissé des traces au niveau lexical. Car on a toujours besoin de 'mots pour le dire', tout spécialement quand il s'agit d'explorer des domaines nouveaux. L'attention se portera donc sur les mots par lesquels les grammairiens pouvaient faire référence aux noms métalinguistiques, en premier lieu sur le mot *saṁjñā* et sur le réseau linguistique qui s'est construit autour de ce terme(14).

La deuxième et la troisième section sont consacrées aux deux outils métalinguistiques principaux : la nomination, ou le fait d'appeler les formes linguistiques par des noms(15) et la citation, ou le fait de les nommer directement par leur forme(16). Plus spécifiquement, la deuxième section est consacrée à la nomination.

Bien que la langue commune possède aussi des noms métalinguistiques, ceux-ci sont une des caractéristiques saillantes de la langue de la grammaire. L'instauration des noms dans la grammaire se fait par le biais d'un acte volontaire de modification du rapport entre une forme linguistique et son sens : c'est un aspect du langage technique en général qui n'a pas manqué d'éveiller l'attention des grammairiens, en particulier de Bhartṛhari.

La troisième section porte sur la citation autonymique, lue comme un cas particulier de la nomination, où 'forme qui signifie' et 'forme signifiée' sont identiques. Réfléchir sur le pouvoir des noms de faire connaître leur forme, dans le domaine de la grammaire sanscrite, signifie avant tout, comme nous l'avons déjà souligné, réfléchir sur le sens du sūtra A 1. 1. 68. C'est dans cette dernière section que deviendra plus

évidente la qualité novatrice de la réflexion de Bhartṛhari, le penseur qui travaille le plus en profondeur sur les deux mécanismes (nomination / citation), sur leurs différences spécifiques et sur les différents niveaux de langue qu'ils impliquent." (pp. 17-18)

(14) Un 'réseau linguistique' identifie l'ensemble des termes liés à un terme donné par des rapports de subordination, d'opposition et ainsi de suite. Cette analyse lexicale a été conduite avec les instruments traditionnels de l'analyse lexicale par champs sémantiques, tout en utilisant parfois des méthodes onomasiologiques davantage liées à l'analyse des champs cognitifs. Cette façon de procéder semblait en effet respecter le statut un peu spécial du métalangage grammatical, un langage qui n'est pas artificiel et technique à tous les effets (et n'est donc pas analysable exclusivement à travers une approche onomasiologique) mais qui est certes en bonne partie de formation consciente et volontaire (et par conséquent différent des systèmes lexicaux de la langue commune).

(15) Quand on nomme la forme linguistique jamais comme un 'adverbe'.

(16) Quand on cite la forme linguistique jamais par le mot autonyme 'jamais'.

[sūtra A 1. 1. 68: *svaṁ rūpaṁ śabdasya åśabdasaṁjñā* = A word other than one whicvh is a technical term (*saṁjñā*) of the grmmar denotes its form only. (Rama Nath Sharma, *The Aṣṭādhyāyī of Pāṇini* , New Delhi: Munshiram Manoharlal 1990, Volume II p. 68)

7. Houben, Jan E. M. 2001. "Paradoxe et perspectivisme dans la philosophie de langage de Bhartṛhari : langage, pensée et réalité." *Bulletin d'Études Indiennes* no. 19:173-199.

[Bhartṛhari's Perspectivism (6)].

"Le grammairien-philosophe Bhartṛhari, qui vivait et travaillait en Inde au v• siècle de noire ère, traite de certains paradoxes auxquels il est confronté quand il discute de problèmes grnmmaticaux, linguistiques et philosophiques. Tandis qu'il est

possible de comparer les déclarations de Bhartṛhari sur les paradoxes plus ou moins directement avec les premières assertions connues dans la tradition européenne - c'est-à-dire dans l'Antiquité -, son approche et celle des philosophes el logiciens modernes semblent deux mondes à part. Néanmoins, Bhartṛhari fournit des suggestions stimulantes et audacieuses aux penseurs modernes traitant des paradoxes. Dans l'oeuvre de Bhartṛhari aussi bien que dans les discussions de la tradition occidentale, les problèmes posés par les paradoxes concernent la relation entre le langage, la pensée et la realité." (p. 173)

8. Montaut, Annie. 1990. "La tradition des grammairiens philosophes indiens : la notion d'objet dans la Grammaire de Bhartṛhari." *Linx* no. 23:19-38.

   "Le langage et la réflexion sur le langage a toujours été un sujet fondamental dans la philosophie indienne, elle-même ancrée dans son origine sur le rituel religieux : elle est le fondement notamment des écoles hindouistes de la *mīmāṁsā* (règles prescriptives relatives à l'interprétation du Veda) et du *nyāya* (logique), mais aussi un thème important de la réflexion philosophique du *vedānla* (littéralement "achèvement du Veda", avec le non dualisme de Śankara au VIlle siècle de notre ère) et de certains développements du boudhisme. Les histoires classiques de la philosophie indienne lui font donc la part belle, et plus récemment des travaux importants ont privilégié la réflexion proprement linguistique, sans la dissocier de la philosophie générale(1). La grammaire est une des sciences annexes du Veda (littéralement "un de ses membres" : *vedāṅga*), et il arrive qu'on en fasse l'un des *darśana* ou "points de vue" ou écoles philosophiques classiques (c.a.d. hindouistes)." (p. 19)

   (1) David Seyford Ruegg, *Contributions à l'histoire de la philosophie linguistique indienne* , De Boccard, Paris, 1959, Kunjunni Raja, *Indian Theories of Meaning* , 1963, The Adyar Library and Research Center, Madras, Madeleine Biardeau, *Théorie de la connaissance et philosophie de la parole dans le brahmanisme classique* , Mouton, la Haye, 1964, (traductrice également du chapitre 1 de la grammaire de Bhartṛhari en

français, De Boccard, 1964), et surtout K.A. Subramania Lyer, éditeur et traducteur de tous les volumes de la Grammaire de Bhartṛhari (I, II, III-2 chez Motilal Banarsidass, Delhi, III-l au Deccan College, Poona), et auteur de plusieurs études critiques, dont *A Study of the Vâkyapadiya in the light of the ancient commentaries* , Deccan College, Poona, 1969, et *The Vākyapadīya : some problems* , Bhandarkar Oriental Institute, Poona, Inde, 1982. Le récent livre de J.P. Staal, *Universals : Studies in indian Logic and Linguistics,* The University of Chicago Press, 1988, surtout la seconde partie, articule magistralement les problèmes spécifiques de la description et de la théorie linguistique chez Pāṇini surtout, la logique indienne classique, et la mise en perspective sur la version occidentale de semblables débats. Parmi les articles les plus synthétiques, indiquons "Sanscrit Philosophy of Language", J.F. Staal, C *urrent trends in Linguistics,* 5 Mouton, 1969, "La Grammaire sanscrite de Pāṇini", Pierre-Sylvain Filliozat (pp. 171-194), et 'Théories du langage en Inde", Madeleine Biardeau (pp. 1 13-144), dans *La Traversée des signes* , Seuil, Paris, 1975.

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Nyayacharya, Sukha Ranjan Saha: *Tattvacintâmani* (Book One: *Perception* p. 86; Book Two: *Inference* p. 170; Book Three: *Comparison* p. 238; Book Four: *Verbal testimony* [*Language*] p. 239-312).

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   Reprinted in Kalyan Sen Gupta, Krishna Roy (eds.), *Language, Knowledge and Ontology: A Collection of Essays by Professor K. K. Banerjee*, New Delhi: Indian Council of Philsophical Research 1988, pp. 220-232.

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   Abstract: "Cases of past absence (*prāṁâstitāsthala*) involve agents noticing in retrospect that an object or property was absent, such as when one notices later that a colleague was not at a talk. In Sanskrit philosophy, such cases are introduced by Kumārila as counterexamples to the claim that knowledge of absence (*abhāva*) is perceptual (*pratyakṣa*), but further take on a life of their own as a topic of inquiry among Kumārila's commentators and their Nyāya interlocutors. In this essay, I examine the Nyāya philosopher Gaṅgeśa's epistemology of past absence, according to which agents learn that a recollectable (*smaraṇârha*) object or property was absent by inferring its past absence from failing to recall (*asmaraṇa*) that object or property. Gaṅgeśa's account is best appreciated against the backdrop of earlier theories and their shortcomings, and I begin by presenting historical views leading up to his. I identify two groups of views about the epistemology of past absence: recollection views, according to which cases of past absence involve agents recalling negative information; and recollection failure views, according to which cases of past absence involve agents failing to recall positive information. I reconstruct two early recollection views: a Bhāṭṭa view belonging to Uṃveka, and a competing Nyāya view belonging to Jayanta and Bhāsarvajña. I then examine Śālikanātha and Sucarita's

critiques of recollection views, following which I reconstruct a Bhāṭṭa recollection failure view belonging to Pārthasārathi. I then examine Gaṅgeśa's critiques of Pārthasārathi's account and the recollection failure view he constructs out of its shortcomings."

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    "This paper aims at presenting a critical analysis of the *Samavāyavāda*(1) of Gaṅgeśa with a view to bring out his significant contribution to the problem of relations in general and the relation of inHerence in particular. It may be mentioned here that Gaṅgeśa's

    contribution to the problem of Inherence should mainly be viewed in the light of (1) his refutation of the view of the opponent(= opp.) and the objector to the opp. (= ob-opp.), who, in most cases, is either a Buddhist or a Vedāntin or a Mimāsaka, and (2) strengthening the Nyāya position on inherence. One of the prime concern of this paper has been to identify these opp., along with their arguments by quoting

suitable extracts from their texts along with the text of Gaṅgeśa."

(1) For the first time a critical analysis of the *Samavāyavāda* of *Tattvacintāmaṇi* is presented here. MM. Satis Chandra Vidyābhūsaṇa has pn:senttd a summary of it wbich hardly presents the analysis as such. Vide *A History of Indian Logic*, Delhi, Motilal Banarsidass, 1971, pp. 414 f.

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Buddhist Logic and Ontology. A Survey of Contemporary Studies

Introduction

"In the non-Buddhist traditions of Indian philosophical thought, and perhaps also in early Buddhist thought, there appears to be a tacit acceptance of the possibility of acquiring knowledge of reality. However, Nâgârjuna (about AD 250), a later Buddhist dialectical thinker, raised serious doubts about the possibility of acquiring knowledge by pointing out the self-contradictory character of all means of acquiring knowledge, Nâgârjuna's objections stimulated and compelled all subsequent philosophers provide a solid foundation to epistemology and logic before proceeding with the formulations of their philosophical positions.

In Buddhist circles Asanga (about AD 405) and Vasubandhu (about AD 410) made pioneering attempts to construct epistemology and logic on the Buddhist pattern. However it was Dignâga (about AD 450) who put Buddhist epistemology and logic on a solid footing and gave them a distinctive character. He is, therefore, rightly regarded as the father of Buddhist epistemology and logic, and also of medieval Indian epistemology and logic in general, for he not only gave a precise formulation to Buddhist epistemology and logic but also imparted a new direction to Indian epistemology and logic by way of composing independent treatises on epistemology and logic and interspersing the treatment of metaphysical problems within them, a style which was later on followed by Gangesa (about the twelfth century AD), the founder of the school of Navya-Nyāya. Buddhist literature prior to Dignaga deals with the problem of knowledge and the means of knowing either very casually or not at all. There seems to be no work devoted to the problem. But Dignaga felt the necessity for a distinct treatise on epistemology and logic to establish the Buddhist doctrines in a logical manner. He explicitly mentions in the Pramâna-samuccaya that its composition was led by the need to establish the means of valid cognition.

The task initiated by Dignaga was brilliantly continued by Dharmakirti (about 635), a doyen of Buddhist epistemology and logic. His Pramâna-vârtika, Pramânaviniscaya and Nyāya-bindu are masterpieces of Buddhist epistemology and logic. When Dignaga undertook an examination of the logical tenets of other philosophical schools in his treatise there were reactions from the latter. For instance, Uddyotakara and Kumarila (about AD 500) tried to controvert the views of Dignaga. Dharmakirti therefore defended and modified the views of Dignaga, thereby strengthening the foundations of Buddhist epistemology and logic. However, his exposition, which was ended to explain and defend the views of Dignaga, superseded and eclipsed the original by its superior merit. This tradition of Dharmakirti was carried forward by Darmottara (about AD 847) and subsequently by, amongst others, Jnanasrimitra about AD 1040)." (pp. 414-415)

From: S. R. Bhatt, "Logic and Language in Buddhism" in: Brian Carr, Indira Mahalingam (eds.), *Companion Encyclopedia of Asian philosophy*, London-New York: Routledge 1997.

"(...) from the origin of Buddhism in the 6th century b.C. to its expansion into four philosophical schools in the 4th century A.D., there were no systematic Buddhist works on Logic, but only a few stray references to that science in the works on philosophy and religion. Nagàrjuna, about 300 A.D., wrote a tract on Logic which was a mere review of the common topics of the Ancient School of Brahmanic Logic. During 400-500 A.D., Maitreya, Asanga and Vasubandhu handled Logic, but their treatment of it was merely incidental, being mixed up with the problems of the Yogacara and Vaibhasika schools of philosophy. Vasubandhu's three works on Pure Logic mentioned by Hwen-thsang are now lost and consequently their merits cannot be judged. With 450 A.D. began a period when Logic was completely differentiated from general philosophy, and a large number of Buddhist writers gave their undivided attention to that branch of learning. The works brought out by these. writers, along with those brought out by the Jainas, constitute the Mediaeval School of Indian Logic. Dignaga is the earliest known writer of this school." (p. 270)

From: Satis Chandra Vidyabhusana, *A History of Indian Logic. Ancient, Mediaeval and Modern Schools*, [1920]. Reprinted Delhi: Motilal Barnasidass 2002.

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   Abstract: "The rediscovery of Buddhist logic (Sanskrit *hetuvidyā, yinming*) in early 20th century China was a key

element in the Chinese Buddhist response to modernity. I argue that while Buddhist intellectuals used Buddhist logic for different purposes, their shared goal was to demonstrate that Buddhism was not only modern but also that it was and is indispensable for the modern project. The article addresses two reasons for the renewed interest in Buddhist logic. Firstly, the revival should be understood in the context of logic's newly gained authority and significance in the early part of the 20th century in China.

Secondly, the rise of Buddhist logic was a product of doctrinal debates within Buddhism. With globalization and growing foreign influence, Chinese Buddhists revisited Buddhist teachings that were in the margins for centuries.

These teachings, primarily from the Yogācāra schools, challenged ubiquitous views in Chinese Buddhism. Buddhist logic was not only one of the doctrines that was rediscovered, but it was also one of the most effective tools in anskritdebating the nature and future of Buddhism in modern China."

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12. Chattopadhyay, Madhumita. 2022. "Introduction to Buddhist Logicians and their Texts." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-23. Dordrecht: Delhi.

    Abstract: "From the origin of Buddhism in the sixth century BC to its expansion into four schools, logic was not looked upon as an independent branch of study within philosophy, though scattered uses of logical concepts and arguments were not rare in early Buddhist literature. Since the middle of fifth century AD, Buddhist logic developed into an independent area of study. This was possible because of the contributions of some great Buddhist thinkers who tried to develop logic not only as an independent study but also as a formal system where one can validly infer an unapprehended phenomenon on the basis

of an apprehended phenomenon. Rules were also developed for turning debate into a rational enterprise. Pioneering works in the field of logic were done by Dignāga, who was considered to be the father of Buddhist logic, and Dharmakīrti. Later Buddhist thinkers were more or less engaged in the discussion of logical issues dealt by these two great thinkers and tried to defend the Buddhist position against the attacks of the opponents, both of Brāhmaṇical and non-Brāhmaṇical schools. It is in course of such counterattacks and defenses that Buddhist logic developed to have a position of its own in Indian philosophy."

13. Cheng, Hsueh-li. 1984. *Empty Logic: Madhyamika Buddhism from Chinese Sources*. New York: Philosophical Library.

    Reprint: New Delhi: Motilal Banarsidass, 1991.

14. Chi, Richard S. Y. 1969. *Buddhist Formal Logic: A Study of Dignāga's Hetucakra and K'Uei-Chi's Great Commentary on the Nyayapravesa*. London: Royal Asiatic Society of Great Britain and Ireland.

    Part I. A study of Dignāga's *Hetucakra* and K'uei-chi's *Great commentary* on the *Nyayapraveda*.

    Reprint: Delhi: Motilal Banarsidass, 1984; with "A Bibliography of Indian and Buddhist Logic", pp. 185-222.

    "The Blbllograpby ls ln two parts:

    Bibliography A. Oriental texts before +1800, arranged ln alphabetical order of the titles. [pp. 185-197]

    BlbllographJ B. Books and articles after +1800, arranged In alphabetical order of the authors. [pp. 199-222]

    Works on western loglc, exrcept a few which particularly discuss Indian Logic, are not included in the Blbllograpby.

    Bibliography B includes both works on the theory of loglc and those on the application of. loglc to phllosophy." (Preface, P. LXXI)

15. ———. 1974. "Topics on Being and Logical Reasoning." *Philosophy East and West* no. 24:293-300.

16. ———. 1976. "A Semantic Study of Propositions, East and West." *Philosophy East and West* no. 26:211-223.

17. ———. 1984. "Buddhist Logic and Western Thought." In *Buddhism and American Thinkers*, edited by Inada, Kennet K. and Jacobson, Nolan P., 111-119. Albany: State University of New York Press.

18. Chinchore, Mangala. 1987. "Some Thoughts on Significant Contributions to Buddhist Logicians." *Journal of Indian Philosophy* no. 15:155-171.

    "The paper attempts to show that the difference between "Nyaya" and Buddhism is not merely verbal, but has varied philosophical implications, due to which Nyaya-Buddhist controversy occupies a very important position in the history of indian philosophical thought. This is vindicated with reference to some of the important and significant issues, viz. "sahtana" (the doctrine of universal flux), "anityata/ksanikata" (the doctrine of impermanence), and "vyapti (avinabhava-niyama)", which indicate marked differences between them in the field of metaphysics, epistemology, and logic."

19. ———. 1988. *Vādanyāya: A Glimpse of Nyāya-Buddhist Controversy*. Delhi: Sri Satguru Publications.

20. Daye, Douglas Dunsmore. 1975. "On Logic and "Algebraic and Geometric Logic"." *Philosophy East and West* no. 25:357-364.

21. ———. 1975. "Remarks on Early Buddhist Proto-Formalism (Logic) and Mr. Tachikawa's Translation of the 'Nyāyapravesa'." *Journal of Indian Philosophy* no. 3:383-398.

22. ———. 1977. "Metalogical Incompatibilities in the Formal Inscription of Buddhist Logic (*Nyaya*)." *Notre Dame Journal of Formal Logic* no. 28 (2):221-231.

23. ———. 1979. "Metalogical Clichés (Proto-variables) and Their Restricted Substitution in Sixth Century Buddhist Logic." *Notre Dame Journal of Formal Logic* no. 20:549-558.

    "This paper answers the question: are there variables in early Buddhist logic (Nyaya)? Thus the article describes 1) the

implicit rules and sources for the correct substitution of 6th century Buddhist metalogical clichés (proto-variables), 2) some differences between such clichés and modern variables, 3) various metalogical theories and the crucial function of metaphysical presuppositions, and 4) offers a translation into the first order predicate calculus."

24. ———. 1979. "Empirical Falsifiability and the Frequence of *Darśana* Relevance in the Sixth Century Buddhist Logic of Sānkaravāmin." *Logique et Analyse* no. 86.

25. ———. 1981. "Aspects of the Indian and Western Traditions of Formal Logic and Their Comparisons." In *Buddhist and Western Philosophy: A Critical Comparative Study*, edited by Katz, Nathan, 54-79. Atlantic Highlands: Humanities Press.

26. ———. 1988. "On Translating the Term *"Drstanta"* in Early Buddhist Formal logic." *Philosophy East and West* no. 38:147-156.

27. ———. 1991. "On Whether the Buddhist 'Syllogism' (Parārthānumāna) is a Sui Generis Inference." *Asian Philosophy: An International Journal of the Philosophical Traditions of the East* no. 1:175-183.

28. Deguchi, Yasuo, Garfield, Jay L., and Priest, Graham. 2008. "The Way of the Dialetheist: Contradictions in Buddhism." *Philosophy East and West* no. 58:395-402.

29. Dorfman, Michael. 2014. "Putting the Madhyamaka Trick in Context: A Contextualist Reading of Huntington's Interpretation of Madhyamaka." *Buddhist Studies Review* no. 3:91-124.

    Abstract: "In a series of works published over a period of twenty-five years, C.W. Huntington, Jr. has developed a provocative and radical reading of Madhyamaka (particularly Early Indian Madhyamaka) inspired by 'the insights of post-Wittgensteinian ragmatism and deconstruction' (1993, 9). This article examines the body of Huntington's work through the filter of his seminal 2007 publication, 'The Nature of the Mādhyamika Trick', a polemic aimed at a quartet of other recent commentators on Madhyamaka (Robinson, Hayes,

Tillemans and Garfield) who attempt ‘to read Nāgārjuna through the lens of modern symbolic logic’ (2007, 103), a project which is the ‘end result of a long and complex scholastic enterprise … [which] can be traced backwards from contemporary academic discourse to fifteenth century Tibet, and from there into India’ (2007, 111) and which Huntington sees as distorting the Madhyamaka project which was not aimed at ‘command[ing] assent to a set of rationally grounded doctrines, tenets, or true conclusions’ (2007, 129), This article begins by explicating some disparate strands found in Huntington’s work, which I connect under a radicalized notion of ‘context’. These strands consist of a contextualist/pragmatic theory of truth (as opposed to a correspondence theory of truth), a contextualist epistemology (as opposed to one relying on foundationalist epistemic warrants), and a contextualist ontology where entities are viewed as necessarily relational (as opposed to possessing a context-independent essence.) I then use these linked theories to find fault with Huntington’s own readings of Candrakīrti and Nāgārjuna, arguing that Huntington misreads the semantic context of certain key terms (tarka, dṛṣṭi, pakṣa and pratijñā) and fails to follow the implications of Nāgārjuna and Candrakīrti’s reliance on the role of the pramāṇas in constituting conventional reality. Thus, I find that Huntington’s imputation of a rejection of logic and rational argumentation to Nāgārjuna and Candrakīrti is unwarranted. Finally, I offer alternate readings of the four contemporary commentators selected by Huntington, using the conceptual apparatus developed earlier to dismiss Robinson’s and Hayes’s view of Nāgārjuna as a charlatan relying on logical fallacies, and to find common ground between Huntington’s project and the view of Nāgārjuna developed by Tillemans and Garfield as a thinker committed using reason to reach, through rational analysis, ‘the limits of thought.’"

References

Huntington, Jr., C.W., with Wangchen, Geshé Namgyal. 1993. *The Emptiness of Emptiness: An Introduction to Early Indian Madhyamika*. Delhi: Motilall Banarsidass.

——— . 2007. ‘The nature of the Mādhyamika trick’. *Journal of Indian Philosophy* 35: 103–131.

30. Eckel, Malcolm David. 1978. "Bhāvaviveka and the Early Mādhyamika Theories of Language." *Philosophy East and West* no. 28 (3):323-337.

    "Evidence from Bhavaviveka's Orajnapradipa and Tarkajvala is used to show that Bhavaviveka makes an important contribution to the understanding of Nāgārjuna's arguments about the foundations of language. Bhavaviveka's arguments are then compared and contrasted with those of Candrakirti and Tsong-kha-pa."

31. Ellingson-Waugh, Ter. 1974. "Algebraic and Geometric Logic." *Philosophy East and West* no. 24:23-40.

32. Fathi, Karim. 2013. "Logic in Buddhism." In *Encyclopedia of Sciences and Religions*, edited by Runehov, Anne L. C., Oviedo, Lluis and Azari, Nina P., 1168-1174. Dordrecht: Springer.

33. Fenner, Peter G. 1983. "Candrakirti's Refutation of Buddhist Idealism." *Philosophy East and West* no. 33 (3):251-261.

    "A philosophical reconstruction of Candrakirti's critique of the Buddhist Vijnanavada as found in the "Madhyamakavatara". The basis of the refutation of idealism is (1) refuting the nonexternality of sense objects, (2) the failure of mental potentials to account for sensory experience and (3) the refutaton of apperception. the relevant verses of the "Madhyamakavatara" are translated in an appendix."

34. Franco, Eli. 2004. "Xuanzang's proof of idealism (*vijñaptimātra*)." *Hōrin: Vergleichende Studien zur japanischen Kultur / Comparative Studies in Japanese Culture* no. 11:199-212.

35. Galloway, Brian. 1989. "Some Logical Issues in Madhyamaka Thought." *Journal of Indian Philosophy* no. 17:1-35.

    "In this paper we should like to argue that the "Prasajya" negation of the Madhyamaka school of Buddhist philosophy is not the same as that of the non-Madhyamaka schools (that is, that the distinction between "Prasajya" and "Paryudasa"

negation is not drawn in the same way). We should also like to argue that the terms and concepts of elementary set theory, employed in conjunction with the elementary predicate calculus, are useful in the explication of the laws of the excluded middle and of contradiction and also in the clarification of the "Catuskoti". Finally we shall defend the Madhyamika Nāgārjuna against two charges that have been laid against him to the effect that he has been guilty of certain errors of reasoning."

36. Gillon, Brendan S. 1997. "Negative Facts and Knowledge of Negative Facts." In *Relativism, Suffering and Beyond: Essays in Memory of Bimal K. Matilal*, edited by Bilimoria, Purusottama and Mohanty, Jitendra Nath, 128-149. New Delhi: Oxford University Press.

    "Negative facts have perplexed Western philosophers ever since the time of Plato.' But the philosophers of Europe and America have not been the only philosophers to have been perplexed by them; classical Indian philosophers too have pondered their nature. My interest here is to explore how the reflections of these classical Indian philosophers, transposed into the contemporary philosophical idiom, might enrich current metaphysical thinking about negative facts; and what I shall conclude is that at least one of these philosophers has a view of negative facts and knowledge of them, which, when so transposed, is very plausible indeed.

    I shall begin by asking the fundamental ontological question of whether or not negative facts exist and then sketch various replies which European and American philosophers have given to it. Since these replies have not led to any decisive answer to the question, I shall then ask two other questions: the more specific ontological question of whether or not absences-surely paradigmatic examples of negative facts-exist; and the related epistemological question of what is known when the absence of something is said to be known. Answers to these questions comprise an important part of classical Indian philosophy; and I shall outline their answers to them, concluding that the most plausible answers to these questions are those of Jayanta

Bhatta, who maintained that absences do indeed exist and that they are known not only by inference but also by perception."

37. ———. 2008. "An Early Buddhist Text on Logic: Fang Bian Xin Lun." *Argumentation* no. 22:15-25.

38. ———. 2013. "Language and Logic in Indian Buddhist Thought." In *A Companion to Buddhist Philosophy*, edited by Emmanuel, Steven M., 307-319. Malden, MA: Wiley-Blackwell.

39. Gokhale, Pradeep P. 2022. "Buddhist Logic: Sample Texts." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-20. Dordrecht: Delhi.

    Abstract: "In this chapter, three sections from three different texts are chosen which discuss some of the core doctrines in Buddhist logic.

    The first section, namely, *Nyāyapraveśakasūtram* discusses Diṅnāga's theory of inference which includes his theory of "inference for oneself" and "inference for others" and fallacies of inference including those of the thesis, reason, and instance.

    The second section chosen from Dharmakīrti's *Nyāyabindu* deals with "Inference for oneself." Dharmakīrti here tries to construct a comprehensive and tight framework of inference. Accordingly, *hetu* can be only of three kinds: s*vabhāva, kārya,* and *anupalabdhi.* Dharmakīrti in this chapter also explains the 11-fold classification of *anupalabdhi-hetu.*

    The third section selected from Dharmakīrti's *Hetubindu* discusses formal logical issues concerning the inference for others. Here Dharmakīrti contends that the statements of *pakṣadharmatā* and *vyāpti* are the only logically necessary and sufficient premises and that the statements of positive and negative concomitance entail each other such that only one of the two needs to be stated. This gives rise to two basic forms of inference which resemble Modus Ponuns and Modus Tollens."

40. Gokhale, Pradeep P., and Bhattacharya, Kuntala. 2022. "Some Issues in Buddhist Logic." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-24. Dordrecht: Delhi.

Abstract: "The chapter deals with some important issues related to the Buddhist logic.

Since Nyāya logic is treated as the mainstream Indian logic by many scholars, the true nature and the real contribution of Buddhist logic are many a time overshadowed by the studies in Nyāya logic. The first issue discussed in the chapter, therefore, is the differences between the Buddhist and Nyāya logic.

Within the Buddhist logic, the contributions of Diṅnāga and Dharmakīrti are many times studied in a combined (and confused) way. How one can distinguish between the two is the second issue.

Dharmakīrti is known for his view that probans-probandum relation should be a necessary relation, and this necessity can be derived from identity or causality. Some questions are raised such as whether identity leads to “internal pervasion” and how causal necessity can be ascertained. They are discussed in the third section.

The fourth issue is concerned with the logical consistency in prasaṅga method which was used as the core method of Mādhyamika Buddhism.

The last issue is concerned with the doctrine of apoha, which, though primarily concerned with word-world relation, is also concerned with the theory of inference in an indirect way."

41. Gold, Jonathan C. 2015. *Paving the Great Way: Vasubandhu's Unifying Buddhist Philosophy*. New York: Columbia University Press.

42. ———. 2016. "Vasubandhu: Constructing a Buddhist Mainstream." In *The Buddhist World*, edited by Powers, John, 512-525. New York: Routledge.

43. Goldberg, Margaret. 1985. "Entity and Antinomy in Tibetan bsDus Grwa Logic (Part I)." *Journal of Indian Philosophy* no. 13:153-199.

44. ———. 1985. "Entity and Antinomy in Tibetan bsDus Grwa Logic (Part II)." *Journal of Indian Philosophy* no. 13:273-304.

45. Gupta, Rita. 1985. "Apoha and the Nominalist/Conceptualist Controversy." *Journal of Indian Philosophy* no. 13:383-398.

46. Heitmann, Annette L. 2004. "Insight into reality (*tattvajñāna*) as defined in 6th century Indian Madhyamaka." *Hōrin: Vergleichende Studien zur japanischen Kultur / Comparative Studies in Japanese Culture* no. 11:213-221.

47. Herzberger, Hans G. 1975. "Double Negation in Buddhist Logic." *Journal of Indian Philosophy* no. 3:3-16.

    "The Apoha doctrine of Dignāga and his followers, presents a fascinating logical puzzle. While rejecting the classical law of double negation, it nevertheless requires a partial semantic equivalence between expression and their double negations. None of the principal nonstandard concepts of negation (classical, intuitionistic, three-valued) can do justice to this complex position. this paper undertakes a semantic reconstruction of the Apoha doctrine, using methods derived from Emil Post's work on the foundations of many-valued logic, especially the notion of a "two-fold" proposition."

48. Herzberger, Radikha, and Herzberger, Hans G. 1997. "Two Truths, or One?" In *Relativism, Suffering and Beyond. Essays in Memory of Bimal K. Matilal*, edited by Bilimoria, Purusottama and Mohanty, Jitendra Nath, 278-300. New Delhi: Oxford University Press.

    "Thomas Mann begins his essay on Schopenhauer by telling us that the pleasures of metaphysics are mainly aesthetic.

    Without sharing that high degree of philosophical detachment, we acknowledge that the present essay was motivated by aesthetic as well as historical concerns. Because it is part of an effort to understand Indian philosophers as particular individuals with distinctive problem situations and doctrines it is properly classified as historical. Because it aims to locate particular doctrines within larger philosophical, visions, it might also be classified as aesthetic. Our essay develop's a long perspective going back to the early origins *of pramâna* theory. Drawing the reader back in time puts us in a better position to trace historical sources for certain important ideas of

Dharmakīrti and Dinnaga, and to contrast the treatment of those ideas in their respective philosophical systems."

49. Ho, Chien-hsing. 2006. "Saying the Unsayable." *Philosophy East and West* no. 56:409-427.

50. ———. 2012. "The Nonduality of Speech and Silence: A Comparative Analysis of Jizang's Thought on Language and Beyond." *Dao. A Journal of Comparative Philosophy* no. 11:1-19.

    Abstract: "Jizang 吉藏(549–623 CE), the key philosophical exponent of the Sanlun 三論 school of Chinese Buddhism, based his philosophy considerably on his reading of the works of Nāgārjuna (c. 150–250 CE), the founder of the Indian Madhyamaka school. However, there are salient features in his thought on language that are notably absent from the works. In this article, I present a philosophical analysis of Jizang's views of the relationship between speech and silence and compare them with those of Nāgārjuna. It is shown that while Nāgārjuna leans toward affirming a clear-cut distinction between speech and ineffable quiescence, Jizang endorses the nonduality of conventional speech and sacred silence."

51. ———. 2013. "Ontic Indeterminacy and Paradoxical Language: A Philosophical Analysis of Sengzhao's Linguistic Thought." *Dao. A Journal of Comparative Philosophy* no. 12:505-522.

    Abstract: "For Sengzhao 僧肇(374–414 CE), a leading Sanlun 三論 philosopher of Chinese Buddhism, things in the world are ontologically indeterminate in that they are devoid of any determinate form or nature. In his view, we should understand and use words provisionally, so that they are not taken to connote the determinacy of their referents. To echo the notion of ontic indeterminacy and indicate the provisionality of language, his main work, the Zhaolun 肇論, abounds in paradoxical expressions. In this essay, I offer a philosophical analysis and rational reconstruction of Sengzhao's linguistic thought, with a view to exploring the rationale for and purpose of his use of paradoxical language."

52. Hoffman, F. J. 1982. "Rationality in Early Buddhist Fourfold Logic." *Journal of Indian Philosophy* no. 10:309-337.

53. Hugon, Pascale. 2004. "Interpretations of the *trairūpya* in Tibet." *Hōrin: Vergleichende Studien zur japanischen Kultur / Comparative Studies in Japanese Culture* no. 11:94-117.

54. ———. 2012. "Sa skya Paṇḍita's Classification of Arguments by Consequence Based on the Type of the Logical Reason: Editorial Conundrum and Mathematics for Commentators." *Journal of Indian Philosophy* no. 46:845-887.

Abstract: "This paper examines a passage of the eleventh chapter of the *Rigs gter* of Sa skya Pand˙ita (1182–1251) on the division of arguments by consequence (*thal 'gyur*) of the form "Because S is P, it follows that it is Q" with respect to the type of relation between P and Q. This passage appears in quite different versions in several available recensions of the Rigs gter, all of which are problematic to some extent.

The different interpretations of the commentators can be shown to derive from their reliance on different versions of the text, which they strove to make sense of through two distinct strategies. Following up on the examination of a division of arguments

by consequence along the same line in the works of Sa skya Pandita's Tibetan predecessors, in particular Phya pa Chos kyi seng ge (1109–1169) and mTshur stongZhon nu seng ge (ca. 1150–1210) (see Hugon, in Journal of Indian Philosophy 44(5):883–938,

2016b), I evaluate the diverging versions of the Rigs gter against a coherent logical scenario founded on Sa skya Pand˙ita's discussion pertaining to the types of logical reasons in inference in the tenth chapter of his work and comparison with the classification by Phya pa. I offer a hypothesis regarding the genesis of the problematic versions of the passage on the classification of consequences in the Rigs gter based on the comparison with the classification found in mTshur ston's epistemological work. I propose that the composition of this portion of the Rigs gter might have involved a textual reuse of

mTshur ston's classification, even though mTshurston and Sa skya Pand˙ita disagree on background issues. This very disagreement imposed changes to the reused text that led to problematic readings."

55. ———. 2016. "Phya pa Chos kyi seng ge and His Successors on the Classification of Arguments by Consequence (*thal 'gyur*) Based on the Type of the Logical Reason." *Journal of Indian Philosophy* no. 44:883-938.

56. Huntington, C. W. Jr. 1983. "A "Nonreferential" View of Language and Conceptual Thought in the Work of Tson-kha-pa." *Philosophy East and West* no. 33:325-339.

    "Part one of the work briefly describes Wittgenstein's theory of nonreferential meaning, as presented in Gudmunsen's "Wittgenstein and Buddhism". This theory is then applied to the interpretation of an essay by Tson-kha-pa dealing with the "two truths." Part two is an annotated translation of the Tson-kha-pa piece."

57. Ichimura, Shoei. 1981. "A Study on the Madhyamika Method of Refutation and Its Influence on Buddhist Logic." *The Journal of the International Association of Buddhist Studies* no. 4:87-95.

58. ———. 1988. "On the Dialectical Meaning of Instantiation in terms of *Māyā-Drstānta* in the Indian and Chinese *Mādhyamikas*." *Journal of Indian and Buddhist Studies* no. 36.

59. Iwata, Takashi. 2004. "On the concept of necessity in Buddhist texts - from the perspectives of the Yogacaras and the Buddhist logical tradition -." *Hōrin: Vergleichende Studien zur japanischen Kultur / Comparative Studies in Japanese Culture* no. 11:57-81.

60. Jayatilleke, K. N. 1967. "The Logic of Four Alternatives." *Philosophy East and West* no. 17:69-83.

61. Kantor, Hans-Rudolph. 2010. "'Right Words are Like the Reverse'—The Daoist Rhetoric and the Linguistic Strategy in Early Chinese Buddhism." *Asian Philosophy: An International*

Journal of the Philosophical Traditions of the East no. 20:283-307.

Abstract: "'Right words are like the reverse' is the concluding remark of chap. 78 in the Daoist classic *Daodejing*. Quoted in treatises composed by Seng Zhao (374–414), it designates the linguistic strategy used to unfold the Buddhist *Madhyamaka* meaning of 'emptiness' and 'ultimate truth'. In his treatise *Things Do not Move*, Seng Zhao demonstrates that 'motion and stillness' are not really contradictory, performing the deconstructive meaning of Buddhist 'emptiness' via the corresponding linguistic strategy. Though the topic of the discussion and the rhetoric are borrowed from Daoist sources, the point of view is rooted in the Buddhist understanding. The first section of this paper deals with the issue of exegetical methods in early Chinese Buddhism; the subsequent part explains both the Daoist background and the topics modified in Seng Zhao's discussions; the third part analyzes Seng Zhao's linguistic strategy and expounds its particular philosophical significance"

62. Kantor, Hans-Rudolph, and Salvini, Mattia. 2019. "Words, Concepts, and the Middle Way. Language in the Traditions of Madhyamaka Thought." *Journal of Indian Philosophy* no. 47:603-611.

63. Katsura, Shoryu. 1996. *How Did the Buddhist Prove Something? -. The Nature of Buddhist Logic --*. Calgary, Alberta: The University of Calgary.

    The Numata Chair in Buddhist Studies.

64. Kaul, Mrinal. 2022. "Causal Reasoning in the Trika Philosophy of Abhinavagupta." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-29. Dordrecht: Delhi.

    Abstract: "Abhinavagupta (fl.c. 975–1025 CE) is a tantric philosopher whose rigorous epistemological discussions are deeply rooted in his Śaiva metaphysics. In order to strongly withhold the Trika doctrinal principle of non-duality, Abhinavagupta, like his predecessor Utpaladeva (fl.c. 925–975

CE), is struggling to interpret the philosophical question of causality that rests in the analysis of cause and effect or subject and object duality. In this chapter, a short example from his *magnum opus* tantric manual, the *Tantrāloka* (9.1–44), and its elaborate commentary titled *-viveka* by Jayaratha (fl.c. 1225–1275 CE) is discussed while also contextualizing the process of philosophical rationalization in the history of Trika Śaivism. The champions of the theory of causality (*kāryakāraṇabhāva*), the Buddhists, are precisely targeted, and following rational enquiry, Abhinavagupta and Jayaratha want to prove that Śiva alone is the supreme agent (*kartā*) or cause (*kāraṇa*) and He indeed is also the effect (*kārya*) since both cause and effect are the manifestation of and in a single consciousness. Even though the *Tantrāloka* is based on the revealed knowledge from early scriptures like the *Mālinīvijayottaratantra*, yet at every step, compelling efforts are being made to justify the revealed (*āgama*) knowledge with reason (*yukti*)."

65. Krasser, Helmut. 1995. "Dharmottara's Theory of Knowledge in His Laghupramanyapariksa." *Journal of Indian Philosophy* no. 23:247-271.

66. Lance Factor, R. 1983. "What is the "Logic" in Buddhist Logic?" *Philosophy East and West* no. 33:183-188.

    "In opposition to a contemporary interpretation of the influential Buddhist logic text, "Nyayapravesa" (Introduction to logical methods, circa 600 a. D.) which holds that its argument forms are not deductive and hence not comparable to Western notions of logic, I argue that its basic syllogisms are retroductive-deductive pairs. A Nyaya syllogism is virtually identical with the retroductive form expounded by C.S. Peirce and N. Hanson."

67. Lang, Karen C. 2013. "Candrakīrti on the Limits of Language and Logic." In *A Companion to Buddhist Philosophy*, edited by Emmanuel, Steven M., 331-348. Malden, MA: Wiley-Blackwell.

68. Liberman, Kenneth. 2004. *Dialectical Practice in Tibetan Philosophical Culture: An Ethnomethodological Inquiry into Formal Reasoning*. Lanham: RowmaN & Littlefield.

69. Lindtner, Christian. 1981. "Atisa's Introduction to the Two Truths, and Its Sources." *Journal of Indian Philosophy* no. 9:161-214.

    "This paper presents a survey and an annotated translation (from Tibetan and Sanskrit) of the main Buddhist documents from II-X century a. D. dealing with the 'two truths', or two degrees of reality: a relative and an absolute. The former is the empirical world known to us through the senses and the usage of language. Submitted to sustained critical analysis it proves to be devoid of logical and ontological foundation. Enlightened individuals realizing that there is thus in fact only one truth -- the absolute -- nevertheless avail themselves of the convention of language in order to indicate what cannot be communicated but only 'personally intuited.' Thus the relative truth is pedagogically indispensable."

70. Liu, Ming-Wood. 1993. "A Chinese Madhyamaka Theory of Truth: The Case of Chi-tsang." *Philosophy East and West* no. 43:649-673.

    "Chi-tsang (549-623) was the key figure in the revival of Chinese Madhyamaka in the late sixth century, and his teaching is commonly acknowledged to be the apex of the development of Madhyamaka thought in China. This essay attempts to examine the conception of truth underlying a number of ideas generally considered as central to Chi-tsang's thought, including "refutation of falsehood", "revelation of truth" and "two truths"."

71. Matilal, Bimal Krishna. 1970. "Reference and Existence in Nyāya and Buddhist Logic." *Journal of Indian Philosophy* no. 1:83-108.

    "This Nyaya-Buddhist controversy over the empty subject term may well recall to a modern mind the Meinong-Russell controversy about 'existence' and 'denotation'. The Nyaya and the Buddhist logicians worried over the logical and the epistemological problem connected with the issue. The Nyaya interpreted "the rabbit's horn" not as a singular term but as a predicate complex attributing 'hornness' to something that

belonged to the rabbit. "The rabbit's horn does not exist" ascribes the absence of hornness to something belonging to a rabbit, and is true. This analysis is closer to Russell's theory of description. The Buddhist, on the other hand, is prepared to allow some sort of 'fictional existence' to "the rabbit's horn" which is perhaps not very different from Meinong's 'theory of objects'. In epistemology the Nyaya believed that any object of cognition (which is expressible in words) must be either real or analyzable into constituents which are ultimately identifiable with some real entity or other. Only a complex object can be fictional. The Buddhists, however, hold that the objects of erroneous cognition are fictional."

72. Matilal, Bimal Krishna, and Evans, Robert D., eds. 1986. *Buddhist Logic and Epistemology: Studies in the Buddhist Analysis of Inference and Language*. Dordrecht: Reidel.

Contents: Preface IX;

Bimal Krishna Matilal: Buddhist Logic and Epistemology 1; Richard P. Hayes: An Interpretation of *Anyāpoha* in Diṅnāga's General Theory of Inference 31; Hans G. Herberger: Three Systems of Buddhist Logic 59; Brendan S. Gillon:

Dharmakīrti and His Theory of Inference 77; Kamaleswar Bhattacharya: Some Thoughts on *Antarvyāpti, Bahirvyāpti,* and *Trairūpya* 89; R. S. Y. Chi: Dirināga and Post-Russell Logic 107; Douglas Dunsmore Daye: Metalogical Remarks on the Procrustean Translation of the Buddhist *Parārthānumāna* into the Anglo-European Predicate Calculus 117; Michael Torsten Much: Dharmakīrti's Definition of "Points of Defeat" (Nigrahasthāna) 133; Radhika Herzberger: *Apoha* and *Śimśapāvrksa* 143; Shoryu Katsura: *JnānaśrImitra* on Apoha 171; K. Kunjunni Raja: Apoha Theory and Pre-Dinnaga Views on Sentence-meaning 185; Mark Siderits: Was Śāntarakṣita a "Positivist"? 193; Tom Tillemans: Identity and Referential Opacity in Tibetan Buddhist Apoha Theory 207; D. Seyfort Ruegg: Does the Mādhyamika Have a Thesis

and Philosophical Position? 229; Christian Lindtner: Bhavya's Critique of Yogācara in the Madhyamakaratnapradīpa, Chapter IV 239; Malcolm David Eckel: The Concept of Reason in

Jnānagarbha's *Svātantrika Madhyamaka* 265;L Gopikamohan Bhattacharya: Ratnakīrti on Apoha 291; Index 299-303.

"For the first time in recent history, seventeen scholars from all over the world (India, Japan, Europe, the United Kingdom, Canada and the United States) collaborated here to produce a volume containing an in-depth study of Buddhist logical theory in the background of Buddhist epistemology. The Tibetan tradition identifies this important chapter in the history of Buddhist philosophy as the *pramāṇa* school. It owes its origin to the writings of the great Buddhist master, Dinnāga (circa A.D. 480-540), whose influence was to spread far beyond India, as well as to his celebrated interpreter of seventh century A. D., Dharmakīrti, whose texts presented the standard version of the school for the later Buddhist and non-Buddhist authors for a long time.

The history of Buddhist and Indian logical and epistemological theories constitutes an interesting study not only for the Buddhist scholars but also for philosophers as well as historians of philosophy in general. Each author of this anthology combines historical and philological scholarship with philosophical acumen and linguistic insight. Each of them uses original textual (Tibetan or Sanskirt) material to resolve logical issues and philosophical questions. Attention has been focused upon two crucial philosophical concepts: *trairūpya* (the "triple" character of evidence) and *apoha* (meaning as "exclusion"). Broadly the issues are concerned with the problems of inductive logic and the problem of meaning and universals. Besides, some authors address themselves to the general question: why and in what sense does logical theory become relevant to Buddhism, especially to the philosophical soteriology such as Madhyamika?" (From the Preface)

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    Abstract: "The Principles of Excluded Middle and Non-Contradiction are highly orthodox in Western philosophy. They are much less so in Indian philosophy. Indeed, there are logical/metaphysical positions that clearly violate them. One of these is the Buddhist *catuṣkoṭi*; another is the Jain *saptabhaṇgī*. Contemporary Western logicians have, however, investigated systems of "non-classical" logic in which these principles fail, and some of these bear important relationships to the *catuṣkoṭi* and the *saptabhaṇgī*. In this essay, we will look at these two principles and see how these may inform and be informed by those systems."

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inferential sign (*hetu*). This theory is compared to the Nyāya view on inference and the question whether the second of Diṅnāga's conditions is redundant is raised. The third part explores Dharmakīrti's developments of Diṅnāga's view on inference, particularly his Introduction of the particle eva and the three types of *hetu*. The final part of this chapter presents an outline of Diṅnāga's apoha (exclusion) theory of the meaning and function of concepts and words."

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    33. Madhyamakakārikās (150) (Lindtner) 98

    34. V, igrahavyāvarttanī (150) (Bhattacharya) 124

    35. Sūnyatāsaptati (150) (Della Santina) 133

    36. Vaidalyaprakarana (150) (Lindtner) 143

    37. Yuktisastikā (150) 150

    38. Ratnavālī (150) (Lindtner/ Potter) 153

    40. Suhrilekha (150) (Della Santina) 163

    41. Bodhisambhāra (150) 177

    42. Vyavahārasiddhi (150) (Lindtner) 179

    43. Mahāyānavimsika (15'0) (Lindtner) 180

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    "I dispute B. J. Matilal's representation of the Buddhist philosopher Nagarjuna as a skeptic concerning the possibility of giving an adequate account of the valid means of knowledge. I argue that Nagarjuna is best seen instead as an antirealist who is concerned to undermine the assumptions common to both the realist and the skeptic about knowledge. I reconstruct two arguments of Nagarjuna's, both of which are meant to show that while it is possible to construct a theory of the valid means of knowledge, no such theory can legitimately be used to defend metaphysical realism."
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Ancient Islamic (Arabic and Persian) Logic

Logic in Medieval Islam

"It has long been recognized by historians of logic that the medieval Muslim philosophers and philosophical theologians (*Mutakallimún*: rendered variously as rationalist theologians, dialectical theologians, the "scholastics" of Islam) made some interesting contributions to the history of logic. When the Greek logical works were handed to the Muslim scholars in translation in and after the 9th century A.D., they studied them thoroughly and critically and wrote commentaries upon them. Prantl, (1) the 19th-century writer on the history of logic in the West, noted that Arabic literature on logic was one of the main sources for the terminist logic (i.e., the logic of terms) of the medieval Western logicians - a view upheld by 20th century scholars on medieval philosophy. (2) William and Martha Kneale (3) and David Knowles (4) have also noted the origin in Avicenna (Ibn Sina, d. A.D. 1037) of the doctrine of intentio, a doctrine which was of great importance in both Arabic and medieval Western philosophical logic. The *secundae intentiones* constituted the subject matter of logic. (I have shown elsewhere, however, that in Arabic logic itself the doctrine of the "intentions" is traceable to al-Farabi, d. A.D. 950). (5)Bochenski (6) was also aware that "Arabian logicians certainly exercised some influence" on medieval scholastic logic.

However, for a complete knowledge of the contributions to logic made by the Muslim philosophers we have to wait until a great number of the logical works in Arabic have been edited and studied. But we know so far that modal logic, the branch of logic which deals with the concepts of poibility and neceity, because of its relevance to the problem of determinism and divine foreknowledge, was of great concern to them; that the relationship between logic and grammar interested them; that conditional syllogisms, the problem of universals, the analysis of the concept of existence and predication, the theory of categorical propositions were some of the logical or logico-philosophical questions which the Muslims philosophers treated in interesting ways." (pp. 1-2)

Notes

(1) C. Prantl, Geschichte der Logik in Abendlande (Leipzig, 1855), 2: 263 f.

(2) See, e.g., L. M. de Rijk, Logica Modernorum (Aen, 1962), 1: 18-19.

(3) William Kneale, The Development of Logic (Oxford, 1962), p. 229.

(4) David Knowles, The Evolution of Medieval Thought (Baltimore: Helicon Pre, 1962), p. 197.

(5) Kwame Gyekye, "The Terms 'prima intentio' and 'secunda intentio' in Arabic Logic," Speculum 46 (January 1971).

(6) I. M. Bochenski, A History of Formal Logic (Notre Dame, 1961), p. 150.

From: Kwame Gyekye, *Arabic Logic. Ibn al-Tayyb's Commentary on Porphyry's Eisagoge*, Albany: State University of New York Pre 1979.

Whereas the study of medieval Western logic is now an established field of research, contributing both to modern philosophy of logic and to the intellectual history of the Middle Ages, the study of logic in the precolonial Islamic world is still barely in its infancy. That fact alone makes it difficult to write an introductory chapter on the field:we are as yet unclear what contributions of the logicians writing in Arabic are particularly noteworthy or novel. It is also a dangerous temptation in this state of relative underdevelopment to cast an eye too readily on the work of the Latin medievalist, and to import the methods, aumptions, and even the historical template that have worked so well in the cognate Western field.

This temptation must be resisted at all costs. There are many important differences between the scholarly ideals and options of the Latin West and the Muslim East; there are, also, many differences between the various fortunes encountered by rigorous logical activity in the two realms over the centuries. A glance at the historiographical preliminaries of Bochenski's *History of Formal Logic* prompts the following observations.(1) First and foremost, Aristotle ceases by the end of the twelfth century to be a significant

coordinate for logicians writing in Arabic - that place is filled by Avicenna. The centrality of Avicenna's idiosyncratic system in post-Avicennian logical writings and the absence of Aristotelian logic in a narrowly textual sense meant that Arabic texts dealing with Avicenna's system were left to one side by the medieval Latin translators. Instead, other, le influential texts by Averroes and al-Fârâbi were translated because they did concentrate on Aristotle and spoke to thirteenth-century Western logical concerns. Even at the outset, then, the insignificance of Aristotle's logical system in the Avicennian tradition worked to distort Western appreciation of the relative importance of particular logicians writing in Arabic.

A second difference is that the whole range of Aristotelian logical texts were available in Arabic by about 900, and so the broad periodization of medieval Latin logic into *logica vetus* and *logica nova* is inappropriate as a way of periodizing logic written in Arabic; by the time serious logical work began, the complete Organon was available. Avicenna's work marks the watershed for any helpful periodization. Thirdly, Bochenski's analysis of what preconceptions and historical meanderings clutter the way to the proper study of medieval Western logic (the collapse of acute logical study with the demise of scholasticism, the ahistorical reductivism of post-Kantian logic, the institutionalization of a psychologistic logic in neoscholasticism) do not apply to the study of the logic of medieval Muslim scholars - even in the early twentieth century, it is clear that at least some scholars were still in contact with the acute work of the thirteenth century. There had been far le of a rupture in logical activity over the intervening centuries. On the other hand, there have been postcolonial efforts to find later Western logical achievements foreshadowed in early Arabic logic, and this has damaged the prospects for appraisal of the work by leading to a disproportionate focus on minor traditions.

Finally, only some of the characteristics Bochenski finds which distinguish medieval Western logic from the logic of late antiquity apply to the logic being written in Arabic at roughly the same time It too is highly formal and metalogical in its treatment, and pedagogically central; but no doctrine like supposition was developed, and there seems to have been far le concern with antinomies. One may say - nervously, given the current state of

research - that Arabic logic is somewhat closer to the logic of late antiquity in its concerns and methods than medieval Latin logic. That said, one must guard against an obvious alternative aumption, which is that Arabic logic is by and large just one or other of the systems of late antiquity.9 We already have enough control over Avicenna's logic to know that is false." (pp. 248-249)

Notes

(1) I. M.Bochenski, *A History of Formal Logic*, translated by I. Thomas, Notre Dame: Indiana University Pre, 1961; see esp. "On the History of the History of Logic", pp. 4-10.

From: Tony Street, "Logic", in Peter Adamson, Richard C. Taylor, *The Cambridge Companion to Arabic Philosophy*, Cambridge: Cambridge University Pre 2004, pp. 247-265.

Ontology in Medieval Islam

"The problem of expreing the Greek concept of being in Arabic did not escape claical Islamic writers. But the discuion of this problem as an instance of the general question of the influence of grammar on the formation of philosophical concepts is to be found among some recent writers on Islam, although unfortunately there is hardly anything approaching a sustained treatment from this perspective.

A few quotations from two recent writers will bring into focus those distinctive features of the Arabic language which are said to be problem-causing, and at the same time they will provide our analysis with a point of departure.

In his useful book Philosophical Terminology in Arabic and Persian, Soheil Afnan identifies the problem for the Arabic translator of Greek metaphysics in these words: "the translator can easily find himself helple." (1) This is generalized to all semitic languages, which are said to be "still unable to expre the thought adequately." (2) Afnan attributes this to what he calls "the complete absence of the copula." (3) Another writer, the linguist Angus Graham, in a stimulating article, (4) singles out another, but related, feature of Arabic, the sharp separation of the existential and predicative functions, a feature notably lacking in claical Greek. (5) These two features, the absence of the copula and the existential-predicative

separation, are supposed to have stood in the way of expreing the Greek concept of being adequately or accurately. And what is meant by this, in the words of Afnan, is the failure to expre "the precise concept of being as distinct from existence." (6) Graham puts it this way: "Because of the structure of the language, they [the Arabic translations of Aristotle] transform him at one stroke into a philosopher who talks sometimes about existence, sometimes about quiddity, never about being.(7)" (pp. 29-30)

Notes

(1) *Philosophical Terminology in Arabic and Persian*, p. 29.

(2) Ibid., p. 30. It is not clear what the relevance of time is ("still").

(3) Ibid., p. 29.

(4) Angus Graham, " 'Being' in Linguistics and Philosophy," *Foundations of Language* 1 (1965): 223-31.

(5) Ibid., p. 223. (6) Afnan, op. cit., p. 29.

(7) Graham, op. cit., p. 226; italics in the original.

From: Fadlou Shehadi, *Metaphysics in Islamic Philosophy*, New York: Caravan Books 1982.

islamic logicians

Al Kindi (c. 801 - 873)

Al-Farabi (c. 872 - 950/951)

Avicenna (Ibn Sina) (c. 980 - 1037)

Averroes (Ibn Rushd) (1126 - 1198)

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See also:

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2. ———. "Bibliographie Islamo-arabe. Livres et articles sur l'Islam et l'arabisme parus, en langues occidentales, durant la période 1960-1966" in: Mélanges de l'Institut dominicain des études orientales (MIDEO), 9, 1967, pp. 143-213.
3. Thérèse-Anne Druart and Michael L. Marmura. "Medieval Islamic philosophy and theology: Bibliographical Guide," in:
4. Bulletin de Philosophie Médiévale (32) 1990 (1986-1989) pp. 106-135;
5. Bulletin de Philosophie Médiévale (35) 1993 (1989-1992) pp. 181-219;
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7. Bulletin de Philosophie Médiévale (39) 1997 (1994-1996) pp. 175-202;
8. Mélanges de l'Institut dominicain des études orientales (MIDEO) (24) 2000 (1996-1998) pp. 381-414.

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2. "Argumentation and Arabic Philosophy of Language / Argumentation et philosophie arabe du langage." 2022. *Methodos. Savoirs et textes* no. 22:1–15.

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willing it to be; Alexander Lamprakis: Did the Arabic Tradition Know a More Complete Version of Alexander's Commentary on Aristotle's Topics? The Evidence from Ps-Jābir's Kitāb al-Nukhab / Kitāb al-Baḥth; Abdurrahman Ali Mihirig: Analogical Arguments in the Kalām Tradition: Abū l-Maʿālī al-Juwaynī and Beyond; Necmettin Pehlivan and Hadi Ensar Ceylan: Old Rivalry, Eternal Friendship: The Story of an Opponent-al-Fuṣūl in the ʿilm al-naẓar; Jens Ole Schmitt: Preferring Formal Language over the Face? Avicenna on the Physiognomical Syllogism. Some Observations; Shahid Rahman and Walter Edward Young: In Existence and in Nonexistence: Types, Tokens, and the Analysis of Dawarān as a Test for Causation; Aaron Spevack: Defending Definitions: The Tools of Disputation in Logic of al-Fanārī; Walter Edward Young: On the Logical Machinery of Post-Classical Dialectic: The Kitāb ʿAyn al-Naẓar of Shams al-Dīn al-Samarqandī (d. 722/1322).

All ther text are available on line, also in the French version.

3. Abed, Shukri B. 1996. "Language." In *History of Islamic Philosophy: Volume II*, edited by Nasr, Seyyed Hossein and Leaman, Oliver, 1602–1655. London: Routledge.

   "The purpose of this chapter is to characterize the debates concerning the development of the Arabic language (*al-'arabiyyah*) and to identify the specific mechanisms through which linguistic accommodations have been (and are being) made in the Arabic language to adapt to evolving circumstances. The first section will deal with the reaction of Arab intellectuals to the introduction of Greek, Indian and Persian philosophy and science into the Islamic world beginning in the second/eighth century. This reaction was mirrored in a series of debates concerning the relative merits of (Greek) logic and (Arabic) grammar. These culminated in a particularly important debate, documented toward the middle of the fourth/tenth century, which will serve as a focus for discussion in the first section of the chapter. The second and third sections will address the impact of the two external cultural confrontations cited above on the Arabic language, during the classical and the modern periods of Islam,

respectively. The fourth and final section will briefly summarize contemporary debates concerning the future of the Arabic language.(2)" (pp. 1602-1603)

(2) Owing to space limitations, other important linguistic issues, such as the discussion of the nature and the origin of language (i.e., whether it is conventional or inspired) cannot be dealt with here. A summary of various views on these subjects in the writings of medieval Islamic intellectuals may be found in J. al-Dln al-Suyuti (n.d.): 7ff. For the origin of the term *lughah* (language), consult the *Encyclopaedia of Islam*, new edition, s.v. “Lughah”, contributed by A. Hadj-Salah.

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Czapkiewicz, Andrzej, *The views of the medieval Arab philologists on language and its origin in the light of ʾas-Suyūṭī’s “al-Muzhir”*, Kraków 1988.

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Kees Versteegh, Linguistic Attitudes and the Origin of Speech in the Arab World, in Alaa Elgibali (ed.), *Understanding Arabic: Essays in Contemporary Arabic Linguistics in Honor of El-Said Badawi*, Cairo: American University in Cairo 1996, pp. 15-31.

Bernard G. Weiss, Medieval Muslim Discussions of the Origin of Language, *Zeitschrift der Deutschen Morgenländischen Gesellschaft*, 124 (1974), 33-41.]

[On Jalāl al-Dīn al-Suyūṭī (d. 911/1505): Antonella Ghersetti (ed.), *Al-Suyūṭī, a Polymath of the Mamlūk Period*, Leiden: Brill 2017]

4. Adamson, Peter, and Key, Alexander. 2015. "Philosophy of Language in the Medieval Arabic Tradition." In *Linguistic Content: New Essays on the History of Philosophy of Language*, edited by Cameron, Margaret and Stainton, Robert J., 74–99. New York: Oxford University Press.

   "Our analysis will show that the distinction between Hellenic philosophy and the autochthonous Arabic disciplines was not the result of any prima facie incompatibility between the two epistemologies. In fact, once the sensitivities of politics and culture had died down, the tripartite and bipartite theories of meaning that each tradition brought to the table proved perfectly compatible and mutually productive.

   But, before that point was reached in the eleventh century, the two sides in our debate needed to work through their political and cultural differences. The polemical context drove them to make exaggerated claims for their respective disciplines: either logic was the only way to think, or it was grammar.

   The self-evidently false nature of that dichotomy contributed to its abandonment, but not before casting a long shadow on the philosophy of language in the medieval Arabic tradition. Our chapter will, through its analysis of the debate, provide a clarification of the autochthonous Arabic position, which has received less attention than the philhellenic discourse. There was a pre-existing theory of meaning in Arabic before Hellenic philosophy appeared, and we will show how that bipartite Arabic theory of meaning, consisting solely of vocal form and mental content, provided the terminology and epistemological architecture for a whole series of ideas about how the mental content could, and should, be turned into linguistic content." (pp. 74-75)

5. Afnan, Soheil M. 1964. *Philosophical Terminology in Arabic and Persian*. Leiden: Brill.

   Chapter Five: pp. 35-50.

   "The logic of the *Falāsifah* just like that of their Greek and Hellenistic predecessors was a subject-predicate(1) logic. And their metaphysics was a substance-accident(2), and universal-particular(3) metaphysics. Hence the insights of modern schools of philosophy could hardly be expected of them. It has been maintained that for the employment of the subject-predicate principle in language and logic there is "a sound pragmatic defence. But in metaphysics the concept is sheer error(4)". Perhaps for that reason it is easier to pick at their metaphysics than at their logic; though that may have been superceded also. In any case the methods of linguistic analysis as developed in modern times, and the form in which correct logical statements or philosophical questions need to be couched, cannot be applied to the works of the *Falasifah* with justice.

   Language and thought have been progressively changing in the Occident for centuries. They have been stagnant in the Orient for almost the same period. "Philosophy must ... involve the exercise of systematic restatement(5)"; not the tedious repetitions practiced in the East for so long." (pp. 34-35)

   (1) Al-mawḍūᶜ wa al-mahmūl.

   (2) *Al-jawhar wa al-ᶜaraḍ.*

   (3) *Al-kulliyyāt wa al-fuz 'iyyāt.*

   (4) *The Philosophy of A. N. Whitehead*. ed. Schilpp. 2nd. ed. [1941] p. 306. [The reference is to A. Whitehead, *Process and Reality. An Essay in Cosmology* [1929], Corrected edition, New York: The Free Press 1978, p. 79]

   (5) Gilbert Ryle, [*Systematically Misleading Expressions*, Proceedings of the Aristotelian Society, New Series, Vol. 32 (1931-1932), pp. 139-170, p. 169].

   (...)

"In view of the above considerations the logic propounded by the Arabs and Persians can be more easily equated with the Greek texts than their metaphysics. The terms were more definite even when literally translated whether through some happy equivalent or sheer improvisation. But such terms did not always convey to the *Falāsifah* exactly the same meanings. In metaphysics where the terminology is much more abstract it becomes extremely risky to equate the terms with the original Greek in spite of the apparent semblance. Furthermore they were as a rule unaware that certain terms were of Peripatetic origin, others came from the Stoics and still others from the Neoplatonists. They knew for instance that entelechy was a word coined by Aristotle, but that was only a rare case." (p. 39)

6. Ahmed, Asaq Q. 2008. "The Jiha/Tropos-Mādda/Hūlē Distinction in Arabic Logic and its Significance for Avicenna's Modals." In *The Unity of Science in the Arabic Tradition: Science, Logic, Epistemology and their Interactions*, edited by Rahman, Shahid, Street, Tony and Tahiri, Hassan, 229–254. Dordrecht: Springer.

   Abstract: "The word *tropos,* translated in Arabic as *jiha*, is understood in the field of logic as mode. Though investigations of modals in the medieval Arabo-Islamic logical tradition trace their lineage back to Aristotle, the Greek word designating this concept was never used in this manner by the Stagirite. The closest word that the Arabic *jiha* translates from Greek is *tropos,* which was a technical term that gradually developed with Aristotle's commentators. The word came to be understood as part of a dichotomy, *tropos-hūlē*, which was inherited by the Arabs as *jiha-mādda*. This dichotomy seems to have become a determining factor for conversion rules of modal propositions and thus for modal syllogistic. After an investigation outlining the evolution of the term *tropos* and the development of the dichotomy *tropos-hūlē* in the Commentary tradition of modal logic, the article presents philological evidence for their influence on Avicenna. It then briefly discuss the ramifications of this influence for his modal conversion rules and syllogistic. In sum, the article argues that the *jiha-mādd*a (*tropos-hūlē*) division was part of a larger dichotomy

that allowed Avicenna to construe propositions in various ways. How he understood a given proposition determined the validity of its conversion and so of its place in his modal syllogistic."

7. Ahmed, Asad Q. 2010. "Interpreting Avicenna: Urmawi/Tahtani and the Later Logical Tradition on Propositions." *Documenti e Studi sulla Tradizione Filosofica Medievale* no. 21:313–342.

8. Ahmed, Asaq Q. 2011. "Systematic growth in sustained error: a case study in the dynamism of post-classical Islamic scholarship." In *The Islamic Scholarly Tradition: Studies in History, Law, and Thought in Honor of Professor Michael Allan Cook*, edited by Ahmed, Asaq Q., Sadeghi, Behnam and Bonner, Michael, 343–378. Leiden: Brill.

   Contain the edition and translation of Āmidī, “On the Conflict between Avicenna and Fārābī on the Description of the Subject", pp. 363-371 (translation), pp. 372-377 (arabic text).

   "The details of my study are addressed to historians of medieval logic, philosophy, and theology, but what they tell us about transformations—and the mechanisms underlying the transformations—within the discipline of logic should interest Islamicists more generally. I therefore summarize the global picture in the next two sections. In section IV, I hope to have offered an explanation of the specialist details by way of some examples. The rest of the article, starting in section V, is the extended technical proof of the more general observations and conclusions.

   Thus, the reader not specializing in the fields of Arabic theology, philosophy, and logic should have no difficulty with sections II and III; and she may also wish to work through section IV for a non-formal sample presentation of the argument. Section V, however, assumes some knowledge of medieval logic in general and Arabo-Islamic logic in particular." (pp. 345-346)

9. ———. 2013. "Logic in the Khayrābādī School of India: A Preliminary Exploration." In *Law and Tradition in Classical Islamic Thought: Studies in Honor of Professor Hossein*

Modarressi, edited by Cock, Michael, Haider, Najam, Rabb, Intisar and Sayeed, Asma, 227–243. New York: Palgrave Macmillan.

Abstract: "This chapter presents, in an exploratory fashion, the history of Arabo-Islamic logic in India between the tenth/sixteenth and fourteenth/twentieth centuries, with special focus on the formation of the Khayrābādī School in this discipline. Given its exploratory nature, the chapter does not promote any thesis that elaborates on the causes behind historical developments; however, it does point out that the study of logic passed through India in four distinct stages via Multān, Delhi, Lahore, the Awadh (generally), and Tonk. The aim of the chapter is simply to chart the trajectory of the scholars and works associated with logical studies in the specified period and region, so as to lay the groundwork for further technical research in Arabo-Islamic logical texts of the subcontinent."

10. ———. 2022. *Palimpsests of Themselves: Logic and Commentary in Postclassical Muslim South Asia*. Oakland, CA: University of California Press.

"This book is a study of the *Sullam al-ʿulūm* (*The Ladder of the Sciences*) of Muḥibballāh al-Bihārī (d. 1119/1707), long considered to be the most advanced logic textbook in the Indian(1) Niẓāmī curriculum.(2) It also engages the vast commentarial tradition that its composition elicited and offers a theory of commentaries.

The culminating South Asian articulation of discourses on logic issuing after the close of the classical period (ca. 200/800–600/1200), the Sullam is uniquely positioned to give scholars of Arabic logic a vantage point from which to reflect on the postclassical (ca. 600/1200–1300/1900) career of the discipline: as we will witness below, it was the South Asian heir to a continuous tradition that passed sequentially from Avicenna to Marāgha to Shīrāz to North India. The *Sullam* also allows one to reflect on the development of logic in the local Indian environment: its commentarial tradition was either internally self-referential or it reverted to the prehistory of the

hypotext; contemporary developments outside the Subcontinent are practically never cited by the *Sullam*'s hypertexts. In other words, although the *Sullam* was the product of a protracted transregional affair, its commentarial tradition was locally responsive."

(1) I do not use the expression "Indian" to refer to nation-state boundaries. I use it interchangeably for South Asia and as a shorthand for those domains that were under direct or indirect Mughal suzerainty at some point in the history of the region. This, too, should not be interpreted as a connotative concession to contested categories, but only as a way to set up a vague regional referent.

(2) The so-called Niẓāmī curriculum was, properly speaking, a method of scholarly training. I do not use the expression to indicate a rigid set of texts or classes. For further discussion, see Ahmed, "Dars."

References

Ahmed, Asad Q., "Dars-i Niẓāmī." In *Encyclopaedia of Islam*, THREE, online ed., 2015–. Edited by Kate Fleet, Gudrun Krämer, Denis Matringe, John Nawas, and Everett Rowson..

11. Ahmed, Asad Q. 2025. "The Negative-Predicate Proposition in Later Arabic Logic." In *Logic, Soul, and World: Essays in Arabic Philosophy in Honor of Tony Street*, edited by Ahmed, Asad Q., Zarepour, Mohammad Saleh and Strobino, Riccardo, 427–449. Leiden: Brill.

"The article's anchor is the presentation of the negative-predicate proposition in the *Sullam al-ʿulūm* of Muḥibballāh al-Bihārī (d. 1119/1707).(2) I focus on this late reception and engagement with the topic via some of the commentaries on this work. Insofar as the *Sullam* was part of a continuous dialectical tradition, I also explore discussions of this topic in three works of logic that played an influential role in the South Asian tradition.(3) Thus, the article is divided in the following manner. In the first part, I highlight the relevant principles whose common validity produced the problems that motivated the invention of the new kind of proposition; here I rely mostly

on the tradition of the *Sullam*. In the second part, I present discussions of the negative-predicate proposition in Quṭb ad-Dīn at-Taḥtānī's (d. 766/1365) *Sharḥ al-Maṭāliʿ* of Sirāj ad-Dīn al-Urmawī (d. 682/1283), As-Sayyid ash-Sharīf al-Jurjānī's (d. 816/143) supercommentary on the *Shamsiyya* of Najm ad-Dīn al-Kātibī (d. 675/1276), and Jalāl ad-Dīn ad-Dawānī's (d. 908/1502/3) commentary on the *Tahdhīb al-Manṭiq* of Saʿd ad-Dīn at-Taftāzānī (d. 793/1390). These three texts constituted the textual *Sitz im Leben* of the discussion in the Sullam tradition. In the third and final part, I summarize the discussion of this topic in the *Sullam* tradition mainly via the commentary of Mullā Mubīn (d. 1225/1810)." (pp. 427-428)

(2) On the author and this work, see Asad Q. Ahmed, Palimpsests of Themselves: Logic and Commentary in Postclassical Muslim South Asia (Oakland/Berkeley: University of California Press,

2022), Chapters 1 and 2.

(3) On works central to the study of logic in South Asia, See Asad Q. Ahmed, "Logic in the Khayrābādī School of India," in *Law and Tradition in Classical Islamic Thought: Studies in Honor of Professor Hossein Modarressi*, ed. Michael Cook, Najam Haider, Intisar Rabb, and Asma Sayeed (New York: Palgrave Macmillan, 2013), 227–245.

12. Ahmed, Asad Q., Zarepour, Mohammad Saleh, and Strobino, Riccardo, eds. 2025. *Logic, Soul, and World: Essays in Arabic Philosophy in Honor of Tony Street*. Leiden: Brill.

    Notes on Contributors IX; Asad Q. Ahmed, Mohammad Saleh Zarepour and Riccardo Strobino: Introduction 1; Interview with Tony Street: A Retrospective 7; 1 Mohammad Saleh Zarepour: Al-Fārābī on Future Contingency 13; 2 Cornelia Schoeck: 'Subtraction' (*rafʿ*) as Method for Finding First Principles of Demonstrations and for Establishing or Destroying: From Aristotle to al-Fārābī 46; 3 Zhenyu Cai: On Avicenna's Theory of Conception and Assertion: Towards a Systematic Ambiguity Reading 114; 4 Silvia Di Vincenzo: Struggling with the Essentials: A Debate between Avicenna and His

Contemporaries on Essentiality and Necessity in Demonstrations 130; 5 Tianyi Zhang: Avicenna and as-Suhrawardī on the Flying Man: From the Flying Man to Existentialism 158; 6 Paul Thom: Al-Kātibī's Deduction of the Predicables 186; 7 Daniel Davies: Harmonizing the Sages: Abravanel Reading Maimonides through Avicenna and Averroes 208; 8 Shahid Rahman and Alioune Seck: As-Suhrawardī's Stance on Modalities and the Logic of Presence 227; 9 Tareq Moqbel: The Logic of Divine Discourse: Fakhr ad-Dīn ar-Rāzī's Application of Logic to Qurʾānic Interpretation 271; 10 Khaled El-Rouayheb: A Problem with the Wholly Hypothetical Syllogism: Some 13th-Century Arabic Discussions 300; 11 Dustin Klinger: A 12th-Century Attack on Peripatetic Logic: Rashīd ad-Dīn al-Waṭwāṭ's (d. 1182) Treatise "A Doubt About reductio ad absurdum" and Its Aftermath 326; 12 Walter Edward Young: Four Moves to Rule Them All: Qiyās-Dialectic Metatheories and the Ascendancy of Master-Category Objections in Post-Classical Islamic Dialectics 366; 13 Asad Q. Ahmed: The Negative-Predicate Proposition in Later Arabic Logic 427; 14 Osama Eshera, Fateme Savadi and Robert Wisnovsky: Prolegomena to a Critical Edition of Sāwī's Baṣāʾir 450; Index 499-503.

13. Ahsan, Abbas, and Karima, Marzuqa. 2022. "Torn Between the Contours of Logic: Exploring Logical Normativity in Islamic Philosophical Theology." *European Journal of Analytic Philosophy* no. 18.

    Abstract: "Western contemporary logic has been used to advance the field of Islamic philosophical theology, which historically utilised Aristotelian-Avicennian logic, on grounds of there being an inherent normativity in logic. This is in spite of the surrounding controversy on the status of logic in the Islamic theological tradition. The normative authority of logic means that it influences the content of what we ought to believe and how we ought to revise those beliefs. This paper seeks to demonstrate that, notwithstanding the incompatible differences between the two systems, the underlying feature of both Western contemporary logic and Aristotelian-Avicennian logic is logical normativity. It then argues that an inherent

normativity of logic in the Islamic theological/philosophical tradition is unmotivated. Instead, it proposes to reinstate logic as anti-exceptional within the Islamic theological/philosophical tradition as a viable alternative."

14. Akgunduz, Ahmed. 2011. "Sa'īd Nūrsī's Approach to the Principles of Reasoning Vis-à-vis Analogical Inductive Reasoning." *Journal of Islam in Asia* no. 8:157–179.

    Abstract: "Analogical inductive reasoning (al-qiyās al-tamthīlī) is to some scholars a controversial issue related to Islamic law and logic. It is argued that this kind of qiyās can only afford non-certain knowledge in Islamic law. Bedi'uzamān Said Nūrsī (1876-1960) however, evaluated this kind of qiyās and argued that there also exists al-qiyās al-tamthīlī which affords certain knowledge. This problem may not be appreciated unless information regarding the proofs (al-'adillah wa al-Íujaj) and the ways of inference (isÏinbāt) and argumentation (istidlāl) in logic and Islamic law is discussed. For that matter stand of great scholars like Ibn Taymiyyah (d. 728) and Ibn al-Qayyim (d. 751) have been shared in. They have actually gone the same way with different nuances."

15. Akrami, Musa. 2017. "From Logic in Islam to Islamic Logic." *Logica Universalis* no. 11:61–83.

    Abstract: "Speaking of relations between logic and religion in Islamic world may refer to logic in two respects: (1) logic in religious texts, from doctrinal sacred texts such as *Qur'an* and sayings of the Prophet (as well as *Imāms*, in *Sh'ıism*) to the *Qur'anic* commentaries and the texts related to the principles and fundamentals of jurisprudence, all of which make use of some reasoning to persuade the audiences or to infer the rules and prescripts for religious behavior of the members of religious community; and (2) logic as a discipline that is studied and applied both independently and as a tool for reasoning in (a) schools of Islamic theology (from *Ash'arīs* to *Mu'tazilīs* and *Shī'īs*), (b) systems of Islamic philosophy (from Peripatetics to Illuminationists), and (c) other types of knowledge in medieval Islamic world, all being strongly influenced by religious doctrines of Islam. Accordingly, this

paper speaks of (i) the different manifestations of using logical reasoning, particularly analogy, in *Qur'anic* arguments, e.g. for the existence of God and resurrection after death; (ii) some contradictions or paradoxes reported by different opponents in the verses of *Qur'an*; (iii) the place of logic in the classification of disciplines and the courses taught at the schools and seminaries; (iv) the influence of the attitudes of different religious sects on logic; (v) the instrumental role of logic for both religious and secular reasonings; (vi) the relation between reason and dogmatic religious doctrines, and, finally, (vii) the reflection of this relation on progress or recession of logic in medieval Islamic world."

16. ———. 2020. "Logic in Islam and Islamic Logic." In *Beyond Faith and Rationality: Essays on Logic, Religion and Philosophy*, edited by Silvestre, Ricardo Sousa, Göcke, Benedikt Paul, Béziau, Jean-Yves and Bilimoria, Purushottama, 276–300. Cham (Switzerland): Springer.

    "Due to its appealing potential and possibilities, the Greek heritage in logic was broadly translated into other languages (for Arabic translation of Aristotle's writings see (Walzer 1962)). The leading role of logic gave rise to studying, learning, and teaching it in various religious and philosophical circles. In spite of some antiphilosophical trends, it is not surprising that the translation of Greek works in logic was welcomed by most scholars with their own strong Islamic religious and theological attitudes. Such an attitude led to the emergence of important logicians and extension of Greek logic in the Islamic world.

    This chapter is arranged in three main sections to show the place of

    1. reason and reasoning in Islam as a religion,

    2. logic in Islam as a religion, and

    3. the well-known "Islamic logic", a tradition in the history of logic that was developed in the Islamic world largely by Muslim logicians, in relation to logic in Islam as a religion that has its own sacred texts, on the one hand, and the theoretical and

practical issues that possibly makes using logic necessary, on the other hand." (pp. 277-278)

References

Walzer, Richard. 1962. *Greek into Arabic: Essays on Islamic philosophy*. Cambridge: Harvard University Press.

17. al-Karaki, Balqis. 2018. "The Poetic Syllogism in Fakhr al-Dîn al-Râzî's *Nihâyat al-îjâz fî dirâyat al-i'jâz*." *Mélanges de l'Université Saint-Joseph* no. 67:127–155.

18. Ali, Mufti. 2002. " The image of the history of opposition against kalam and logic reflected in modern literature." *Al Qalam* no. 19:117–137.

    Abstract: "The attitudes of Islamic scholars toward Greek *kalam*, logic, and philosophy, which they generally refer to as '*ulum al-awa'il*, are divided into two orientations: the Traditional orientation, which emphasizes that Islamic reason should be focused on understanding and applying revelation, away from philosophical activities, and the Rational orientation, which states that the Greek tradition does not contradict Islamic doctrine. This Traditional orientation has not received sufficient attention from modern writers. Through a review of modern literature by I. Goldziher, G. Maksidi, G.H.A. Juynboll, J. Pavlin, and P.Sj. van Koningsveld, which explicitly and elaborately outlines the schools, figures, opinions, and arguments of these "opponents," this study reveals that the stance of supporting or rejecting kalam and logic is not the monopoly of a particular religious school. Scholars who are considered representatives of the extreme Traditional school can be the main defenders of *kalam* and logic and make very significant contributions to the advancement of the two sciences, and vice versa. This study also reveals that the five modern authors did not refer to *Shawn AI-Manthiq Wa Al-Kalam Min Fannay Al-Manthiq Wa Al-Kalam* by Al Suyuthi, a text that is very rich in this theme."

19. ———. 2005. "Jalāl al-Dīn al-Suyūṭī Against Logic and Kalām. Analysis and Significance of Ṣawn al-manṭiq wa'l-kalām ʿan

fannay al-manṭiq wa'l-kalām." *Hamdard Islamicus: Quarterly Journal of Studies and Research in Islam*:23–44.

20. ———. 2008. "A Statistical Portrait of the Resistance to Logic by Sunni Muslim Scholars. Based on the Works of Jalal al-Din al-Suyuti (849-909/1448-15)." *Islamic Law and Society* no. 15:250–267.

    Abstract: "On the basis of my analysis of four works composed by al-Suyūṭi, I argue that hostility to logic was a predominant feature of Sunni scholarship, especially during the 13th, 14th, and 15th centuries. Logic was condemned by distinguished Sunni scholars in Valencia, Fez, Aleppo, Iraq, and Mecca, but especially in Egypt and Syria. This conlusion confirms Goldziher's argument that resistance to logic started already in the 2nd/8th century and increased in the 13th and 14th centuries; and disconfirms al-Rouayheb s argument that opposition to logic was never predominant among Muslim Sunni scholars."

    References

    I. Goldziher, "Die Stellung der alten Orthodoxie zu den antiken Wissenschaften," in Gesammelte Schriften (1970) vol. 5, 357-400 (originally published in *Abhandlungen der konig. Preuss. Akademie der Wissenschaften* [1915-1916], 3-46).English translation by Merlin L. Swartz, "The Attitude of Orthodox Islam toward the Ancient Sciences,"' in *Studies on Islam* (New York and Oxford: Oxford University Press, 1981), 185-215.

    Khaled el-Rouayheb, "Sunni Muslim Scholars on the Status of Logic, 1500-1800," *Islamic Law and Society* 11,2 (2004), 213-232.

21. ———. 2008. "How did al-Suyūṭī abridge Ibn Taymiyya's Naṣīḥat ahl al-Īmān fī radd ʿalā Mantiq al-Yūnān?" *Al-Jāmiʿah: Journal of Islamic Studies* no. 46:279–301.

    Abstract: "Al-Radd ʻala ʾl-Mantiqiyyin (an alternative title for Nasihat Ahl al-Iman) is a work composed by Ibn Taymiyya to demolish each principle of logic as well as to unravel the depravity of their foundation. Probably due to Ibn Taymiyya’s

being genius, when he destroys those principles, he could not avoid himself to discuss digressively irrelevant topics dealing with theological as well as metaphysical issues. In a number of passages in al-Radd, he could not even hinder himself to make a good deal of repetitions. Therefore, al-Radd ‘ala’l-Mantiqiyyin is complex and difficult to use. The coherence of arguments that Ibn Taymiyya formulated is not solid and comprehensive. His criticism of logic is not penetrating as well. On the basis of my analysis of al-Suyuti’s method of abridgement of Ibn Taymiyya’s al-Radd, I argue that al-Suyuti succeeded in rendering Ibn Taymiyya’s sequence of ideas superior to that found in the original work of the latter. The result of this study confirms Hallaq’s argument that the overall result of al-Suyuti’s abridgement of Ibn Taymiyya’s al-Radd is ‘a more effective critique of logic than that originally formulated by Ibn Taymiyya."

22. ———. 2008. *Muslim Opposition to Logic and Theology in the Light of the Works of Jalal al-Din al-Suyūṭī (d. 9111505)*, Leiden.

    Available at Academia.edu.

    "In marked contrast to the abundance of modern literature on the history of theology and logic in Islam, we can only find a few works dealing with the history of the Muslim opposition to logic and theology. Usually, these works mainly focus either on the opposition to logic or on the opposition to theology." (p. 14)

    (...)

    "Our understanding of the Muslim opposition to logic and theology may be furthered by the study of the four works on these subjects written by Jalal al-Din al-Suyūṭī." (p. 30)

    "4. The Scope of the Present work

    The purpose of the present work is to deal with the following research-question:

    What can we learn from al-Suyūṭī’s four works against logic and theology about the history of Islamic thought concerning the

condemnation of logic and theology, in addition to the light shed on this subject by modern scholars quoted earlier?

In dealing with this research-question, I will discuss in the first chapter al-Suyūṭī's earliest contribution to the history of the opposition to logic, entitled *al-Qawl al-Muhriq fī Taḥrīm al-Ishtigāl bi 'Ilm al-Manṭiq*, written by him when he was still a student of 18 years old. I will deal with the manuscripts and the edition of QM (1.1), the date and purpose of its composition (1.2), as well as with an analysis of its contents (1.3). In my conclusion, I shall evaluate this work as a source for the history of Muslim opposition to logic (1.4).

In chapter two, I will discuss al-Suyuti's abridgement of IT's *Naṣīḥa*, entitled, *Jahd al-Qarīha fī Tajrīd al-Naṣīḥa*, a work composed when his knowledge of logic was doubted by some of his contemporaries. I will deal with the date (2.1) and purpose of his abridgement (2.2). I will also assess the contribution made by al-Suyūṭī in rendering IT's *Naṣīḥa* more comprehensible. Elements of IT's religious viewpoints against logic and theology in JQ will also be discussed (2.3). Some pages are devoted to deal with the question how al-Suyūṭī selected IT's viewpoints against logic in his JQ (2.4). In the conclusion, I shall analyse the rationale of al-Suyūṭī's selection of IT's arguments in it (2.5).

Chapter three will discuss al-Suyūṭī's work that was composed twenty years after QM, when his call for *ijtihād* was refused by some of his contemporaries who doubted his ability to comply with an alleged precondition for *ijtihād*, i.e., the knowledge of logic. I will deal, first of all, with the manuscript and the edition of SM (3.1), with the date (3.2) and the purpose of the composition of this work, i.e. *Ṣawn al-Manṭiq* (3.3). An analysis will also be given of the content of this work (3.4). In my conclusion, I shall again evaluate this work as a source for the history of Muslim opposition to logic and theology (3.5).

In chapter four, I will discuss al-Suyūṭī's *Fatwā* against logic. In so doing, first of all, I will deal with its manuscript (4.1). I will give an analysis of the content of this *Fatwā* (4.2) and evaluate

this sources on which al-Suyūṭī relies when issuing this *Fatwā* (4.3).

In the conclusion, I will try to answer the research-question formulated above by synthesizing the last paragraphs of each of the four chapters of this study."

Abbreviations

IT = Ibn Taymiyya

JQ = *Jahdal-Qarīha fī Tajrīd al-Naṣīḥa*

QM = *l-Qawl al-Muhriq fī Taḥrīm al-Ishtigāl bi 'Ilm al-Manṭiq*

SM = *Ṣawn al-Manṭiq wa 'l-Kalām 'an Fannay al-Manṭiq wa 'l-Kalām*

23. ———. 2008. "How did Al-Suyūtī abridge Ibn Taymyya's Naṣīḥat ahl al-Ĩmān fī al-Radd 'alā Manṭiq al-Yūnān?" *Al-Jami'ah* no. 46:279–301.

Abstract: "*Al-Radd ‘ala ’l-Manṭiqiyyīn* (an alternative title for *Naṣīḥat Ahl al-Ĩmān*) is a work composed by Ibn Taymiyya to demolish each principle of logic as well as to unravel the depravity of their foundation. Probably due to Ibn Taymiyya’s being genius, when he destroys those principles, he could not avoid himself to discuss digressively irrelevant topics dealing with theological as well as metaphysical issues. In a number of passages in *al-Radd*, he could not even hinder himself to make a good deal of repetitions.

Therefore, *l-Radd ‘ala ’l-Manṭiqiyyīn* is complex and difficult to use.

The coherence of arguments that Ibn Taymiyya formulated is not solid and comprehensive. His criticism of logic is not penetrating as well. On the basis of my analysis of al-Suyūṭi’s method of abridgement of Ibn Taymiyya’s *al-Radd*, I argue that al-Suyūṭi succeeded in rendering Ibn Taymiyya’s sequence of ideas superior to that found in the original work of the latter. The result of this study confirms Hallaq’s argument that the overall result of al-Suyūṭi abridgement of Ibn Taymiyya’s *al-*

Radd is ‘a more effective critique of logic than that originally formulated by Ibn Taymiyya."

24. ———. 2009. "Al-Suyūṭī's al-Qawl al-Mushriq against logic." *Bibliotheca Orientalis* no. 66:40–70.

"Of four works against logic by al-Suyūṭī(1) *al-Qawl al-Mushriq fi Taḥrim al-Ishtighal bi-¨Ilm al-Manṭiq* (hereinafter: QM) can be said to have been the first to be composed, i.e. in 867 or 868/1465 or 1466. This is clearly indicated in the introduction of another work by al-Suyuṭi (born in 849/1445), i.e. *Ṣawn al-Manṭiq*, which says: “Long ago, in the year 867 or 868 [H] I composed a book on the prohibition of being occupied by the art of logic, which I named “al-Qawl al-Mushriq” into which I included the statements of the learned men of Islam to condemn and prohibit it.”(2)

In this work al-Suyūṭī has discussed either explicitly or incidentally the opposition of more than 40 leading scholars of various law schools against logic by referring to more than 26 works which deal either explicitly or incidentally with the same issue.

In this paper, I will deal with (1) the manuscript and the edition of QM, (2) the date and purpose of its composition, as well as with (3) an analysis of its contents. In (4), the Conclusion, I shall evaluate this work as a source for the history of Muslim opposition to logic." (pp. 40-41)

(1) Al-Suyūṭī’s discussion of the Muslim opposition to logic and theology is found in four works which were composed by him within different literary contexts and times: *Al-Qawl al-Mushriq fi Taḥrim al-Ishtighāl bi-'Ilm al-Manṭiq* (QM), *Jahd al-Qarīḥa fi Tajrīd al-Naṣīḥ*a (ed. al-Nashshar, 1947), *Ṣawn al-Manṭiq wa-ˆl-Kalām 'an 'īFannay al-Manṭiq wa-'l-Kalām* (published and edited twice: first together with *Jahd*; second: Cairo: Dār al-Naṣr li-'-Ṭibā'a 1970, ed. Su'āda 'Abd al-Raziq), and al-Suyūṭī’s *Fatwā* against Logic (hereinafter: *Fatwā*). As far as the chronological discussion of these four works is concerned, QM was written the first, followed respectively by *Jahd*, *Ṣawn*, and concluded by the *Fatwā*.

(2) See *Ṣawn* (1970), p. 33.

25. ———. 2021. "Imām Suyūṭī's original thought on the opposition to (Greek) logic and theology in *Sawn al-Manṭiq wa'l'Kalām 'an Fannay al-Manṭiq wa 'l-Kalām*." *Hamdard Islamicus: Quarterly Journal of Studies and Research in Islam* no. 40:7–43.

    Abstract: "The transmission of Greek philosophy and sciences to the Islamic world through the translation movement in the eighth and ninth centuries played a major role in accelerating the Hellenizing process of that world. The emergence of scholastic theology (kalÉm) and Islamic Aristotelianism and Neo-Platonism (falsafah) in the Islamic world is considered, in Madjid's opinions, as the direct cultural influence of it."

26. Alper, Ömer Mahir 2015. "Intellecting the Intellected: An Examination on the Interpretation of "the Second Intelligibles" in Islamic Tradition of Logic and its Reception during the Ottoman Period." *Nazariyat: Journal for the History of Islamic Philosophy and Sciences* no. 1:35–68.

    Abstract: "The interpretation of the "second intelligibles" (*al-maʿqūlāt al-thāniya/al-maʿqūlāt al-thawānī)*, as a term which is highly sophisticated and closely related to many philosophical disciplines, began with al-Fārābī and continued to expand its content especially in the literature of logic until the modern times. In this process, following al-Fārābī several philosophers such as Ibn Sīnā, ʿUmar al-§āwī, Fakhr al-dīn al-Rāzī, ʿUmar al-Kātibī, Shams al-dīn al-Samarqandī, Qutb al-dīn al-Rāzī and Sayyid Sharīf Jurjānī became salient igures in interpreting the second intelligibles. he accumulated tradition including various approaches and transformations on the subject was transmitted directly to the Ottoman period, during which the second intelligibles were widely discussed with new concepts and issues. As it had been before, these interpretations and discussions found place in the literature of logic during the Ottoman period. In this article, I will examine the interpretations on the second intelligibles from al-Arabi to Jurjānī while marking moments of change and development. hen I will examine how Ottoman philosophers and logicians

approached the second intelligibles by comparing the commentaries of Burhān al-dīn Bulgārī, Kul Ahmed (Ahmed b. Muhammad b. Khıdr), §adr al-dīn-zāda Mehmed Emin Shirwānī and Kara Khalil b. Hasan al-Tirawī on Mullā Fanārī's famous book on logic, *al-Fawā'id al-Fanāriyya*."

27. Altunya, Hülya. 2020. "A Study of al-Galanbawī's Work Titled *Commentary on al-Īsāghūjī* in the Context of Signification and Definition Issues." *Eskiyeni* no. 41:571–598.

    Abstract: "Ismail al-Galanbawī (1730-1791) is known for his works in the fields of logic, *al-munazara* (Islamic disputation theory), mathematics, astronomy, *tasawwuf* (mysticism) and theology. al-Galanbawī, who followed the tradition of al-Fārābī - Avicenna which is a continuation of logic of Aristotle (322 B.C.), compiled a work on logic in the last period of the Ottomans. His work titled *Burhān* is considered to be the last compiled work written in logic in the Ottoman scien-tific world. In addition, he wrote a commentary text on *Isāghūjī* by Athīr al-Dīn al-Abharī (d. 1265), although he has other logical studies. There are many commentaries and *hawashī* (margin notes) on *Isāghūjī* text, which has a remarkable position in the history of Islamic logic. The advantage of *Isāghūjī* as a text of logic, regarding the texts in other branches of science, is its delineating a formal issue with a clear style. However, it is an ever changing historical need to revise its style simply because its potential readers are not the same in a different historical context. Islamic logicians wrote these commentaries in accordance with the level of understanding of the students in their own period. Here, al-Galanbawī aims to explain the incomprehensible issues in this treatise for the students of his period with the commentary on Isāghūjī. Even if we can witness similar contents in the texts after written 13th century, al-Galanbawī's commentary attracts attention in terms of its delineating different viewpoints with some anal-ysis. In the introductory section of his text, al-Galanbawī establishes the close relation between logic and linguistic and religious disciplines. From this perspective, it puts a logical emphasis on the idea that a student of religious sciences cannot get a deep insight into religious sciences, like *tafsīr* (science of Qur'ānic

commentary), *kalām* (theology), without learning logic. He discusses dialectically some theological problems with taking kalām tradition into consideration. His chief aim is to demonstrate that logic is a basic method for all Islamic sciences. Then al-Galanbawī posits some meaning and definition of logic. In this level, he employs the term *cihat al-wahda* (*jihat al-wahda*) which was used by Mollā Fanārī before him. It is understood that this term indicates his the unity in the theory of existence to the theory of knowledge and his mystical tendency in this issue.

The logician, who called science of logic as *'ilm al-mīzān* (science of measurement), tries to highlight the applicable dimension of logic in its commentary. Since logic is the tool of religious sciences and therefore logic has a big duty to ensure the robustness and accuracy of all kinds of evidence. For this, while commentary on *Isāghūjī* has been explaining the rules of the science of logic together with logical explanations, at the same time, it investigates the meaning of the most of words from linguistic and grammatical perspectives. In this article, the introduction section of Galanbawī's commentary on *Isāghūjī*, and the subjects of signification (*dalālā*) and definition in its conceptualizations *(tasawwurāt)* section are examined in terms of logical and linguistic. al-Galanbawī discusses in detail the matter of literal and non-literal aspects of signification, which was discussed by classical Muslim logicians. Each of this distinction has subdivisions such as natural (*tabi'ī*), rational (*'aklī*), and conventional (*waz'ī*). Logicians focus mostly on literal conventional signification (*lafzī waz'ī*). As from Avicenna, this literal conventional signification is considered *mutabaqat* (correspondence), *tazammun* (consequence), *iltizām* (concomitance). al-Galanbawī discusses these three elements in detail by displaying different perspectives in conflict and a possible solution for them. He passes his views on many disputed definitions and gives some responses to them. Thus he attempts to re-establish the discipline of logic in terms of Islamic disciplines with the aim of demonstrating that logic is a basic method. In addition, logicians who have influence on

Ottoman logic, such as Mollā Fanārī and Dāwūd al-Qārisī, will be evaluated together with their the commentaries on *Isāghūjī*. Moreover, it will be tried to determine his place, importance and contributions by this work in Islamic logic tradition."

28. Alwishah, Ahmed, and Sanson, David. 2009. "The Early Arabic Liar: The Liar Paradox in the Islamic World from the Mid-Ninth to the Mid-Thirteenth Centuries CE." *Vivarium* no. 47:97–127.

    Abstract: "We describe the earliest occurrences of the Liar Paradox in the Arabic tradition. The early Mutakallimùn claim the Liar Sentence is both true and false; they also associate the Liar with problems concerning plural subjects, which is somewhat puzzling. Abhari (1200-1265) ascribes an unsatisfiable truth condition to the Liar Sentence - as he puts it, its being true is the conjunction of its being true and false - and so concludes that the sentence is not true. Tūsī (1201-1274) argues that self-referential sentences, like the Liar, are not truth-apt, and defends this claim by appealing to a correspondence theory of truth. Translations of the texts are provided as an appendix."

29. ———. 2016. "Al-Taftāzānī on the Liar Paradox." *Oxford Studies in Medieval Philosophy* no. 4:100–124.

    "Saʿad al-Dīn Masʿūd ibn ʿUmar ibn ʿAbd Allāh al-Taftāzānī (1322–1390) was a Persian polymath who wrote on a wide range of subjects—grammar, logic, theology (*kalām*), jurisprudence (*fiqh*), and literature.

    Here we translate and discuss his remarks on the Liar Paradox, in which he (a) presents the first example of a Liar Cycle or Deferred Liar in the tradition, (b) gives the paradox a puzzling name—the fallacy of the “irrational root” (*al-jadhr al-aṣamm*) —which became the standard name for the paradox in the tradition, and (c) suggests a connection between the paradox and what it tells us about the nature of truth and falsehood, and related puzzles concerning reason and the nature of goodness and badness." (p. 100)

30. Aoude, Safia. 2011. "Classical logic in Islamic philosophy: Creating dichotomy or catalyst?" *Tidsskrift om Islam & Kristendom* no. 14:29–38.

    "Introduction

    Using classical Greek logic to explain the concept of a metaphor to his readers, the famous Islamic scholar Ibn Sina wrote in his book “Qiyâs”:

    “So and so is beautiful. Everything beautiful is a moon. Therefore so and so is a moon.”

    On the other hand, the equally famous Islamic scholar Imam al-Shafi'i is quoted to have said:

    "People did not become ignorant, nor differed except after their abandonment of the Arabic language and their inclination to the language of Aristoteles!"

    The words of Ibn Sina and Imam al-Shafi´i present each two opposites; one is using the methodology of classical Aristotelian logic to elaborate a metaphysical Islamic concept, the other one is claiming Aristotelian logic has ruined the basics of Islamic creed by the limitation of its semantics. Obviously, classical logic did play an important role in the development of philosophical ideas among Muslim scholars and philosophers, but there seems to be a dichotomous difference in approach.

    The aim of my paper is to look into the views of some of the well known thinkers in Islamic philosophy, extracting their specific opinions towards Aristotelian classical logic. What use did Muslim philosophers have for Aristotelian logic in the development of their own ideas?" (p. 29)

31. Ardeshir, Mohammad, and Nabavi, Fatemeh. 2022. "A Logical Framework for the Islamic Law." In *New Developments in Legal Reasoning and Logic: From Ancient Law to Modern Legal Systems*, edited by Rahman, Shahid, Armgardt, Matthias and Kvernenes, Hans Christian Nordtveit, 53–81. Cham (Switzerland): Springer.

Abstract: "We introduce a new aspect of the notion of obligation inspired from the Islamic legal system.We then construct a dynamic deontic logic to model this notion of obligation. A semantics for this logic is introduced, and then its soundness and completeness theorems with respect to this semantics are proved."

"To find out the logical system of the Islamic legal reasoning, we follow the following plan in this paper.

In Sect. 3.2, we introduce a general outline of the method of reasoning in the Islamic legal system in Shī'ī style, which is discussed in the methodology of fiqh [Islamic jurisprudence].

Then in Sect. 3.3, we look for a meaning of obligation inspired from the principles of figh and fix it as our base in formalizing of the logic of the Islamic legal system.

In Sect. 3.4, we argue that the dynamic approach is the most suitable one for the deontic notions we derive from the principles of figh in Sect. 3.3.

Then in Sect. 3.5, we formalize some concepts according to the dynamic approach, which are based on the notion of action. We introduce our logical system, including syntax and its semantics in Sect. 3.6. In this section, we prove that our logic is sound and complete with respect to the proposed semantics. We have put the proofs of these theorems in the appendix to preserve smoothness for readers who want to have a general idea of our work.

In Sect. 3.7, we briefly compare our system with some related works, and the final section includes our concluding remarks and possible extensions of our logic." (p. 54)

32. Arif, Syamsuddin. 2020. "The Art of Debate in Islam: Textual Analysis and Translation of Tasköprüzade's *Ādāb al-Baḥth wa al-Munāẓarah*." *Afkar* no. 22:187–216.

    Abstract: "This article presents an analysis of a short treatise entitled *Ādāb al-Baḥth wa al-Munāẓarah* (The art of discussion and disputation) by the celebrated Ottoman scholar Abu al-Khayr 'Iṣām al-Dīn Aḥmad ibn Muṣṭafā ibn Khalīl

Ṭāshkubrīzādah or Ṭaşköprüzade (d. 968 AH/ 1561 CE). An overview of the nomenclature and a brief introduction about the author and his work will be presented along with an annotated English translation of the text in order to highlight Ṭaşköprüzade's contribution to this nearly forgotten discipline."

33. Arnaldez, Roger. 1991. "Mantik [Logic]." In *Encyclopaedia of Islam, 2nd edition*, 442–452. Leiden: Brill.

2. Definition of logic (*'ilm al-mantik*).

Al-TahanawT, in his *Dictionary of technical terms*, comments that this is also called the science of balance (*'ilm al-mizdn*), "because this is a means of weighing arguments (*huajadi*) and demonstrative proofs (*bardhir*i)". Ibn Slna calls it "the servant of the sciences" (*khādim al-'ulurn*), "because it is not a science in its own right, but a means (*wasīla*) of acquiring sciences". But al-Fārābī called it the "mistress" (*ra'isa*) of sciences "on account of its efficacity (*nafādh*) in the practice of them". This science, al-TahanawT continues, "was called *mantik* because the root *nutk* (action of speaking, elocution) applies in a general fashion to statement (*lafz*), to the perception of universals (*idrāk al-kulliyyāt*) and to the reasonable soul (*al-nafs al-nāṭika*); since this art reinforces the first of these concepts, through the second it follows the path of rectitude (*sadād*), and by its means the perfection of the soul is realised, a word has been derived from this root to designate it, sc. the word *mantik*. It is the science of rules (kawānīn) which explains the methods for passing from that which is known to that which is unknown, and the conditions that they pose (*sharā'it*) so that error (*ghalaṭ*) will not survive in thought (*fikr*}. The known extends to the necessary truths of intuition (*ḍarūriyyāt)* and to speculative truths". It may be noted that this distinction corresponds to that made by Aristotle (*Anal. Pr*. i, 10, 76b 10) between "common axioms" and "entirely demonstrated conclusions".

References

Muḥammad Aʿlā ibn ʿAlī al-Tahānawī (d. 1158/ 1745?), *Kashshāf iṣṭilāḥāt al-funūn wa'l- ʿulūm al-islāmiyya*. A Dictionary of the Technical Terms used in the Sciences of the Musulmans (1745) , Piscataway, Gorgias Press 2010 (2 volumes).

34. Azazy, Hany. 2017. "The Genesis of Arabic Logical Activities: From Syriac Rhetoric and Jewish Hermeneutics to āl-Śāfiʿy's Logical Techniques." *Studia Humana* no. 6:65–95.

    Abstract: "This paper tries to outline a history of development of informal logic in Semitic languages and especially in Arabic. It tries to explain how the first definite formulation of rules of this logic appeared at āl-Śāfiʿy' Risāla, a work on *'uswl āl-fiqh* or methodology of law. It attempts also to provide new theories and hypotheses about the translation movement in the Arabic and Islamic medieval world."

35. Bäck, Allan. 2008. "*Islamic* Logic?" In *The Unity of Science in the Arabic Tradition: Science, Logic, Epistemology and their Interactions*, edited by Rahman, Shahid, Street, Tony and Tahiri, Hassan, 255–279. Dordrecht: Springer.

    Abstract: "A current ideology has it that different cultural traditions have privileged sources of insight and ways of knowing. Prizing one tradition over another would reek of cultural imperialism. In this vein we have those pushing for a unique status for Islamic philosophy—and no doubt alongside Chinese philosophy, Indian philosophy, African philosophy.... I begin by examining what could be meant by 'Islamic philosophy'. I argue that embracing a multiculturalism that makes the philosophic enterprise relative to particular cultural traditions ignores a quite important part of the Islamic philosophical tradition itself: the quest for a transcultural, universal objectivity. The major Islamic philosophers embraced this ideal: al-Fārābī and Ibn Sīnā (Avicenna), for instance. They held that some cultures are better than others at attaining philosophical wisdom, and some languages better than others at expressing it. They advocated selecting critically features from the different cultures for constructing a general theory. I illustrate their method by considering their treatment of

paronymy and the copula. I end by advocating a return to this Islamic tradition."

36. ———. 2016. "Demostration and Dialectic in Islamic Philosophy " In *The Routledge Companion to Islamic Philosophy*, edited by Taylor, Richard C. and López-Farjeat, Luis Xavier, 93–104. New York: Routledge.

    "Introduction

    Plato had seen in dialectic a way to justify the first principles of philosophy, from which the demonstration of universal truths could proceed (e.g. *Republic* VI). Likewise, Aristotle uses dialectic to arrive at an intuitive grasp of the first principles on which demonstrative syllogisms are based (e.g. *Metaphysics* IV). Islamic philosophers inherited and developed these doctrines on demonstration and dialectic from the Greeks. In what follows I will sketch the Greek background and then examine some important developments in the Islamic context, in particular how dialectic became more removed from demonstration in the thought of Ibn Sīnā, if not in Islamic philosophy as a whole. I conclude by considering how intuition grew in importance and why this view deserves serious consideration even in philosophy today." (p. 93)

37. ———. 2016. "Aristotelian Protocol Languages." In *Formal Approaches and Natural Language in Medieval Logic: Proceedings of the XIXth European symposium of medieval logic and semantics, Geneva, 12-16 June 2012*, edited by Cesalli, Laurent, Goubier, Frédéric, de Libera, Alain and Isaac, Manuel Gustavo, 343–371. Barcelona - Rome: Fédération Internationale des Instituts d'Études Médiévales.

    "An alternative approach to the history of philosophy –one that takes the aim of opening up the discipline seriously– would treat both Western and non-Western philosophy as the regional inflections of a global phenomenon(1). In what follows I shall illustrate this approach by showing how Islamic and Latin Aristotelians inherited the same project, of constructing an ideal, protocol language but focused on developing different aspects of it.

(...)

I shall look briefly at how Aristotle develops an ideal protocol language, an artificial language isomorphic with the world and its structure. His project has two main stages: subtraction and addition.

First, starting from natural language and its common ways of speaking, as he is wont to do in his endoxic method, he prunes away those ways of talking that he finds erroneous and misleading, as he does with unnatural predication. Second, after observing the phenomena and developing his theory, he adds terms to the pruned vocabulary, as he does for items in the categories.

(...)

Islamic philosophers like Al-Fārābī and Avicenna did likewise. Yet they also tended to worry much more explicitly than their Latin counterparts over the translation of Aristotle's texts: how to express the same philosophical concepts in Greek and in Arabic, especially on account of how much Arabic differs from Greek grammatically. They did so by using in Arabic the verbal infinitive, the *maṣdar*, to make the language of paronymy reflect the reality more clearly. They also did so in their treatments of the statement, by modifying how ordinary Arabic expresses the copula and the quantifiers.

How philosophically interesting are these issues? I shall end by comparing them to some current doctrines." (pp. 343-344)

(1) «Philosophy's Western Bias», New York Times, June 4, 2012.

38. Baffioni, Carmela. 1991. "Probable Syriac influences in the Ikhwān al-Ṣafā"s logical epistles?" *Aram Periodical* no. 3:7–22.

39. ———. 2013. "Logic in Islam." In *Encyclopedia of Sciences and Religions*, edited by Runehov, Anne L. C., Oviedo, Lluis and Azari, Nina P., 1174–1180. Dordrecht: Springer.

"Logic developed through the Syriac language during the reign of the 'Abbasid Caliph al-Ma'mūn (813–833), though a version

of the *Topics* may have been made at the time of the third ‘Abbasid Caliph al-Mahdī (775–785).

The translation movement focused on Porphyry (d. 304)’s *Isagoge,* Aristotle’s *Categories*, *De interpretatione* and *Prior Analytics*, Galen (d. 200)’s *Introduction to logic*, and on works by Aristotle’s commentators such as Theophrastus (d. 287 B.C.), Alexander of Aphrodisias (d. 222), Themistius (d. 387), Ammonius (d. 520), and John Philoponus (d. ca. 580).

In line with the Alexandrian school and Syriac tradition, the *Rhetoric* and *Poetics* were also considered parts of Aristotle’s collected logical writings known as the *Organon* (instrument of reasoning); Porphyry’s *Isagoge* was placed at the beginning as an introduction (Inati 1996, pp. 802-803; Street (2008)).

One of the first systems of logic was that of the tenth-century Ikhwān al-Safā’ (the Brethren of Purity), which appears in their encyclopedia of sciences at the end of the first section on the propaedeutical sciences. They paraphrase with some originality the *Isagoge*, *Categories, De interpretatione*, and the *Prior* and *Posterior Analytics* (Baffioni 2008, p. 105)." (pp. 1174-1175)

References

Baffioni, C. (2008). The Scope of the Rasā’il Ikhwān al-Safā'. In N. El-Bizri (Ed.) TheIkhwān al-Safā'' and their Rasā’il (pp. 101–122). New York: Oxford University Press.

Inati, S. (1996). Logic. In S. H. Nasr & O. Leaman (Eds.), *History of Islamic philosophy* (Vol. II, pp. 802–823). London/New York: Routledge.

Street, T. (2005). Logic. In P. Adamson & R. C. Taylor(Eds.), *The Cambridge companion to Arabic philosophy* (pp. 247–265). Cambridge: Cambridge University Press.

40. ———. 2014. "The Legacy of the Aristotelian Logic in the *Risâlat al-Djâmi’a*." In *De l’Antiquité tardive au Moyen Âge. Études de logique aristotélicienne et de philosophie grecque, syriaque, arabe et latine offertes à Henri Hugonnard-Roche*, edited by Coda, Elisa and Martini Bonadeo, Cecilia, 213–224. Paris: Vrin.

41. Baqir, Zainal Abidin. 1998. *The Problem of Definition in Islamic Logic: A Study of Abū al-Najā al-Farīd's Kasr al-mantiq in Comparison with Ibn Taimiyyah's Kitāb al-radd alā al-manṭiqiyyīn*. Kuala Lumpur: International Institute of Islamic Thought and Civilization.

42. Beidokhti, Hanif Amin. 2018. "Suhrawardî on Division of Aristotelian Categories." In *Islamic Philosophy from the 12th to the 14th Century*, edited by Al Ghouz, Abdelkader, 377–408. Bonn: V&R unipress.

    "Suhrawardī's discussion of the categories covers almost all aspects of the Peripatetic doctrine including the deduction method for attaining the final list of the categories. This paper will discuss Suhrawardī's critical point of view on the Aristotelian list of the categories. For this purpose, I shall first discuss a long lasting debate on the subject matter of the *Categories* and the proper science for studying its topics and the way it relates to Suhrawardī's treatment of the categories.

    Then, I shall discuss briefly the historical route of arguments for establishing the tenfold list of the categories probably available to Suhrawardī; after that, I shall introduce Suhrawardī's own reductionist division, as well as the level of certainty that he associates with his fivefold division. This might provide us with a clue for ordering Suhrawardī's works and depict the development of his discussion." (p. 379)

43. Belhaj, Abdessamad. 2016. "*Ādāb al-Baḥth wa-al-Munāẓara*: The neglected art of disputation in later medieval Islam." *Arabic Sciences and Philosophy* no. 26:291–307.

    Abstract: "Is it possible to invent a science that sets the rules for an ethical, logical and effective debate? Shams al-Dīn al-Samarqandī (died in the first half of the 14th century), a logician and Ḥanafī jurist thought it possible. He undertook the task of developing a general theory of scientific discussion that had a tremendous success and impact on Muslim scholarship. *Ādāb al-baḥth wa-al-munāẓara*, as he called it, is a set of ethical and logical principles, taken from Aristotelian logic and Islamic law. His major treatise *Risālat Ādāb al-baḥth*, initiated

a new discipline in which dozens of treatises, commentaries and glosses were written. In my contribution, I will shed light on this neglected science, describe its structure, expose its functions and highlight its significance for the development of debates and intellectual dialogues in the later medieval Islam."

44. Bellosta, Hélène. 1991. "Ibrāhīm Ibn Sinān: On Analysis ansd Synthesis." *Arabic Sciences and Philosophy* no. 1:211–232.

"The leading role the problem of analysis and synthesis played until the 19th century is well known; yet ancient and mediaeval works bearing on it are extremely rare. That is why the text dealing with analysis and synthesis in geometrical demonstrations by Ibrahim Ibn Sinan, a tenth century mathematician,(1)

is of special importance. It is the first theoretical treatise, strictly speaking, devoted to the subject in the whole history of mathematics. Ibn Sinan also treats, in connection with analysis, the closely related question of classification of problems.

Before Ibn Sinan, the only authors to tackle the problem of analysis and synthesis (apart from Aristotle and Plato, who alludes to it briefly)(2) are Pappus in his preface to Book VII of the *Collection*, the most elaborate Greek statement on the subject,(3) Proclus in the second Prologue to his *Commentary on Euclid,* Book 7,4 and the Pseudo-Euclid in a short passage. Ibn Sinan's text invites two immediate questions: is it only a repetition, albeit more detailed and precise, of what can already be found in the earlier Greek texts, or does it offer a modification of the terms in which the problem is stated, and consequently present us with the emergence of new problematics? More directly, what impact did this text have on later mathematicians?" (pp. 211-212, a note omitted)

(1) 1 Ibrahim Ibn Sinan Ibn Tabit Ibn Qurra (296/909-335/946), son of Sinan, physician and encyclopaedist, friend and companion of the caliph al-RadJ (934-940), grandson of Tabit Ibn Qurra, translator and mathematician of genius. Ibn Sinan's family comes from the town of Harran, on the Upper-Euphrates, crossroads of caravan routes and cultures, and religious centre of the Sabean sect. He was the heir to a

prestigious scientific tradition and an intimate of the Caliphal court.

(2) Plato, *Meno*, 86e-87c.

(3) Pappus d'Alexandrie, *La Collection mathématique*, 2nd ed., trans. P. Ver Eecke, 2 vols. (Paris, 1982), vol. II, pp. 477-78.

(4) Proclus de Lycie, *Les Commentaires sur le premier livre des Elements d'Euclide*, 1st ed., trans. P. Ver Eecke (Paris, 1948), pp. 5, 15, 37, 63.

45. Ben Ahmed, Fouad. 2020. "Ibn Ṭumlūs on Dialectical Reasoning: The Extent of His Reliance on al-Fārābī and Averroes." In *The Origin and Nature of Laguage and Logic: Perspectives in Medieval Islamic, Jewish, and Christian Thought*, edited by Germann, Nadja and Harvey, Steven, 245–276. Turnhout: Brepols.

"Ibn Ṭumlūs' (d. 620/1223) notion of dialectic, unlike that of his teacher Averroes (Ibn Rushd, d. 585/1198), is virtually unstudied in the modern scholarship devoted to logical issues in the Middle Ages." (p. 245)

(...)

"This paper intends to highlight the intellectual authenticity of Ibn Ṭumlūs that distinguishes him from his teachers, and makes of him not a mere disciple but also an innovator, a master himself, as Ibn al-Abbār indicated in his biography when he said that Ibn Ṭumlūs' students "took science from him" (*wa-qad ukhidha ʿanhu*).(3) More specifically, it will attempt to show some facets of Ibn Ṭumlūs' innovative efforts in the realm of a particular logical discipline, namely that of dialectic. After introducing Ibn Ṭumlūs' *Book of Dialectic* and *Book of Analysis*, our study will focus on the originality of their writer's conception of the division of Aristotle's *Topics* compared to those of al-Fārābī and Averroes. Then, it will demonstrate the new orientations he offers in his work with regard to the limits of the use of that discipline." (p. 246)

(3) Ibn al-Abbār, *al-Takmila li-Kitāb al-Ṣila*, ed. ʿAbd al-Salām al Harrās, Beirut 1995, IV, 222

46. Black, Deborah L. 1989. "The 'Imaginative Syllogism' in Arabic Philosophy: A Medieval Contribution to the Philosophical Study of Metaphor " *Mediaeval Studies* no. 51:242–267.

"For the Arabic-speaking philosophers of the Middle Ages inherited from their Greek predecessors a conception oflogic that was well-suited to the task of securing the syllogism's dominion over all human cognitive activities. This conception took the form of an expansion of the scope of the *Organon* itself, through the appending to the six treatises that today are assumed to constitute the Aristotelian logical corpus - the *Categories, On Interpretation*, *Prior* and *Posterior Analytics, Topics,* and *Sophistical Refutations* - Aristotle's *Rhetoric,* and his Poetics as well.(3)

(...)

"The aim of the present discussion is twofold: 1) to elucidate the formal structure and the epistemological role that was assigned to this innovative concept in the philosophical writings of al-Fara.bi (870-950) and Avicenna (Ibn Sina, 980-1037); and 2) to examine the implications of their doctrines for an issue that continues to interest contemporary writers on the philosophy of language, namely, the question of the nature and purpose of figurative or metaphorical discourse, and its relation to the literal use of language in the assertion of truth-claims." (pp. 242-243)

(3) The Greek versions of this taxonomy for the *Organon* were first documented in an article by Richard Walzer, 'Zur Traditionsgeschichte der Aristotelischen Poetik; *Studi italiani di filologia classica* N.S. 11 (1934) 5-14; rpt. in R Walzer, *Greek into Arabic. Essays on Islamic Philosophy* (Oriental Studies l; Oxford, 1962), pp. 129-36. For the Greek commentators' allusions to this taxonomy, see Ammonius, In *1 AP,.*, *Prooemium* (CAG 4.6), p. 11.22-38; Philoponus, *In Cat., Prooemium* (*CAG* 13.1), pp. 4.23-5.14; Olympiodorus, *In Cat., Prolegomena* (*CAG* 12.1), pp. 7.24-8.28; Elias, *In Cat* (*CAG*

18.1), pp. 116.29-117.14; and L. G. Westerink, 'Elias on the Prior Analytics; *Mnemosyne* 4th Ser. 14 (1961) 126-39.

47. ———. 1990. *Logic and Aristotle's Rhetoric and Poetics in Medieval Arabic Philosophy*. Leiden: Brill.

"This book examines a widespread, and often misunderstood, doctrine within the medieval Aristotelian tradition, namely, the inclusion of Aristotle's *Rhetoric* and *Poetics* within the scope of the *Organon*. Throughout I have attempted to argue that this tradition is not a bizarre anomaly of medieval philosophy, but rather, provides the focal point for a considerable body of sophisticated speculation on the nature of human knowledge, human language, and human society. This does not mean that the Arabic philosophers' developments of this doctrine are entirely without blemish; but it does mean that, like all important figures in the history of philosophy, the Arabic philosophers offer their readers novel and interesting perspectives on problems that continue to be of interest within contemporary philosophical discussion.

I have confined myself in the present study to the consideration of the Arabic Aristotelian tradition. Originally, it had been my intention to consider the interpretation of the logical character of the *Rhetoric* and *Poetics* in both the Arabic and the Latin traditions within medieval philosophy. But the wealth of material presented by the Arabic authors soon necessitated a full study in its own right. It is my hope that I will be able to return to the developments of this taxonomy amongst Latin authors at some later date, and that the present study will contribute in some measure to the understanding of the epistemological and logical framework shared by both traditions within medieval philosophy.

In considering the Arabic tradition itself, I have confined my study by and large to the writings of the three most prominent Aristotelians of the medieval period, Al-Farabi, Ibn Sina, and Ibn Rushd. Yet even to consider these three philosophers together runs the risk of creating the impression of unanimity and conformity in areas where there is considerable diversity of approach, if not disagreement. This is especially the case in

considering the epistemological and psychological teachings that form the background to the logical problems upon which I have focused, for in these areas the three philosophers I have chosen offer a rich variety of alternative positions. In order to offset this danger, I have tried to give due attention to the positions of all three philosophers, and to note any significant divergences or exceptions to the perspectives that I have focused upon within the study. I hope that I have not, in my efforts to be inclusive, seriously misrepresented or unduly neglected any of my three subjects." (*Preface*, p. IX)

48. ———. 1991. "Aristotle's 'Peri hermeneias' in Medieval Latin and Arabic Philosophy: Logic and the Linguistic Arts." *Canadian Journal of Philosophy* no. Supplementary volume 21:25–83.

    "My aim in the present discussion is to explore a selection of the standard passages in the medieval commentary tradition which give rise to explicit considerations of logic's general status as a linguistic art, and its special relationship to grammar. Amongst the Latin commentators, I have confined my inquiry to authors whose commentaries were written in the thirteenth century, and with the exception of Robert Kilwardby, to commentaries available in printed editions.(2) Amongst Arabic authors, I have considered in the main the writings of Al-Fārābī (ca. 870-950 AD) and Avicenna (Ibn Sīnā, 980-1037 AD).(3) Since the question of Arabic influence on the Latin discussions of these topics is minimal, I propose to begin with the writings of Latin commentators, since the Latin discussions of the issues with which I am concerned are on the whole more thematic and homogeneous, and hence more approachable, than those of the Arabic authors." (pp. 3-4)

    (2) For an overview of the *Peri hermeneias* commentaries prior to the time of Aquinas, see Gauthier, Introduction to the new Leonine edition of Aquinas"s commentary, 64*-75*. On the general subject of the *Peri hermeneias* in the West see J. Isaac, *Le "Peri hermeneias" en occident de Boèce a saint Thomas* (Paris: Vrin 1953).

For the most part, I have confined my remarks on the Latin authors to direct commentaries on the *Peri hermeneias,* and refrained from comparisons with more general logical texts, both by these commentators and by other thirteenth-century authors. I suspect, however, that there are some tensions between the approach to language and logic that is found in the commentary tradition, and that found in independent logical treatises and in works on speculative grammar. But a full investigation of this topic is beyond the scope of the present discussion.

(3) I have omitted Averroes's *Middle Commentary*, even though it is the only Arabic text on the subject that was available in the West, since it is less concerned with the issues under consideration here than are the commentaries of Avicenna and Fārābī.

49. ———. 1998. "Logic in Islamic Philosophy." In *Routledge Encyclopedia of Philosophy*, edited by Craig, Edward, 706–713.

"Islamic logic was inspired primarily by Aristotle's logical corpus, the *Organon* (which according to a late Greek taxonomy also included the *Rhetoric* and *Poetics*). Islamic authors were also familiar with some elements in Stoic logic and linguistic theory, and their logical sources included not only Aristotle's own works but also the works of the late Greek Aristotelian commentators, the *Isagōgē* of Porphyry and the logical writings of Galen. However, most of the logical work of the Islamic philosophers remained squarely within the tradition of Aristotelian logic, and most of their writings in this area were in the form of commentaries on Aristotle.

For the Islamic philosophers, logic included not only the study of formal patterns of inference and their validity but also elements of the philosophy of language and even of epistemology and metaphysics. Because of territorial disputes with the Arabic grammarians, Islamic philosophers were very interested in working out the relationship between logic and language, and they devoted much discussion to the question of the subject matter and aims of logic in relation to reasoning and speech. In the area of formal logical analysis, they

elaborated upon the theory of terms, propositions and syllogisms as formulated in Aristotle's *Categories, De interpretatione* and *Prior Analytics*. In the spirit of Aristotle, they considered the syllogism to be the form to which all rational argumentation could be reduced, and they regarded syllogistic theory as the focal point of logic. Even poetics was considered as a syllogistic art in some fashion by most of the major Islamic Aristotelians.

Since logic was viewed as an organon or instrument by which to acquire knowledge, logic in the Islamic world also incorporated a general theory of argumentation focused upon epistemological aims. This element of Islamic logic centred upon the theory of demonstration found in Aristotle's *Posterior Analytics*, since demonstration was considered the ultimate goal sought by logic. Other elements of the theory of argumentation, such as dialectics and rhetoric, were viewed as secondary to demonstration, since it was held that these argument forms produced cognitive states inferior in certitude and stability to demonstration. The philosopher's aim was ultimately to demonstrate necessary and certain truth; the use of dialectical and rhetorical arguments was accounted for as preparatory to demonstration, as defensive of its conclusions, or as aimed at communicating its results to a broader audience." (p. 706)

50. Brumberg Chaumont, Julie. 2016. "The legacy of ancient logic in the middle ages." In *The Cambridge Companion to Medieval Logic*, edited by Novaes, Catarina Dutilh and Read, Stephen, 19–44. Cambridge: Cambridge University Press.

    "A history of translations and transmissions thus needs to be complemented by a careful study of circulations and appropriations, where the different versions of the *Organon* are identified, taking into account the texts that were considered as a complement to or substitute for Aristotle's texts in the Middle Ages, as well as the various intellectual frameworks and filters through which logical theories were understood.(3)

    As a consequence, we focus on texts that belong properly to what the Middle Ages inherited from Antiquity, in order to

reconstruct the state of logic in Late Antiquity that was actually transmitted to the Middle Ages – what Sten Ebbesen has labelled a 'Logical Late Ancient Standard', to be complemented point by point by a 'Grammatical Late Ancient Standard' (see Ebbesen 2007). A portion of these texts are now lost in their Greek versions, but were directly or indirectly available to medieval logicians. The exegetical context provided, on the one hand, by the Alexandrian school, for the Arabic world (see D'Ancona 2005), and, on the other hand, by Boethius' project (see Ebbesen 1990) played a crucial role here.

In what follows, the five first sections focus on the texts and doctrines indirectly and directly transmitted. A last section traces the stages of circulation of this legacy, as well as the various conceptions of logic related to these successive versions of the logical corpus; this is done by comparing Eastern and Western contexts." (pp. 21-22)

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D'Ancona, Cristina. 2005. 'Greek into Arabic: Neoplatonism in Translation'. In Peter Adamson and Richard C. Taylor (eds.), *The Cambridge Companion to Arabic Philosophy*. Cambridge University Press, 10–31.

Ebbesen, Sten. 'Boethius as an Aristotelian commentator'. In Sorabji 1990, 373–391.

Ebbesen, Sten 2007. 'The Traditions of Ancient Logic- cum-Grammar in the Middle Ages: What's the Problem?'. In Marenbon 2007, 136– 152.

Marenbon, John, (ed.). 2007a. 'The Many Roots of Medieval Logic: The Aristotelian and the Non-Aristotelian Traditions'. *Vivarium* 45 (special issue).

Sorabji, Richard (ed.). 1990. *Aristotle Transformed: The Ancient Commentators and Their Influence*. Ithaca, NY: Cornell University Press.

51. Brunschvig, Robert. 1970. "Logic and Law in Classical Islam." In *Logic in Classical Islamic Culture*, edited by von Grunebaum, Gustave E., 9–20. Wiesbaden: Ottto Harassowitz.

"When, speaking of logic one thereby implies rationality. Consideration of a legal system from the standpoint of logic is conducted largely from that of its rationality, but only largely, for the two words are not exactly synonyms: it is not indispensable that the fundamental ideas be rational or present themselves as such for the juridical construction to show a rational character. In classical orthodox doctrine, Muslim Law (*Shari'a*), which is ethico-juridical, is based, in the first place, on sacred texts that need no justification. In the absence of a notion of natural law and in the negation of ethical or rational values that impose themselves upon God, or which God imposes upon Himself, or which may be inherent in Him, the revealed or inspired datum, a divine phenomenon, is a priori exempt from the demands of rationality which rightly manifest themselves with regard to human laws. In this sense, it is therefore permissible to speak of irrationality, it being understood that irrational means here “which is not subject to reason, which does not depend on it in any way” and not “which is contrary to reason.” And this is true to such an extent that a posteriori attempts have not been found lacking, even in the most orthodox circles, to explain as rationally as possible the prescriptions of the religious Law. This secondary justification will appeal more and more to notions of wisdom (*hikma*), goals or aims (*maqasid*) of interest or utility (*masalih*) to human beings; and the task will be made easier by the incontestably realistic and positive character of this law, which does not have recourse to the strange or to the mysterious and each provision of which does not shock human reason in any way at a given stage of society. But from the beginnings of Islam, if the arbitrary decision of God which is beyond all justification is necessarily respected by the Believers, the koranic text itself from time to time gave incipient explanatory considerations. On the other hand, there was certainly needed a principle that would decide between these successive legislative revelations whenever they could be reconciled only with difficulty and even in certain cases when they were apparently contradictory; to this effect the Koran teaches abrogation in the form of replacement of the oldest by the most recent." (p. 9)

52. Burnett, Charles. 2004. "The Translation of Arabic Works on Logic into Latin in the Middle Ages and Renaissance." In *Handbook of the History of Logic, Volume 1: Greek, Indian and Arabic Logic*, edited by Gabbay, Dov M. and Woods, John, 597–606. Amsterdam: Elsevier North-Holland.

    "In the Middle Ages, and again in the Renaissance, several Arabic texts on logic were translated into Latin. These included not only works by Arabic philosophers, Avicenna, Algazel, Alfarabi and Averroes, but also texts originally written in Greek, i.e. the *Organon* or corpus on logic by Aristotle, on which all Medieval and Renaissance texts were ultimately based. (1) While one can understand how Latin translations of Arabic works on mathematics, medicine, astrology and other practical sciences could useful, it is more difficult to imagine how texts on logic written in, and for, a Semitic language could make much sense in a language which is completely unrelated to it. For Aristotelian logic is, of course, very much language based. Moreover, while Latin scholars were lacking scientific texts in mathematics and medicine, they already had good translations and detailed expositions of at least the first half of the *Organon* (Aristotle's corpus of logical writings, with the Introduction--*Isagoge*--of Porphyry), made by Boethius in the early sixth century. And, when they wished to complete the *Organon*, they were able to do so by translating the texts directly from the Greek. In the mid-twelfth century James of Venice is credited with the translating the *Topics*, the *Prior* and *Posterior Analytics* with 'authentic expositions', and we have from the twelfth century, translations from Greek of the *Topics* and the *Posterior Analytics* (twice).

    And yet we find Gerard of Cremona translating the latter work from Arabic in the same century, and in the thirteenth century all Averroes' Middle Commentaries on the *Organon* were translated. Why was there any need to do this? This is the question that shall be addressed in this paper." (p. 597)

    (1) 1For an overview of the Latin versions of Aristotle made in the Middle Ages, see B. G. Dod, 'Aristoteles Latinus', in *The Cambridge History of Later Medieval Philosophy*, eds N.

Kretzmann, A. Kenny and J. Pinborg, Cambridge University Press, 1982, pp. 43-79.

53. Butterworth, Charles E. 2004. "Finding First Principles, Possibility or Impasse?" In *Words, Texts and Concepts Cruising the Mediterranean Sea: Studies on the sources, contents and influences of Islamic civilization and Arabic philosophy and science. Dedicated to Gerhard Endress on his sixty-fifth birthday*, edited by Amzen, Rüdiger and Thielamann, Jön, 211–222. Leuven: Peeters.

"The title of this essay seeks to capture a problem central to our quest for knowledge, determining the first principles on which reasoning - especially scientific or demonstrative, as opposed to popular or rhetorical and even dialectical - is based. In *Short Commentaries on [Aristotle's] Logic* (*Jawāmi' fi l-Manṭiq*), when explaining how demonstration is to be used, Averroes focuses his attention on this problem. His solution or, more precisely, lack of solution is unprecedented and has the potential of casting the whole scientific enterprise into doubt. Or, if that is too strong a judgment, suffice to say that it renders invalid all of his preceding examples of demonstrations that prove the world cannot be eternal.

Slightly more than twenty-five years ago, a critical edition and English translation of the last three short commentaries was published(1). As explained at length there, these commentaries exist only in two Judaeo-Arabic manuscripts plus a Hebrew and Latin translation. The Arabic text is not extant(2). In the treatise entitled "The Book of Demonstration" (*Kitāb al-Burhān*), the eighth of the nine other treatises in this collection soon to be published as a whole, some - not all, for this is a short commentary - of the subjects treated in Aristotle's *Posterior Analytics* are examined(3). Before turning to an examination of the problem posed there, it might not be amiss to say something more general about the collection itself." (pp. 211-212)

(1) See Averroës' *Three Short Commentaries on Aristotle 's "Topics," "Rhetoric," and "Poetics,"* edited and translated by Charles E. Butterworth (*Studies in Islamic Philosophy and*

Science; Unesco Collection of Representative Works, Arabic Series). Albany, N. Y., 1977.

(2) *Ibid-,* p. 1-3 and 14-17.

(3) Averroës *Three Short Commentaries on Aristotle 's Organon*, edited and translated, with an introduction, by Charles E. Butterworth. Albany. N. Y.: forthcoming [1977].

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1. Calverley, Edwin E. 1933. "al-Abharī's Īsāghūjī fī-l manṭiq." In *The Macdonald Presentation Volume: A Tribute to Duncan Black Macdonald*, 75–85. Princeton: Princeton University Press.

   "The title of al-Abhari's compendium is the same as that of Porphyry's "Introduction" to Aristotle's *Organon*, but, unlike Porphyry's work, al-Abhari's *Īsāghūjī* is not confined to a presentation of the Five Universals. It deals, although briefly, with all the nine divisions of logic.(4)

   For western scholars the interest of the study of Arabian logic lies in the Muslim acceptance of the science from the Greeks and the adaptation of it to Muslim religious ideas.(5)

   For western students of religion the translation furnishes a brief review of the accepted logical method in Muslim scholasticism. For Arabists the vocabulary provides in English a considerable number of technical terms of logic which have not yet been included in western lexicons of Arabic.(6) The importance of al-Abhari's *Īsāghūjī* is indicated not only by its inclusion in the "Collections of Texts," but also by the immense number of editions, commentaries and supercommentaries it has received.

   Concerning al-Abhari himself Ibn Khallikān has the following notice: "In the year 625 [a.d. 1228] the Shaikh Athlr al-Dln al-Mufaddal al-Abheri, the author of the *Talika fi 'l-Khilaf* [notes on controverted matters], the *Zlj* [astronomical tables], and other well known works, left Mosul and came to Arbela where we were then residing. He took up his lodgings in the Dar al-Hadlth [school for traditions], and I studied under his direction some controverted points of jurisprudence." He then relates

several stories of al-Abhari's regard for his teacher Kamāl al-Dīn ibn Manā.(7)" (pp. 75-76)

(4) *Encyclopaedia of Islam*, art. "Īsāghūjī," Vol. II, p. 527 ; George Sarton, *Introduction to the History of Science* (Carnegie Institute of Washington, 1927), Vol. I, p. 335 ; *Liber Mafātlh al-Qlūm*, edidit G. Van Vloten (Leiden, 1895), pp. 140 ff.

(5) *Encyclopaedia of Islam*, art. "Manṭik," Vol. Ill, pp. 258 ff.

(6) Some of these terms are not found in the most extensive of the special vocabularies of philosophical Arabic, M. Horten, *Die Spekulative und Positive Theologie des Islams* (Leipzig, 1912).

(7) Ibn Khallikan s "*Biographical Dictionary* ," translated from the Arabic by MacGuckin de Slane (Paris, 1843-1871), Vol. Ill, pp. 468.

2. Çapak, Ibrahim. 2010. "The Formation of Knowledge and Disputation (*Al-Jadal*) in Ghazālî's Logic." *Journal of Islamic Research* no. 3:129–142.

   Abstract: "Ghazâlî attaches great importance to logic and attracts attention to the signi-ficance of logic saying “the knowledge of one who is not acquainted with logic is unreliable”. The word 'logic' calls to minds the notions of conception (*tasawwur*) and assent *(tasdiq*). According to Ghazâlî, the notions of concep-tion and assent are the bases of all sciences. In this sense, the five arts em-phasized by Aristotle and many other logicians as the application areas of syllogism are based on conception and assent. By virtue of their significance in Ghazâlî's logic, this study is going to elaborate on the formation of knowledge and disputation (*jadal*) which is among the five arts."

3. Carter, M. G. 1997. "Analogical and syllogistic reasoning in grammar and law." In *Islam: Essay on Scripture, Thought and Society. A Festschrift in Honour of Anthony H. Johns*, edited by Riddell, Peter G. and Street, Tony, 104–112. Leiden: Brill.

   "It is well known that grammatical and legal reasoning are virtually identical, in that both involve the systematisation of

irrational data predominantly by means of analogical reasoning. This identity has been cogently expounded by Ibn al-Anbari (d. 1181), whose *Luma*^{c} *al-adill*a represents the culmination of a long process of methodological symbiosis between law and grammar.

In looking again at those two disciplines, this paper, which is here dedicated with pleasure to my respected colleague Tony Johns, will concentrate on the two types of reasoning employed, analogical and syllogistic, with special attention to the terms *'illa* and *qyīas*, proceeding from the assumption that not only are analogy and syllogism historically and qualitatively different, but that they also have different applications. Briefly, analogy is a technique for infinitely extending a finite corpus of data to meet new circumstances, while syllogism authenticates the rationality of that technique without itself creating new law or linguistic usage (or indeed anything). The two systems are thus complementary and therefore mutually exclusive, that is, not only does syllogistic reasoning not create new law or language, but analogical reasoning cannot prove its own rationality. These ideas will easily be recognised as derived from the Aristotelian use of logic as the organising principle of all the sciences, which is precisely what

we find in the first classifications of the sciences in Islam, notably those of al-Fārābī and Ibn Sinā." (p. 104)

4. Cesalli, Laurent, Gazziero, Leone, Manekin, Charles H., Rahman, Shahid, Street, Tony, and Trizio, Michele, eds. 2023. *Fallacies in the Arabic, Byzantine, Hebrew and Latin Traditions*. Turnhout - Bari: Brepols - Edizioni di pagina.

   Contents: Laurent Cesalli, Leone Gazziero, Charles H. Manekin, Shahid Rahman, Tony Street, Michele Trizio: Fallacies in the Arabic, Byzantine, Hebrew and Latin Traditions. Introduction 7; Sten Ebbesen: Are the Fallacies Topoi? 25; Costantino Marmo: The Fallacia Consequentis between Term Logic and Sentence Logic in its Medieval Reception 45; Leone Gazziero: “Qui imperitus est vestrum, primus calculum omittat”. Aristotelis *Sophistici Elenchi* 1 in the Boethian Tradition 75; Irene Caiazzo: Theology, Fallacious Reasoning and Heresy on

the Borders of the Twelfth and Thirteenth Centuries: Some Remarks on the Fallaciae in theologia and Amalricians 119; Melpomeni Vogiatzi: Byzantine Treatments of Fallacy: The Reception of Aristotle's Account 131; Shahid Rahman, Walter Edward Young: Outside the Logic of Necessity: Deontic Puzzles and 'Breaking' Compound Causal Properties in Islamic Legal Theory and Dialectic 153; Hassan Rezakhany: A Forgotten Mereological Paradox 187; Charles H. Manekin: Fallacies and Biblical Exegesis – The Case of Joseph ibn Kaspi 209; Aviram Ravitsky: Fallacies in Rabbinical Thought, in Medieval Jewish Philosophy, and in the Treatise on Talmudic Methodology by Abraham Elijah Cohen 231; Yehuda Halper; Are Zeno's Paradoxes of Motion Fallacies? Evidence from the Hebrew Aristotelian Logical Tradition 249-268.

5. Ceylan, Hadi Ensar. 2010. "Ghazali's Account of Signification." *Journal of Islamic Research* no. 3:98–114.

   "The present study will only attempt to compare "the ways in which meaning is signified by utterances" in logic and methodology based on Ghazali's (d.505/1111) ideas. Our choice of Ghazali could concisely be expressed in a few points. First, Ghazali occupies a prominent place in methodology. His prominence stems from the fact that his work *al-Mustasfā* was a turning point in the systematization of methodology. Although we can talk about an established framework for the books on methodology compiled before Ghazali in general, the framework was not so much organized in itself. This was also a source of complaint for Ghazali, who expressed his criticisms on the point in his introduction of *al-Mustasfā*.(2)

   Ghazali argues that before him, there was a convention in methodology literature of dragging out matters of Islamic theology (*kalam*) by Islamic theologians and matters of jurisprudence (*fiqh*) by jurisprudents. This fact prevented methodology from attaining an organized structure in itself.

   Criticizing his predecessors, Ghazali presents a highly systematized framework in *al-Mustasfâ* when compared to the books written before him. The book consists of an introduction and four chapters. The introduction entirely deals with issues in

logic. Since he considered methodology as a theoretical science, Ghazali gave an outline for logic in his introduction to the book on methodology on account to the fact that logic should be regarded as a foundation for every theoretical science." (pp. 98-99, a note omitted)

(2) Abu Hamed Muhammad b. Muhammad al-Ghazali (d.505/1111), al-Mustasfā min Ilmi"l-Usūl, Dāru'l-Erkam, Beirut (p.d), I/24,27.

6. Chatti, Saloua. 2014. "Syncategoremata in Arabic Logic, al-Fārābī and Avicenna." *History and Philosophy of Logic* no. 35:167–197.

Abstract: "In this paper, I raise the following problem: What terms are considered as syncategoremata in the Arabic logical texts? How are they defined? How do they determine the forms of the propositions and the inferences? To answer these questions, I focus on the analyses provided by al-Fārābī and Avicenna. Both authors apply the grammatical distinction between the particle (the correspondent of the syncategorema), the noun and the verb to logic. They also state the semantic and the syntactic criterions, but their analyses of the particles are different. For al-Fārābī devotes two treatises to the analysis of particles: (1) *al-Alfāz al-mustaʿmalah fī i l-manṭiq*, where he provides a listing of particles that he classifies in the manner of the Greek grammarians and (2) *Kitāb al-Ḥurūf*, where he analyzes some particles used in metaphysics; while Avicenna, despite the considerable amount of his logical corpus, does not devote a special book to the analysis of particles. He does not provide any listing either but characterizes ach logical particle (*ḥarf*) on its own, while analyzing the propositions, their elements and the inferences. In this paper, I argue that this treatment of particles in the two frames shows a significant difference between the two authors with regard to the relation between logic and grammar, and with regard to the characterizations of the logical particles themselves. For vicenna is much less interested than al-Fārābī by the grammatical analysis and focuses much more on the logical particles, which he scrutinizes meticulously. This enriches his

definitions of the logical constants and leads him in the final analysis to different and more various inferences than those hold by al-Fārābī."

7. ———. 2019. *Arabic Logic from al-Fārābī to Averroes: A Study of the Early Arabic Categorical, Modal, and Hypothetical Syllogistics*. Cham (Switzerland): Birkhäuser.

   "This book is the continuation of the works that I have done in the field of Arabic logic since I became interested in it. I feel that the analysis and the precise study of Arabic logic is highly indispensable to all scholars interested in the history of logic in general, since it is still not well known, in the western world as well as in the Arabic one, despite the seminal contributions of Prof. Nicholas Rescher whose work helped discover and analyze the writings of many logicians of that tradition.

   He was followed by many contemporary researchers who were interested in its various aspects. I myself focused a lot on categorical and modal logics and presented some conferences on these topics on many occasions. But in this tutorial, I wished to give a more complete image of a tradition which lasted several centuries.

   This is why I presented in the tutorial three different parts of these systems, which are the categorical logic, the modal logic, and the hypothetical logic. My analysis of these different theories focuses mainly on the original Arabic writings, in order to be as faithful as possible to the texts. I translated most of the quotations that I have given in this examination but I also used some good and well-known English translations such as those of Professors Tony Street, Nabil Shehaby, and Wilfrid Hodges, among others." (p. VII)

8. ———. 2022. "The Hypothetical Logic in the Arabic Tradition." In *Women's Contemporary Readings of Medieval (and Modern) Arabic Philosophy*, edited by Chatti, Saloua, 13–50. Cham (Switzerland): Springer.

   Abstract: "In this paper, I will present the hypothetical logics of some authors pertaining to the Arabic tradition, namely al-Fārābī, Avicenna and some later logicians, in particular in

North Africa, but not Averroes, as he gives that system very little importance. The main problems that I raise are the following: what is the hypothetical logic about? How is it viewed by the Arabic logicians, whether in early Medieval times (eighth twelfth centuries) or in later ones (fourteenth fifteenth centuries)? What are the main theories and results provided by these authors? The study of the hypothetical logic, which analyses the propositions containing 'if . . .then' and those containing 'either . . .or' shows that in al-Fārābī's frame, this system is given some importance and developed in various ways. But it is Avicenna who studies these propositions at the greatest length and gives them the most importance, since he introduces quantification in this field and presents several systems of hypothetical logic, having distinct features. In later times, the hypothetical logic is given much importance in particular in the Western (i.e. North-African) Arabic areas with the writings of Ibn 'Arafa and al-Sanūsi, among others, who seem influenced by Avicenna and especially his follower al-Khūnajī.

I will thus present the basic features and rules of these systems, and will show the main differences between these various systems as well as the evolution of this field in the Arabic tradition. I will also analyse the rules provided in the light of the modern classical formalism of propositional and predicate logics."

9. Chejne, Anwar G. 1984. "Ibn Hazm of Cordova on Logic." *Journal of the American Oriental Society* no. 104:57–72.

"Ibn Hazm [994-1064] received a broad education in both the religious and secular sciences, and may be considered one of the most erudite scholars of al-Andalus. He was an enthusiastic defender of the sciences of the Ancients (*'ulum al-awd'il*), which comprised logic, mathematics, astronomy, medicine, and other sciences.

He considered these not only noble and useful, but attempted to reconcile them within the framework of the religious sciences.(4) He also emphasized the value of logic within the context of both the religious and secular sciences, and was its

staunch defender throughout his career, even when he became devoted almost wholly to the study of the religious disciplines. His work on logic, *Facilitating the Understanding of the Rules of Logic* and *Introduction Thereto* (*al-Taqrīb li-ḥudūd al-manṭiq wa-madkhaluh*), was written early in his career, between 1025 and 1029.(5)" (p. 57)

(4) This point is discussed at great length in his *Marātib al-ulūm*. See Chejne, *Ibn Hazm of Cordova and His Conception of the Science*, [Chicago: Kazi Publications 1982]

In his *Taqrīb*, 200, Ibn Hazm states: "We composed this book of ours and many others while we were in exile and far away from homeland, family and offspring." This could not have taken place during his first exile (1013-19). See his *Tawq*, 251. All indications are that he stayed in Cordova until the accession of al-Mustakfī (1023-25), who placed him in jail and caused his expulsion later on. Ibn Hazm appears to have returned to Cordova in about 1029 and remained there until about 1035 when he was exiled for the third time, never to return again.

10. Daiber, Hans. 2018. "*De praedicamento relationis in philosophia arabica et islamica*. The Category of Relation in Arabic-Islamic Philosophy (Extended Version)." *Enrahonar* no. Supplement Issue:431–490.

    Abstract: "The main sources for the discussion of the category “relation” were Aristotle’s *Categories* and *Metaphysics*. Before their translation into Arabic in the 8th and 9th centuries, Christian theologians and in their footsteps Syriac scholars considered Aristotle’s works to be a useful tool in Christological discussions. This article analyzes the category of relation and its development in Arabic-Islamic philosophy in authors such as Kindī and his student Aḥmad Ibn aṭ-Ṭayyib as-Saraḫsī, Fārābī, Ibn Sīnā, Ghazālī, Ibn Rušd, the Sufi Ibn ʿArabī and others."

11. Daşdemir, Yusuf. 2019. "The Problem of Existential Import in Metathetic Propositions: Qutb al-Din al-Tahtani contra Fakhr al-Din al-Razi." *Nazariyat Journal for the History of Islamic Philosophy and Sciences* no. 5:81–118.

Abstract: "This paper addresses discussions in post-Avicennan Arabic logic on various characterizations of metathetic propositions and their status vis-à-vis the existential import condition by focusing on the arguments made by Fakhr al-Dīn al-Rāzī (d. 606/1210) and the counter-arguments by Quṭb al-Dīn al-Rāzī al-Taḥtānī (d. 766/1365), both of whom established their positions in a framework drawn by Avicenna (Ibn Sīnā, d. 428/1037), the most prominent figure in the tradition of classical Arabic logic. In his logic texts, Avicenna thoroughly discusses the problem of the existential import in metathetic propositions (maʿdūla), and seems to have presumed the existential import to be a truth-condition for affirmative propositions, and therefore, for a irmative metathetic propositions as well. For Avicenna, in other words, an affirmative metathetic proposition presumes its subject-terms's possibly existent referent(s). However, the theologian-philosopher Fakhr al-Dīn al-Rāzī, who lived about a century and half after Avicenna, criticized his views on metathetic propositions and their existential import among other things, thereby igniting a wave of debates in the tradition, in which Quṭb al-Dīn al-Taḥtānī participated in the following century. By studying this contained problem, this paper seeks to address a wider scholarly concern regarding the vitality of post-classical Arabic logic, and to establish that this period witnessed the flourishing of philosophical debate among Arabic logicians."

12. ———. 2024. "Propositions with Negative Predicates in Arabic Logic." *History and Philosophy of Logic*:1–19.

    Abstract: "This paper explores a neglected category of propositions in Arabic logic, propositions with negative predicates (sālibat al-maḥ mūl), by addressing two pivotal questions concerning this propositional form: first, whether it is possible to defend it as distinct from metathetic and simple negative propositions and second, whether affirmative instances of these propositions have existential import. The paper argues for the existence of two distinct and conflicting theories of existential import frequently implicit in the views of Arabic logicians: one centered on the copula and the other on the predicate."

13. Di Vincenzo, Silvia. 2018. "Early Exegetical Practice on Avicenna's Śifā': Faḫr al Dīn al Rāzi's *Marginalia to Logic*." *Arabic Sciences and Philosophy* no. 28:31–66.

    Abstract: "Nine manuscripts preserving Avicenna's *Kitāb al-Šifā'* share a set of identical marginal glosses to the section of Logic. One of these manuscripts reports, at the end of each of the glosses, a certificate of transmission ascribing them to the theologian and philosopher Faḫr al-Dīn al-Rāzī (d. 606H/1210), which provides some material evidence of the existence of a flourishing exegetical activity on the *Kitāb al-Šifā'* during the twelfth-thirteenth century, in spite of the apparent lack of commentaries on the text in that period. The present paper provides an edition of the so far unknown *ḥāšiyāt* to Avicenna's *Kitāb al-Šifā'* by al-Rāzī, with an attempt at reconstructing their tradition and contextualizing them within al-Rāzī's exegetical and teaching activity."

14. ———. 2024. "Aristotle's *Categories* in the Arabic Tradition." In *Works of Philosophy and Their Reception*. Berlin: de Gruyter.

    Available on-line.

    Abstract: "Tracing the Arabic reception of Aristotle's *Categories* entails charting the history of a foundational philosophical work across three continents, from Spain to India, over a span of at least ten centuries (9th–19th century). This chapter offers an overview of the most significant phases of this reception. The first section examines the Arabic translations of the *Categories* and related Greek commentaries realized between the 9th and the 10th centuries, drawing on manuscript and bio-bibliographical sources. The second section delves into the development of an Arabic scholarly reflection on the *Categories* between the 9th and 11th centuries and the formation of a philosophical discourse surrounding a selection of key issues that would shape the subsequent reception of the treatise. Central among these key issues is the question of the scope of the *Categories* and its disciplinary classification. The third section presents Avicenna's (d. 1037) novel ontological interpretation of the *Categories* and the resulting repositioning

of the treatise within metaphysics. The fourth section investigates the broader impact of Avicenna's reassessment of the place of the treatise in the post-Avicennian tradition (12th–14th century). Finally, the fifth section presents the 'traditionalist' interpretations of the *Categories* that emerged in response to the mainstream consensus on the ontological reading of the treatise established by the post-Avicennian tradition (12th–18th century)."

15. Druart, Thérèse-Anne. 2016. "Logic and Language." In *The Routledge Companion to Islamic Philosophy*, edited by Taylor, Richard C. and López-Farjeat, Luis Xavier, 69–81. New York: Routledge.

    "Introduction

    In Greek *logos*, word or discourse, gave rise to *logike techne* or craft of reasoning, i.e. logic. Further, the basic type of reasoning studied in logic is called the *syllogismos*, a word deriving from *logos*. These etymologies reveal a link between language and logic, particularly since symbolic logic was not yet invented. Classical Arabic too manifests a link between word or speech and logic as the word for logic *mantiq* derives from *nutq*, which means articulated speech. Yet, logic claims to be universal, whereas there is a great multiplicity of languages. Distinguishing logic from linguistic arts, as well as articulating their relationship, is a complex and difficult endeavor that philosophers in Islamic lands faced in various ways. They had to take into account not only the Greek philosophical tradition but also some theological positions. In the first section I look at logic as essentially an autonomous discipline focusing on syllogisms. In the second I explore how some philosophers either emphasize their relationship or try to articulate better logic's autonomy. The last and final section deals with some of the philosophers' reflections on various aspects of language in general." (p. 69)

16. Ebadi, Ahmad, and Qaramaleki, Ahad Faramarz. 2018. "Singular Proposition (*Al-qaḍiyah al-Shakhṣīyah*) in Logic of the Islamic Period." *The Islamic Quarterly* no. 62:229–246.

Abstract: "Singular proposition (*al-qaḍiyah al-Shakhṣīyah*) is a type of categorical proposition (*al-qaḍiyah* al-ḥamlīyah). Islamic logicians have paid close attention to defining, naming, and analyzing of singular proposition. From the works of logicians of Islamic period, eight features of singular propositions can be derived: constituency relation, unquantifiability, indivisibility into confirmation of the subject and confirmation of the object, indivisibility into factual/extrinsic propositions, inefficiency in categorical syllogism, not being convertible, having no value in *al- 'ulūim al-burhānīyah*, and truth of contradictory propositions in square of opposition."

17. El-Rouahyeb, Khaled. 2009. "Impossible Antecedents and Their Consequences: Some Thirteenth-Century Arabic Discussions." *History and Philosophy of Logic* no. 30:209–225.

    Abstract: "The principle that a necessarily false proposition implies any proposition, and that a necessarily true proposition is implied by any proposition, was apparently first propounded in twelfth century Latin logic, and came to be widely, though not universally, accepted in the fourteenth century. These principles seem never to have been accepted, or even seriously entertained, by Arabic logicians. In the present study, I explore some thirteenth century Arabic discussions of conditionals with impossible antecedents. The Persian-born scholar Afdal al-Dīn al-Khūnajī (d.1248) suggested the novel idea that two contradictory propositions may follow from the same impossible antecedent, and closely related to this point, he suggested that if an antecedent implies a consequent, then it will do so no matter how it is strengthened. These ideas led him, and those who followed him, to reject what has come to be known as ‘Aristotle’s thesis’ that no proposition is implied by its own negation. Even these suggestions were widely resisted. Particularly influential were the counter-arguments of Naṣīr al-Dīn al-Tūṣī (d.1274)."

18. ———. 2020. "Logic in the Arabic and Islamic World." In *Encyclopedia of Medieval Philosophy. Second edition*, edited

by Lagerlund, Henrik, 1074–1083. Dordrecht: Springer.

Abstract: "The Arabic logical tradition emerged from the Graeco-Arabic translation movement from the eighth to the tenth centuries. In its initial stages, it was closely linked to the activity of translating and commenting upon Aristotle's *Organon*. By the early tenth century, a circle of Aristotelian scholars had emerged in Baghdad who saw themselves as a continuation of the Alexandrian tradition. Its most prominent representative was undoubtedly Al-Fārābī (d. 950), who wrote esteemed commentaries on Aristotle's logical works, as well as a number of treatises introducing logic (*manṭiq*) to an environment that often viewed the Greek sciences with suspicion. The influence of the Baghdad circle eventually reached Islamic Spain, where Aristotelian philosophy and logic flourished in the eleventh and twelfth centuries, culminating in the monumental commentaries on Aristotle by Averroes (d. 1198). In other parts of the Islamic world, however, the influence emanating from Avicenna (d. 1037) eventually superseded that of Aristotle. Avicenna was less concerned with getting the interpretation of Aristotle right and more willing to make radical departures from the Aristotelian tradition. By the thirteenth century, his works had replaced those of Aristotle as the point of reference for most logicians writing in Arabic. The prominent theologian Fakhr al-Dīn al-Rāzī (d. 1210) approached the Avicennian tradition with the same irreverence with which Avicenna had himself approached the Aristotelian tradition.

He also decisively reoriented the scope of logic toward a focused study of terms, propositions, and syllogisms, rather than the entirety of topics covered in the Organon. A number of thirteenth-century logicians working in the wake of Avicenna and Fakhr al-Dīn al-Rāzī produced sophisticated and original summas of formal logic. They also produced a number of condensed handbooks that formed the basis of logical studies at colleges throughout the Islamic world until modern times."

19. ———. 2022. "Mixed Conditional-Categorical Syllogisms from Avicenna to Urmawī." *History and Philosophy of Logic* no. 43:232–250.

Abstract: "A number of medieval Arabic logicians discussed inferences that combine the principles of propositional and term logic, for example:

Whenever H is Z then Every J is D

No D is A

Whenever H is Z then Some J is not A

The present paper will be devoted to discussions of the validity of mixed conditional-categorical syllogisms of this form, and purported counterexamples, from Avicenna (d. 1037) to Urmawī (d. 1283). One major problem that was discussed, related to modern discussions of the context-sensitivity of counterfactual conditionals, is that if the antecedent of the conditional premise is incompatible with the categorical premise, then there is no guarantee that the latter will combine syllogistically with the consequent of the conditional premise. Plausible formalizations of the argument reinforce the misgivings expressed by some thirteenth-century Arabic logicians."

20. ———. 2023. "Dawānī (d. 1502) and Dashtakī (d. 1498) on Primary (awwalī) and Familiar (mutaʿāraf) Predication." *Oriens* no. 51:367–392.

    Abstract: "The present article explores the motivations that led Jalāl al-Dīn al-Dawānī (d. 1502) to draw the distinction between what he called “primary predication” (*ḥaml awwalī*) and “familiar predication” (*ḥaml mutaʿāraf or ḥaml shāʾiʿ*). These motivations include allowing for the predication of particulars, such as “This is Zayd” and accounting for apparently true self-negations, such as “The [concept] particular is not a particular.” The article also explores some criticisms of this distinction by Dawānī’s contemporary and rival Ṣadr al-Dīn al-Dashtakī (d. 1498). Despite these criticisms, Dawānī’s distinction was adopted, adapted, and emphasized by the Safavid scholar Mīr Dāmād (d. 1631).

    Mīr Dāmād’s influence, in turn, accounts for the prominence given to the distinction in later centuries among Iranian and

Indo-Muslim logicians."

21. ———. 2025. "A Problem with the Wholly Hypothetical Syllogism: Some 13th-Century Arabic Discussions." In *Logic, Soul, and World: Essays in Arabic Philosophy in Honor of Tony Street*, edited by Ahmed, Asad Q., Zarepour, Mohammad Saleh and Strobino, Riccardo, 300–325. Leiden: Brill.

    "Until the time of Avicenna, it was standard in the Arabic logical tradition to divide syllogisms into categorical (*ḥamlī*) and hypothetical (*sharṭī*). The latter included the following three argument schemes:

    (i) modus ponens:

    If p then q.

    p.

    ∴ q.

    (ii) modus tollens:

    If p then q.

    Not-q.

    ∴ Not-p.

    (iii) disjunctive syllogism:

    p or q.

    Not-p.

    ∴ q.

    Avicenna and the post-Avicennan logical tradition accepted these inference schemes, but also recognized what they termed the “connective-hypothetical syllogisms,” including what in the European logical tradition is called “wholly” or “purely” hypothetical syllogisms:(1)

    If p then q.

    If q then r.

    ∴ If p then r.

The present paper will present some of the worries about this syllogism, expressed already by Avicenna and discussed intensely in the thirteenth century. (pp. 00-301)

(1) Tony Street, “Arabic Logic,” in D.M. Gabbay & J. Woods (eds.), *Handbook of the History of Logic, Vol. 1: Greek, Indian and Arabic Logic* (Amsterdam: Elsevier, 2004): 523–596, at 543–547.

Street’s article is a landmark in the modern study of the history of Arabic logic and remains the indispensable starting point for later research

22. ———. 2025. "Qūshjī (d. 1474) and Dawānī (d. 1502) on Truth and Correspondence." *Journal of the History of Philosophy* no. 63:191–208.

    Abstract: "The present article presents the views of two fifteenth-century Islamic scholars, ʿAlī al-Qüshjī (d. 1474) and Jalāl al-Dīn al-Dawānī (d. 1502), on the following issue: When we make claims about extramental subjects and predicates, it seems plausible to suggest that such claims are true by virtue of corresponding to extramental reality. But what do we make of claims whose subjects and predicates are not extramental existents, such as philosophical claims like ‘An actual infinity is impossible’ or ‘Existence is a second intention’? It seems problematic to suggest that such claims are made true by mental reality, for one can have false philosophical views. Such considerations led some earlier scholars to postulate that the truth of such propositions consists in correspondence with what is in the Active Intellect.

    Qūshjī raised objections to such proposals, and his glossator Dawānī developed another account that distinguished between de facto beliefs and the beliefs that are appropriate to our concepts."

23. El-Rouayheb, Khaled. 2004. "Sunni Muslim Scholars on the Status of Logic, 1500-1800." *Islamic Law and Society* no. 11:213–232.

    Abstract: "In the present article, I discuss Goldziher's contention (echoed in more recent literature) that fromt he

thirteenth and fourteenth centuries, Sunni Muslim scholars ('*ulama'*) became increasingly hostile to rational sciences such as logic. On the basis of discussions and *fatāwā* by Sunni scholars in the sixteenth, seventeenth and eighteenth centuries, I show that this idea is radically mistaken. Mainstream scholars in the Maghrib, Egypt and Turkey considered logic to be not only permissible but actually commendable or even a religious duty incumbent on the Muslim community as a whole (i.e. a *farḍ kifāyah*). Though there were dissenting voices in the period, such as the Qāḍizādelīs, this seems to have been the mainstream opinion of Sunni scholars until the rise of the Salafiyyah movement in the nineteenth and twentieth centuries."

References

Ignáz Goldziher, "Stellung der alten islamischen Orthodoxie zu den antikken Wissenschaften," *Abhandlung der Koniglichen Akademie der Wissenschaften*, 8 (1915): 3-46. In what follows, all references and quotations will be to and from the English translation "The Attitude of Orthodox Islam Toward the Ancient Sciences," in M.L. Swartz (transl. and ed.), *Studies on Islam* (New York and Oxford: Oxford University Press, 1981), 185-215.

24. ———. 2005. "Was There a Revival of Logical Studies in Eighteenth-Century Egypt?" *Die Welt des Islams* no. 45:1–19.

"It is a common assumption that intellectual life in the Arabic-Islamic world entered a period of stagnation or decline after the 13th or 14th century. The intellectual inertia is supposed to have lasted until the 19th century, when a more dynamic and vital Europe thrust itself upon the region. This overall interpretation of the course of Arabic-Islamic intellectual history seems never to have been the conclusion of careful and dispassionate historical investigation. We simply know too little about the intellectual life of the Arabic-Islamic world between 1400 and 1800 to be able to justify such an unflattering comparison with the earlier, so-called "classical" age of Arabic-Islamic civilisation. In recent decades, the idea that the period

between 1500 and 1800 constituted a period of overall "decline" has been challenged." (p. 1)

(...)

"In the present article, I explore some intriguing evidence suggesting that there was a revival of interest in logic in eighteenth- century Egypt. In particular, one prominent scholar writing in Egypt towards the end of the eighteenth century believed that there had indeed been a resurgence of interest in the discipline starting around two generations earlier and continuing to his own day. I assess this testimony by drawing on other historical sources from the period, primarily the history of 'Abd al-Rahman al-Jabarti (d.1825-6) and the biographical compilation of scholars who died in the Muslim eleventh century (1592-1688 C.E.) by the Damascene scholar Muhammad Amin al-Muhibbi (d.1699). I then discuss how my findings relate to the claims of Gran and Schulze." (p. 2)

References

Peter Gran, *Islamic Roots of Capitalism: Egypt 1760-1840* (Austin & London, 1978).

Reinhardt Schulze, "Das islamische achtzehnte Jahrhundert: Versuch einer historiographischen Kritik", *Die Welt des Islams* 30 (1990): 140-159.

Reinhardt Schulze, "Was ist die islamische Aufklarung?", *Die Welt des Islams* 36 (1996): 276-325.

25. ———. 2006. "Opening the Gate of Verification: The Forgotten Arab-Islamic Florescence of the 17th Century." *International Journal of Middle East Studies* no. 38:263–281.

"In the present article, I would like to challenge this idea of intellectual apathy and stagnation by drawing attention to some hitherto neglected intellectual developments in the Arabic-speaking parts of the Ottoman Empire in the 17th century. One of these developments was the introduction of a range of new handbooks in the fields of grammar, semantics-rhetoric, logic, and theology, mostly of either Persian or Maghribi origin.

Contemporary witnesses believed thatt his development was significant, because Persian and Maghribi scholars were imbued, or so it was believed, with an ethos of "verification."

Another major development was the spread of originally non-Arabic mystical orders such as the Shattariyya, Naqshbandiyya, and Khalwatiyya in the region. This development appears to have had the effect of strengthening support for monist, pro-Ibn 'Arabi doctrines, which had hitherto been regarded with suspicion by most Arab-Islamic scholars (*ulama*). The two trends were distinct, but at times coalesced, as in the case of two of the intellectual giants of the 17th century, Ibrahim al-Kurani (1616-90) and 'Abd al-Ghani al-Nabulusi (1640-1731)." (p. 264)

26. ———. 2009. "Impossible Antecedents and Their Consequences: Some Thirteenth-Century Arabic Discussions." *History and Philosophy of Logic*:209–225.

    Abstract: "The principle that a necessarily false proposition implies any proposition, and that a necessarily true proposition is implied by any proposition, was apparently first propounded in twelfth century Latin logic, and came to be widely, though not universally, accepted in the fourteenth century. These principles seem never to have been accepted, or even seriously entertained, by Arabic logicians. In the present paper I explore some thirteenth century Arabic discussions of conditionals with impossible antecedents. The Persian-born scholar Afdal al-Dīn al-Khūnajī (d.1248) suggested the novel idea that two contradictory propositions may follow from the same impossible antecedent, and closely related to this point, he suggested that if an antecedent implied a consequent, then it would do so no matter how it was strengthened. These ideas led him, and those who followed him, to reject what has come to be known as ‘Aristotle’s thesis’ that nothing is implied by its own negation. Even these suggestions were widely resisted. Particularly influential were the counter-arguments of Naṣīr al-Dīn al-Tūṣī (d.1274)."

27. ———. 2010. *Relational Syllogisms and the History of Arabic Logic, 900-1900*. Leiden: Brill.

"In the first chapter of the study that follows, I present discussions of the anomaly of relational inferences by logicians writing in Arabic during the 'classical' period from around 900 to 1200: Fārābī (d. 950) and his second-generation student Ibn Zurʿa (d. 1008); Avicenna (d. 1037) and his followers, such as Bahmanyār (d. 1065) and Sāwī (fl. 1145); the more orthodox Aristotelian scholars Abū l-Barakāt al-Baghdādī (d. 1165) and Averroes (d. 1198); and the anti-Peripatetic Platonist philosopher Yaḥyā al-Suhrawardī (d. 1191).

In the second chapter, I survey the discussions of relational inferences that took place between the year 1200 and 1350. The topic received a decisive impetus from its treatment by Fakhr al-Dīn al-Rāzī (d. 1210), who argued that previous attempts at explaining away inferences such as 'the argument from equals' were unsatisfactory and that the stipulation that a categorical syllogism must have three terms, of which one is shared, should be abandoned.

(...)

In chapter three, I present some discussions of the topic between 1350 and 1600. This period has often been dismissed as an age of sterile 'commentaries and glosses.'

(...)

In chapter four, I trace the discussions of the topic in Iranian, Indo-Muslim, North African, and Christian Arabic logical works from 1600 to 1900. By this time, distinct traditions of Arabic logic had crystallized, with different standard handbooks. Hence, it is helpful to survey each major regional tradition separately.

In chapter five, I look at the discussions of the topic in Ottoman works on logic (usually written in Arabic) from 1600 to 1800. By the latter date, relational inferences had been recognized in several Ottoman works as a special type of 'unfamiliar syllogism,' and a number of scholars began to explore the logic of such inferences.

In chapter six, I give a systematic account of the logic of relational syllogisms as presented in a handbook on logic by the Ottoman scholar Ismāʿīl Gelenbevī (d. 1791) and its commentary by Muṣṭafā Sīrōzī (fl. 1808–1839).

(...)

In chapter seven, I survey developments of the theme in nineteenth century Ottoman logic. Ottoman logicians of that century expanded the framework of relational syllogisms and showed a keen interest in using this expanded framework for rendering arguments that they encountered in scholarly works into explicit syllogistic form." (pp. 3-4)

28. ———. 2012. "Post-Avicennan Logicians on the Subject Matter of Logic: Some Thirteenth- and Fourteenth-Century Discussions." *Arabic Sciences and Philosophy* no. 22:69–90.

    Abstract: "In the thirteenth century, the influential logician Afḍal al-Dīn al-Khnajī (d. 1248) departed from the Avicennan view that the subject matter of logic is “second intentions”.

    For al-Khūnajī, the subject matter of logic is “the objects of conception and assent”. His departure elicited intense and sometimes abstruse discussions in the course of subsequent centuries. Prominent supporters of Khūnajī’s view on the subject matter of logic included Kātibī (d. 1277), Ibn Wāṣil (d. 1298) and Taftāzānī (d. 1390). Defenders of Avicenna’s view included Tūsī (d. 1274), Samarqandī (d. 1303) and Quṭb al-Dīn al-Rāzī (d. 1365). This article presents the outline of the development of this discussion down to the end of the fourteenth century and attempts to reconstruct the major arguments of both sides."

29. ———. 2016. "Does a Proposition Have Three Parts or Four? A Debate in Later Arabic Logic." *Oriens* no. 44:301–331.

    Abstract: "!The present article traces the controversy on propositions and their parts, intensively discussed by logicians writing in Arabic in the fourteenth, fifteenth and sixteenth centuries. From the beginning of the Arabic logical tradition to the end of the thirteenth century, the dominant view among

Arabic logicians was that a categorical proposition consists of three parts: subject, predicate and nexus between them indicated (in most languages) by the copula. A number of influential logicians from the fourteenth century suggested that the parts are strictly four: the subject, the predicate, the nexus between them, and the judgment. This thesis was criticized in the late fifteenth century, most influentially by the Persian scholar Dawānī (d.1502). His criticism and the ensuing discussion came to be intertwined with another controversial issue: can some objects of conception (*taṣawwur*) also be objects of assent (*taṣdīq*)?"

30. ———. 2016. "Arabic Logic after Avicenna." In *The Cambridge Companion to Medieval Logic*, edited by Novaes, Catarina Dutilh and Read, Stephen, 67–93. Cambridge: Cambridge University Press.

    "The critical interventions of Rāzī and Khūnajī were in turn modified and carried forward by later generations of like-minded logicians such as Athīr al- Dīn al- Abharī (d. 1265), Najm al- Dīn al- Kātibī (d. 1277), and Sirāj al- Dīn al- Urmawī (d. 1283).These “revisionist Avicennan” logicians (I adopt the phrase from Tony Street) authored lengthy summas of logic as well as shorter handbooks that continued to be studied in Islamic madrasas until the twentieth century: Abharī’s elementary *Īsāghūjī*; Kātibī’s *al-Risālah al-Shamsiyyah*; and Urmawī’s *Maṭāliʿ al- anwār*. These handbooks in turn became the point of departure for later logicians.

    Especially in Persia and India, Avicenna’s logical writings continued to be prized, copied, and quoted (Ahmed 2012), but the state of the field had changed too much in the course of the twelfth and thirteenth centuries for Avicenna’s writings to constitute the state of the art for logicians writing after around 1300. The following section will take a closer look at the logic expounded in the enormously influential thirteenth- century post- Avicennan handbooks (especially Kātibī 1948). The section after that will attempt to outline the development of Arabic logic in the fourteenth and fifteenth centuries." (pp. 68-69)

References

Ahmed, Asad Q. 2012. ‘Logic in the Khayrâbâdî School in India: A Preliminary Exploration’. In M. Cook, N. Haider, I. Rabb and A. Sayeed (eds.), *Law and Tradition in Classical Islamic Thought: Studies in Honor of Professor Hossein Modarressi*. New York: Palgrave Macmillan, 227-244.

Kātibī, Najm al-Dīn. 1948. Al- Risālah al-Shamsiyyah. Cairo: Muṣṭafā al-Bābī al-Ḥalabī.

31. ———. 2016. "Theology and Logic." In *The Oxford Handbook of Islamic Theology*, edited by Schmidtke, Sabine, 408–431. New York: Oxford University Press.

Abstract: "In the ninth and tenth centuries, Arabic ‘logicians’ (*manṭiqiyyūn*) and Islamic ‘theologians’ (*mutakallimūn*) constituted distinct and rival groups. The former advocated the use of Aristotelian and Stoic formal modes of inference, whereas the later had a very different and broadly analogical model of argumentation and disputation. In the course of the eleventh and twelfth centuries, a number of prominent Islamic theologians such as al-Ghazali (d. 1111) and Fakhr al-Din al-Razi (d. 1210) began to adopt Greek-derived formal logic and to concede that the older analogical forms of argumentation were inappropriate to the discipline of theology. Despite an opposition to this process by such figures as Ibn Taymiyyah (d. 1328), this blending of logic and Islamic theology became predominant by the fourteenth and fifteenth centuries. Henceforth, opposition to logic tended to be confined to Islamic religious circles that were also fiercely opposed to the discipline of theology (kalam)."

32. ———. 2018. "*Takmīl al-Manṭiq*: A Sixteenth-Century Arabic Manual on Logic." In *Illuminationist Texts and Textual Studies: Essays in Memory of Hossein Ziai*, edited by Gheissari, Ali, Walbridge, John and Alwishah, Ahmed, 199–256. Leiden: Brill.

"The history of Arabic logic after Avicenna (d.1037) is only just beginning to be explored. Until quite recently, it was widely believed that there would be little point in doing so." (p. 299)

(...)

"More recent scholarship has concluded that this overall interpretation is spectacularly wrong. Thanks especially to the path-breaking research of Nicholas Rescher and Tony Street, we now know that logic continued to be cultivated at an advanced level for centuries after Avicenna." (p. 199)

(...)

"Rescher and Street have both drawn attention to another post-Avicennan logical work: *Sharḥ al-Takmīl fī 'l-manṭiq*, a manuscript of which is extant at the British Library.(3) This work includes, among other things, a detailed analysis of modality propositions and the logical relations, immediate inferences, and syllogisms involving them." (p. 200)

(...)

"As will be seen below, Rescher was quite mistaken about the provenance and date of the work, which does not really fit into his narrative of post-medieval decline. The author of *Takmīl al-manṭiq* was an Iranian-born scholar who was active in the Ottoman Empire in the early- to mid-sixteenth century, and he was not named Shirwānī." (p. 200)

"To sum up the case: The author of *Takmīl al-manṭiq* should be identified with Ḥasan b. Ḥusayn b. Muḥammad al-Amlashī al-ʿAjamī who was active in the Ottoman Empire in the 1530s and 1540s. His Takmīl al-manṭiq was dedicated to a certain Aḥmad Çelebī b. Abū'l-Suʿūd, who is almost certainly the son of the famous Ottoman Grand Mufti Abū'l-Suʿūd. This would place the composition of the work in Istanbul in the middle of the sixteenth century. There are good reasons to think that the author is identical to Ḥasan b. Ḥusayn al-Tālishī al-ʿAjamī (d. 1556 or 57) on whom there is an entry in Ṭāşköprüzāde's classic biographical dictionary of Ottoman scholars *al-Shaqā'iq al-nuʿmāniyya*.

Though the identification is not as water-tight as one could have wished, it is very unlikely that there were two different

scholars from the same distinct Talish-speaking region in Iran, both with the name “Ḥasan b. Ḥusayn”, both active in the Ottoman Empire in the 1530s and 40s, both spending time in Cairo, and both residing in Istanbul in the early years of the 1550s." (p. 210)

(3) British Library, London: MS Or. 12405, fols. 71b–104a.

33. ———. 2019. *The Development of Arabic Logic (1200–1800)*. Basel: Schwabe Verlag.

"In the Islamic world, there has in recent years been a burgeoning interest in editing premodern works on philosophy and logic." (p. 19)

(…)

"This more recent scholarship has made it possible to offer the present overview of the history of Arabic logic from 1200 to 1800, an overview that is intended to be at once a corrective and a homage to Rescher’s *The Development of Arabic Logic*. Like Rescher’s work, it is in part bio-bibliographic. Each section of what follows has an introductory essay on general developments within a certain period and region, followed by discussions of the lives and works of some major figures. Deciding who was and who was not a “major” figure is of course not always straightforward. This is especially the case for the later centuries, both because more material survives from those centuries and because it is easier, with the benefit of hindsight, to determine who the influential logicians of earlier times were – it is more difficult to do so when dealing with scholars who were writing just before the dramatic disruptions of the nineteenth and twentieth centuries that in many regions brought the Arabic tradition of logic to an end. In general, an attempt has been made to include logicians who appear to have been original, or whose works were widely copied or discussed, or who were noticeably prolific, or illustrate certain significant historical trends. At the present stage of research, our sense of which logicians meet these criteria is of course provisional, and there may be readers who are disappointed that some figure or other has been left out. But in an overview such as this, some difficult choices have to be made. It is simply impossible to

include every single scholar who wrote on logic in Arabic in the six hundred years spanned by the present volume." (pp. 19-20)

34. ———. 2019. "Books on Logic (*manṭiq*) and Dialectics (*jadal*)." In *Treasures of Knowledge: An Inventory of the Ottoman Palace Library (1502/3–1503/4). Volume I*, edited by Necipoğlu, Gülru, Kafadar, Cemal and Fleischer, Cornell H., 891–906. Leiden: Brill.

    "The ordering of subjects in the palace library inventory prepared by ʿAtufi seems to reflect a general sense ofrank. Logic and dialectics appear toward the end of the inventory, suggesting that they were ranked relatively low. Nevertheless, these disciplines were regularly studied in Ottoman colleges (*madrasas*). The cataloguer ʿAtufi himself contributed to them, writing a commentary on *Īsāghūjī* (Introduction), the standard introductory handbook on logic by Athir al-Din al-Abhari (d. 1265).(1) Ottoman palace slaves (the *kapıkulu*) were also taught logic, and it is explicitly for the education of this group that a Turkish work on logic dedicated to Sultan Bayezid II and entitled *Zübdet ül-beyān* (*The Cream of Exposition*) was written. (More on this work below.)

    The inventory features 116 entries in the section devoted to books on logic (*manṭiq*) and dialectics (jadal)." (p. 891)

    (1) For an extant copy, see Fehmi Edhem Karatay, *Topkapı Sarayı Müzesi Kütüphanesi Arapça Yazmalar Kataloğu*, 4 vols. (Istanbul: Topkapı Sarayı Müzesi, 1966), 3:669–70 (nr. 6803).

35. ———. 2020. "Logic in the Arabic and Islamic World." In *Encyclopedia of Medieval Philosophy. Second edition*, edited by Lagerlund, Henrik, 1074–1083. Dordrecht: Springer.

    Abstract: "The Arabic logical tradition emerged from the Graeco-Arabic translation movement from the eighth to the tenth centuries. In its initial stages, it was closely linked to the activity of translating and commenting upon Aristotle's *Organon*. By the early tenth century, a circle of Aristotelian scholars had emerged in Baghdad who saw themselves as a continuation of the Alexandrian tradition. Its most prominent

representative was undoubtedly Al-Fārābī (d. 950), who wrote esteemed commentaries on Aristotle's logical works, as well as a number of treatises introducing logic (*manṭiq*) to an environment that often viewed the Greek sciences with suspicion. The influence of the Baghdad circle eventually reached Islamic Spain, where Aristotelian philosophy and logic flourished in the eleventh and twelfth centuries, culminating in the monumental commentaries on Aristotle by Averroes (d. 1198). In other parts of the Islamic world, however, the influence emanating from Avicenna (d. 1037) eventually superseded that of Aristotle. Avicenna was less concerned with getting the interpretation of Aristotle right and more willing to make radical departures from the Aristotelian tradition. By the thirteenth century, his works had replaced those of Aristotle as the point of reference for most logicians writing in Arabic. The prominent theologian Fakhr al-Dīn al-Rāzī (d. 1210) approached the Avicennian tradition with the same irreverence with which Avicenna had himself approached the Aristotelian tradition.

He also decisively reoriented the scope of logic toward a focused study of terms, propositions, and syllogisms, rather than the entirety of topics covered in the Organon. A number of thirteenth-century logicians working in the wake of Avicenna and Fakhr al-Dīn al-Rāzī produced sophisticated and original summas of formal logic. They also produced a number of condensed handbooks that formed the basis of logical studies at colleges throughout the Islamic world until modern times."

36. ———. 2022. "Mixed Conditional-Categorical Syllogisms from Avicenna to Urmawī." *History and Philosophy of Logic* no. 43:232–250.

Abstract: "A number of medieval Arabic logicians discussed inferences that combine the principles of propositional and term logic, for example:

Whenever H is Z then Every J is D

No D is A

Whenever H is Z then Some J is not A

The present paper will be devoted to discussions of the validity of mixed conditional-categorical syllogisms of this form, and purported counterexamples, from Avicenna (d. 1037) to Urmawī (d. 1283). One major problem that was discussed, related to modern discussions of the context-sensitivity of counterfactual conditionals, is that if the antecedent of the conditional premise is incompatible with the categorical premise, then there is no guarantee that the latter will combine syllogistically with the consequent of the conditional premise. Plausible formalizations of the argument reinforce the misgivings expressed by some thirteenth-century Arabic logicians."

37. Endress, Gerhard. 1977. "The Debate between Grammar and Greek logic." *Journal for the History of Arabic Sciences* no. 2:1406–118.

38. Eshera, Osama, Savadi, Fateme, and Wisnovsky, Robert. 2025. "Prolegomena to a Critical Edition of Sāwī's Baṣāʾir." In *Logic, Soul, and World: Essays in Arabic Philosophy in Honor of Tony Street*, edited by Ahmed, Asad Q., Zarepour, Mohammad Saleh and Strobino, Riccardo, 450–498. Leiden: Brill.

    "In this article, we offer some preliminary remarks about the reception-history of ʿUmar ibn Sahlān as-Sāwī's (d. ca. 566/1170) logic text, *al-Baṣāʾir an-Naṣīriyya* ([*Logical] Insights for Naṣīr [al-Dīn]*), and we append a sample of what a critical edition of that text could look like. In so doing, we hope both to contribute to future research on Sāwī's place in the history of post-Avicennian logic, and to pay tribute to Tony Street's fundamental contributions to the study of that history." (p. 450)

39. Fallahi, Asadollah. 2021. "An Inquiry on Fakhr al-Dīn Rāzī's Authorship of *Al-Manṭiq al-kabīr* (MS Aḥmad iii, no. 3401)." *History and Philosophy of Logic* no. 46:224–246.

    Abstract: "It is quite common among historians of Arabic logic to attribute MS Aḥmad iii, no. 3401, entitled *Al-Manṭiq al-kabīr* (*Major [book on] logic*), to Fakhr al-Dīn Rāzī. This view is expressed explicitly and forcefully by Franziska Knobel

(2015) and Turgut Akyüz and Elmin Aliyev (2020). In this paper, we try to refute this attribution through textual analysis, thereby exposing new evidence to the contrary. We show that the text has several references to Fakhr al-Dīn Rāzī himself as well as to some later logicians such as Rāzī's pupil Zayn al-Dīn Kashshī and the latter's successor Afd. al al-Dīn Khūnajī. We also show that contrary to some contemporary historians, all references to '*kitābunā al-kabīr*' ('our major book') in Rāzī's *Sharḥ Al-ishārāt* do not refer to*Al-Manṭiq al-kabīr,* but to *Al-mabāhith al-mashriqiyya*."

References

Knobel, F. 2015. 'Fahraddīn ar-Rāzī, *Al-Manṭiq al-kabīr* (MS Aḥmad iii, no. 3401, Jahr 1268 n. Chr.): Über den Nutzen der Dialektik', *Oriens*, 43, 414–32.

Turgut Akyüz, Elmin Aliyev 2020. Was Al-Mantiq Al-Kabīr Compiled By Fakhr al-Dîn Al-Rāzī? A Study on the Problem of Authorship, Ortaçağ Araştırmaları Dergisi – Journal of Medieval Studies, 3, 63-72.

40. ———. 2023. "Early Arabic logicians on the contraposition of the particular affirmative." *British Journal for the History of Philosophy* no. 31:382–404.

Abstract: "The logical rule of contraposition as applied to a particular affirmative proposition (I-contraposition), despite its rejection in the medieval Latin logic, had a different history in the medieval Arabic logic, varying from common acknowledgement to total dismissal (it was accepted by Avicenna and by all of his followers in the eleventh and twelfth centuries and rejected by all of Arabic logicians in the late thirteenth century onwards). This paper is a narrative of the fate of I-contraposition in the early Arabic logic. I will study Avicenna's, al-Suhrawardī's, al-Rāzī's, al-Kashshī's, and al-Khūnajī's views on this rule. Although Avicenna explicitly acknowledged I-contraposition in a brief note, and in an apparently Meinongian language, the other four figures found I-contraposition problematic and listed some counterexamples to it.

Nonetheless, they all attempted to justify Avicenna's acceptance of the rule by restricting its application conditions. These efforts led to interesting syntactic and semantic analyses but gathered little attention from later medieval logicians. Finally, in the middle Arabic logic, the revised versions of I-contraposition were also declared invalid."

41. ———. 2024. "Burhān al-dīn Nasafī as the Author of *Al-Manṭiq alkabīr* (MS Aḥmad iii, no. 3401)." *History and Philosophy of Logic* no. 45:246–261.

    Abstract: "Recently, in 'An inquiry on Fakhr al-Dīn Rāzī's authorship of *Al-manṭiq al-kabīr* (MS Aḥmad iii, no. 3401)', we refuted the quite common view among historians of Arabic logic as to attribute *Al-manṭiq al-kabīr* (*Major [book on] logic*) to Fakhr a-Dīn Rāzī; however, in that paper, we could not identify the real author of the book. In this paper, we try to show that *Al-manṭiq al-kabīr* was written by Burhān al-dīn Nasafī (1203–1288), who authored another book, *Sharḥ Asās al-kiyāsa* whose logical part is very similar to *Al-manṭiq al-kabīr* in the following significant features: the titles of chapters and sections, the style of writing, some technical as well as some non-technical terms, many sentences word by word. None of these features we find in any other Arabic logical work. So,*Al-manṭiq al-kabīr* and *Sharḥ Asās al-kiyāsa* are so close to each other that we might most possibly identify the authors of the books as the same scholar, i.e. Burhān al-dīn Nasafī.

    Fortunately, this has been verified recently by two manuscripts of a medieval Arabic logical book."

42. Fanani, Ahwan, Syifa, Mohammad , and Widigdo, Amin. 2022. "The Art of Logic in Muslim Scholarship: A Study of *Mantiq* Transmission and Reception in Indonesia." *Afkar* no. 24:241–274.

    Abstract: "Although the Islamic art of logic (*mantiq*) has circulated for more than two centuries in Indonesia, the *mantiq* works and their functions obtain little academic attention. In this regard, the article aims to study how the *mantiq* works entered and spread in Indonesia and what functions they play

in Islamic educational and scholarship settings. This writing employs a qualitative-historical approach by reading critically primary and secondary works of literature related to the study of logics in the Muslim world, especially in Indonesia, in order to analyze how those logical concepts and scholarship spread and are used in Islamic scholarly works in Indonesia. In the end, the article finds that the spread and development of *mantiq* works in Indonesia primarily stem from the international learning networks of Indonesian Muslim scholars (*'ulama'*), centered in Mecca, Madina, and Cairo. The Indonesian *'ulama*, who used to study in the Middle East, brought the *mantiq* to Indonesia. It is instrumental and required knowledge for understanding scientific and scholarly traditions in Islam, such as Islamic law (*fiqh*) and theology (*kalam*). Furthermore, *mantiq* plays a crucial role as an instrument for academic debates among scholars from different religious affiliations on whether religious or non-religious topics."

43. Feldman, Seymour. 1964. "Rescher on Arabic Logic." *Journal of Philosophy* no. 61:724–733.

    "The important facts that emerge from Rescher 's historical sketches can be summarized as follows: Arabic logic had its beginnings when the Syriac Christians translated the first four books of the *Organon* (*Isagogue, Categories, De Interpretatione, Prior Analytics*) from Greek into Syriac. These four were the only books of the *Organon* translated into either Syriac or Arabic before the middle of the ninth century. Translations into Arabic began in the ninth century, and were done by Christians. The center of Arabic logical studies was in the East; Baghdad was the first main place of study, followed by Persia. Although the originators and leaders of the former school were Christians, ultimately the school was led by a Moslem, Al-Farabi (870-950), whose fame as a logician is evidenced by Maimonides' insistence that Al-Farabi alone is worthy of study among the modern logicians (*Letter to Samuel ibn Tibbon*). The chief achievements of the Baghdad school were three: (1) the complete translation of the *Organon* into Arabic; (2) commentaries on various books of the *Organon*,

among which those of Al-Farabi are of especial importance; and (3) the study of extra-Aristotelian logical topics, such as the conditional syllogism and analogical inference. As a result of political and theological harassment, the school died out, and Persia became the center of logical study under the leadership of the famous Moslem philosopher Avicenna (980-1037). Avicenna's approach to logic was less committed to devotion to the text of Aristotle, the study of which was becoming more hazardous in Persia. And the logical tradition in Persia was supplemented by material from Galen and the Stoic logicians, especially the Stoics' work on conditional syllogisms and propositions. Eventually, logical studies spread westward to Arabic-speaking Spain and reached their highest development in Averroes (1126-1198). This tradition, however, also died out as a result of religious-political persecution and of sterile techniques of instruction." (p. 720)

44. Firdaus, Qusthan A. H. 2024. *Demonstration and Burhan: A Logical Investigation*. Singapore: Springer.

    "My intention in this book is simply to ease students in Islamic philosophy in specific and Islamic studies in general to learn logic not only as a mere tool but also a developing academic discipline. This is rather different with, for instance, ethics in which case the Western discourse of ethics draws a strict line between ethics and etiquettes. In contrast, I surmise that *akhlak* (morals and its justifications/ethics) and *adab* (a code of conduct, good manners or etiquettes) in Islam seem to be well connected. This connection has many ornaments most of which I cannot understand well. This apology finds its strength on my dormancy to study Arabic." (p. 4)

    "Aristotle disperses his teaching of logic into several books. The ancient commentators categorise them as *Organon*. Since the first century BC, this *Organon* was openly available in Greek and triggered some commentaries and introductions by the early third century BC.(1) This corpus consists of *Categories* (one book), *De Interpretatione* (one book), *Prior Analytics* (two books), *Posterior Analytics* (two books), *Topics* (eight books), and *Sophistical Refutations* (one book). Alexander of Aphrodias' version of *Organon*, according to Gutas, consists of

three more books, to wit, Aristotle's *Rhetoric* (three books), *Poetics* (one book), and *Eisagoge*(2) in addition to those six books.(3)" (p. 7)

(1) Hodges (2020), p. 9. Al-Farabi was responsible for initiating the notion of *ḥukm* or judgment into the Arabic logic just as he translated Aristotle's accounts of 'denies' and 'affirms' into one, single notion of 'judges.' A further discussion on this issue, please check Hodges (2020), p. 28.

(2) Aristotle did not write this book but it is Porphyry's introduction to Aristotle's *Categories*.

(3) Gutas (1999), p. 147.

References

Gutas, D. (1999) *Greek thought, Arabic culture: the Graeco-Arabic translation movement in Baghdad and early 'Abbāsid society (2nd-4th/8th–10th centuries)*, Routledge, London.

Hodges, W. (2020) *Introduction*. In:Chatti S. Hodges, W. (trans) *Al-Fārābī: syllogism: an abridgement of Aristotle's prior analytics*. Bloomsbury Academic, London, pp. 1–111.

45. Garro, Ibrahim. 1978. "Al Kindi and mathematical logic." *International Logic Review* no. 9:145–149.

46. Germann, Nadja, and Calero, Noel A. Rivera. 2021. "The Causes of Grammar: Ibn Jinnī on the Nature of Language." In *Philosophy and Language in the Islamic World*, edited by Germann, Nadja and Najafi, Mostafa, 49–75. Berlin: de Gruyter.

"According to Ibn Jinnī, not only does grammar constitute a complex system, that is, an integral whole – most of his colleagues would agree on this point – but it does so as the result of underlying causes – or rather, ultimately, as the result of a particular, unifying cause: the nature of language itself. It is this deep conviction – the driving force behind his Khaṣāʾiṣ – which compels Ibn Jinnī to oppose the claim made by Jāḥiẓ in the above-mentioned passage, but which in its specific guise simultaneously sets him apart from most *naḥwiyyūn* of his

time. This particular unity underlying the wide range of grammatical features will be at the center of this paper, whose principal aim consists in bringing out Ibn Jinnī's basic ideas about the phenomenon called language." (p. 50)

47. Giolfo, Manuela E. B., and Hodges, Wilfrid. 2016. "The System of the Sciences of the Arabic Language by Sakkākī: Logic as a Complement of Rhetoric." In *Approaches to the History and Dialectology of Arabic in Honor of Pierre Larcher*, edited by Sartori, Manuel, Giolfo, Manuela E.B. and Cassuto, Philippe, 242–266. Leiden: Brill.

    "Al-Sakkākī's Miftāḥ is widely recognized as having made a radical reorganization of the Arabic science of rhetoric, which had been founded by ʿAbd al-Qāhir al-Gˇurgˇānī (d. 471/1078) in *Dalāʾil al-ʾiʿgˇāz* (Gˇurgˇānī Dalāʾil) and *ʾAsrār al-ʿarabiyya* (Gˇurgˇānī ʾAsrār), bringing it to a form that generated textbooks and commentaries right up to present times. Later writers, both Arab and Western, have taken the heart of the book to be its 'Science of meanings' (*ʿilm al-maʿānī*). For example Qazwīnī (d. 739/1338) in his influential two commentaries (Qazwīnī ʾĪḍāḥ; Qazwīnī Šarḥ) restricts himself to this section of the Miftāḥ.

    Happily we have a German translation of the same section of the Miftāḥ by Udo Gerald Simon (1993), taken from his doctoral dissertation.

    It is interesting that Qazwīnī and Simon stop where they do. Al-Sakkākī himself had added to the section on ʿilm al-maʿānī two appendices on logic, one on definition (*al-ḥadd*) and one on syllogism (*al-istidlāl*). Apparently he failed to convince his readers that these appendices had a point.

    (...)

    So it makes sense to look back at the M*iftāḥ* and ask what al-Sakkākī thought he was doing when he added these two appendices.

    The two present authors are a linguist and a logician; we thought we should look at the work together. What we have to

report so far is only preliminary. In broad terms our conclusion is that the commentators were right to separate off the material on logic: Sakkākī seems to us to have failed to make any meaningful connection between syllogistic logic and his main theme of *ʿilm al-maʿānī*.

However, his reactions to logic do raise some interesting points that he seems to have been led to by his linguistic expertise." (pp. 243-243)

48. Goldenberg, Gideon. 2007. "Subject and Predicate in Arab Grammatical Tradition." In *The Early Islamic Grammatical Tradition*, edited by Baalbaki, Ramzi, 301–336. Aldershot: Ashgate.

"The basic notion of predication, common for the diverse sentence-forms, was in Arab grammatical theory, as elsewhere, one of the fundamental ideas. The clear exposition of predicative relation is not really impaired by the different specific terms used for each of the sentence-types, viz. the nominal and the verbal. In Arab grammatical literature, the treatment of 'nexus' as such, in nominal and verbal sentences alike, is by no means marginal, and, except for the most elementary works, has not usually been neglected. The analysis of nexal relation in Arab grammatical tradition, and the technical terms involved, have been expounded afresh in some meticulous studies published recently,(1) but the repeated criticism of the Arab grammarians as being unable to develop the generalized conceptions of subject and predicate may call for some further comments." (p. 301)

(...)

"For better understanding the treatment of predicative relation in medieval Arabic grammar, some evidence will be brought together and examined in the following chapters concerning (1) the terminology of predicative relation, (2) the functional definition of the parts of speech, (3) *kalām* and *gumlah,* (4) the verb as a nexus-complex, and (5) the syntactical exercises of *ixbār." (p. 303)

(1) Suffice it to mention here Levin: *Musnad* 151-164, Levin: *Distinction* (esp. § 1), AL-Mayyah: Îsnād (esp. ch. 1 "*ma'àd l-isnād*")

References

LEVIN: Distinction. — ABYEH LEVIN: The Distinction between Nominal and Verbal Sentences according to the Arab Grammarians. In: *Zeitschrift fur arabische Linguistik* 15 (1985), 118-127.

LEVIN: Musnad. — ABYEH LEVIN: The Grammatical Terms al-musnad, al-musnad 'ilayhi and al-'isnād. In: J*ournal of the American Oriental Society* 101 (1981), 145-165.

AL-MAYYAH: 'Isnād. — RASMIYYAH MUHAMMAD AL-MAYYAH: "Isnād al-fi'l. Baghdad, date given variously as 1965, 1966, 1967.

49. Goldziher, Ignaz. 1981. "The Attitude of Orthodox Islam Toward the “Ancient Sciences”." In *Studies on Islam*, 185–215. Oxford: Oxford University Press.

English translation of Ignáz Goldziher, "Stellung der alten islamischen Orthodoxie zu den antikken Wissenschaften," *Abhandlung der Koniglichen Akademie der Wissenschaften*, 8 (1915): 3-46.

"In contrast to the other disciplines belonging to the ‘*ulūm al-awá’il,* orthodox Islam went much farther in developing a position regarding logic. While orthodoxy expressed its distrust of these other fields of Greek learning simply by showing a certain preventive concern, the battle against logic was an opposition of fundamental importance. It (orthodoxy) maintained that the recognition of Aristotle’s methods of proof was a serious threat to the validity of religious doctrines. The general attitude of the uneducated was expressed in the saying: “He who practices logic becomes a heretic” (man tamanṭaqa tazandaqa).(94)

Al-Fárábi, whose chief contribution were his commentaries on Aristotle’s work on logic, appears to have written a defense of logic (no longer extant) in order to combat this bias. In this

work he collected all those sayings of the Prophet that were useful in setting forth, from a religious point of view, a more favorable judgment regarding logic.(95)

The scholastic theologians (the people of *kalām*) contributed substantially to the religious disparagement of logic. In their rationalistic efforts they ignored the syllogism of demonstrative methods of proof (for which the followers of Aristotle held them in contempt)(96) and believed that for the support of their theses they could manage with premises that were based only on popular acceptance or tendentious biases, without ever having to prove them correct or having to concede them.(97) Mu'tazilite as well as Ash'arite circles produced numerous polemical treatises against Aristotelian philosophy in general and against logic in particular.(98)" (p. 198)

(...)

"Although the *manṭiq*(108) (the specialist in logic) was not one of the favorites of orthodoxy, as we have seen, it is clear, based on studies of the early 'Abbasid period1that the cultivation of logic was favored by the theological authorities and that it was even employed by them in the service of theology." (p. 199)

(...)

"Our literary sources show, however, that the viewpoint of those who condemned logic was not victorious in the educational system of Islamic theology. The position expressed in the commentaries, supercommentaries, and marginal glosses (to mention only the most influential sources), which was championed by the logical works of Abhari (an adaptation of the *Isagoge* of Porphyry), Kātibi (*Shamsīya*), Akhdari(151) and the authors of other compendia of logic in Islamic education offers us proof of the fact that the voices of opposition to logic gradually faded away without any lasting results. Even scholastic theology (kalām) made use of Aristotelian philosophy (especially from the time of Fakhr ad-Dīn ar-Rāzī [d. 606]) as a methodological tool in the establishment and elaboration of itself." (p. 208)

50. ———. 1994. *On the History of Grammar among the Arabs: An Essay in Literary History*. Philadelphia: John Benjamins.

Translated from Hungarian *[A nyelvtudomány történetéröl az araboknál*, 1878] and edited by Kinga Dévényi, Tamás Iványi.

"The original Hungarian version of the present treatise, "On the History of Grammar among the Arabs: An Essay in Literary History", was read and discussed at a session of the Hungarian Academy of Sciences on the 16th April 1877. An abstract was published in the annual bulletin of the Academy {Akadé-miai 1877, 11.111-112), while the whole paper (except for Chapter 6) appeared in print in the following year in the linguistic journal of the Academy 1878, 14.309-375).

Goldziher himself considered it a compendium {*Abriß*, as he called it in his Diary) of a major work that he may have planned to prepare in German. A century and a quarter elapsed since its publication but Goldziher's essay still has not become outdated. It seemed worth to make this work known to the world outside Hungary by translating it to English, especially since no similar work has been published. We wanted to preserve as much of the style of the original as it was possible, e.g., some of its long circumstantial sentences and the stylistic devices of a lecture. This latter fact influenced the text in another substantial way: Goldziher, departing from his usual practice, did not cite original (Arabic) passages in the treatise, either in the text or in the footnotes. Thus we considered our task to provide them in the Appendix. This was felt all the more necessary since the original passages in most cases were not translated, but only summarised or paraphrased by him. An asterisk in the text refers to that the original passage is quoted in the Appendix." (*Preface*, p. IX)

"Arabic linguistics developed further [in the 9/10th □ A.D.], at a time when the influence of Greek philosophical literature, of which the Muslim world became the most assiduous and ardent propagator, exposed Arabic thinking to a completely new field. Philosophy, especially in the Eastern territories of Islam, did not remain isolated for long, but soon infiltrated into all areas of thought, even theology, considered by many the adversary of

philosophical thinking. It is clear that not even linguistics could be left untouched; it could hardly remain so since the philosophical works, whose study and translation at that time preoccupied the Muslim mind, treated in detail those questions which are usually referred to under the name of linguistic philosophy. These discussions had greatly influenced the thinking of Muslim scholars and they felt compelled to set out to incorporate them in their works." (p. 38)

51. Grunebaum, Gustav Edmund von, ed. 1970. *Logic in Classical Islamic Culture*. Wiesbaden: Otto Harrassowitz.

    Giorgio Levi Della Vida Biennial Conference Proceedings.

    Contents: G. E. von Grunebaum: Presentation of Award to First Recipient, Robert Brunschvig 1; G. E. von Grunebaum: Introduction 5; Robert Brunschvig: Logic and Law in Classical Islam 9; Josef van Ess: The Logical Structure of Islamic Theology 21; Muhsin Mahdi: Language and Logic in Classical Islam 51; Seeger A. Bonebakker: Poets and Critics in the Third Century A. H. 85; Abraham L. Udovitch: The “Law Merchant” of the Medieval Islamic World 113; Index 131-142.

52. Guerrero, Rafael Ramón. 2013. "Aristotle and Ibn Ḥazm. On the Logic of the *Taqrīb*." In *Ibn Ḥazm of Cordoba: The Life and Works of a Controversial Thinker*, edited by Adang, Camilla, Fierro, Maribel and Schmidtke, Sabine, 403–416. Leiden: Brill.

    "One of the earliest surviving works which deals extensively with Aristotelian logic is *al-Taqrīb li-ḥadd al-manṭiq wa-madkhal ilayh*i (*Approximation to the Definition of Logic: an Introduction*),(34) written by Ibn Ḥazm of Cordoba (b. 384/994, d. 456/1064). This text became known through the work of Asín Palacios,(35) who emphasised that its teachings, while broadly Aristotelian, do not coincide with the *Organon*. He also pointed out that Ibn Ḥazm makes use of legal and religious examples. Although the work has already been edited and a few articles have been written on it,(36) a comprehensive study and a complete version of the text are still lacking." (p. 407)

(34) "*al-Taqrīb li-ḥadd al-manṭiq wa-madkhal ilayhi*," in *Rasāʾil Ibn Ḥazm al-Andalusī*, ed. Iḥsān ʿAbbās, Beirut ²1987, vol. 4, pp. 91–356.

(35) Miguel Asín Palacios, *Abenházam de Córdoba y su Historia crítica de las ideas religiosas*, Madrid 1927–32, vol. 1, pp. 249–251.

(36) Robert Brunschvig, "Pour ou contre la logique grecque chez les théologiens-juristes de l'Islam: Ibn Hazm, al-Ghazali, Ibn Taymiya," O*riente e Occidente nel Medioevo: Filosofia e Scienze, Atti del Convegno (dal 9 al 15 aprile 1969)*, Rome 1971, pp. 185–209; Abdel Magid Turki, "Notes sur l'évolution du záhirisme d'Ibn Hazm (456/1063) du Taqrīb à l'Iḥkām," *Studia Islamica* 49 (1984), pp. 175–185; Chejne, *Ibn Ḥazm*, [Chicago 1982] pp. 157–177; idem, "Ibn Ḥazm of Cordova on Logic," *Journal of the American Oriental Society* 104 (1984), pp. 57–72.

53. Günther, Sebastian. 2025. "Al-Ghazālī on Logic as a Means of Learning. Historical Evidence and Educational Implications." *Al-Abhath*:1–45.

    Abstract: "Renowned for his profound scholarship, the philosophical theologian and mystic Abū Ḥāmid al-Ghazālī (d. 505/1111) has significantly influenced Islamic thought and education for centuries. This article presents a novel approach to studying his body of works. It analyzes six of al-Ghazālī's key works on logic in chronological order, offering a fresh perspective on his views on reasoning.

    Additionally, the study explicitly focuses on al-Ghazālī's concept of "logic as a tool of learning," leading into an exploration of the relevance of his insights for contemporary humanistic education."

54. Gutas, Dimitri. 1993. "Aspects of Literary Form and Genre in Arabic Logical Works." In *Glosses and Commentaries on Aristotelian Logical Texts: the Syriac, Arabic and Medieval Latin Traditions*, edited by Burnett, Charles, 29–76. London: The Warburg Institute.

"My aim in this essay has been to add to the above, in the spirit of the present volume, a study of an aspect of Arabic logic that has received no attention. Apart from Endress's necessarily brief statements in a wider context in the *Grundriss*, the literary form which Arabic logical works took and the genres which Arab logicians developed have never been discussed in any detail. This is what I have attempted to do here without making any claims either to exhaustiveness or to inclusiveness. Not all genres that can be witnessed throughout the history of Arabic logic have been mentioned, let alone discussed, and not all periods have been considered with equal attention. The purpose has been to pave the way for more comprehensive studies by establishing a certain framework with regard to terminology and literary forms, highlighting mainstrean genres and periods, and pointing to areas of neglect and potential research.

It would appear from the present state of the art, briefly described here, that the background may have been prepared for the emancipation of Arabic logic from its surrounding areas and its cultivation as an independent field. The next stage of this endeavour will have to consIst of a senous and comprehensIve study of the tradition of the Arabic *Organon*. Still on the agenda, this time at a higher level of sophistication, are critical editions of the Arabic translations of the remaining books of the *Organon,* critical editions and translations of ArabIc commentanes, and perhaps the most important aspect of the entire enterprise, an appreciation of Arabic logic in itself through an evaluatoon of Its contributIon to the hIstory of logic in particular and to intellectual history in general." (pp. 30-31)

References

G. Endress. 'Die wissenschaftliche Literatur', in *Grundriss der Arabischen Philologie*, ed. H. Gätje. II, Wiesbaden, 1987, pp. 400-506.

55. Gyekie, Kwame. 1971. "The Terms "Prima intentio" and "Secunda intentio" in Arabic Logic." *Speculum* no. 46:32–48.

"The more passages one examines in the translations from Arabic to Latin and from Arabic to English and other modern

languages, the more mistakes one comes across in the translation of the Arabic expression *alā al-qaṣd al awwal* (or, *'alā al-qaṣd al thānī).* The mistakes stem from the failure to distinguish between two senses of the expression, one an adverb, and the other a famous philosophic concept. Failing to distinguish between the two senses, the translators translated the phrase literally, often with unsatisfactory results. In this paper, I shall indicate a Greek word which was rendered by the Arabic '*la al-qasd al-awwal.* I shall refer to some English translations from the Arabic and show how wrong they are. I shall suggest that in Arabic philosophy itself al-Farabi, rather than Avicenna, may have been the origin of the philosophic concepts of "first and second intentions." I shall point out that although these concepts may have been introduced into Latin scholasticism by Raymond Lull, he could not have derived theni from the Logic of al-Ghazali, as has been alleged." (p. 32)

56. ———. 1972. "The term *Istithnā'* in Arabic Logic." *Journal of the American Oriental Society* no. 27:88–92.

"The term istithnā' is a term used in Arabic logical works which has not, as yet, been given a satisfactory translation. Among the translations of this term which I have come across in modern works are: (a) "exclusion",(1) (b) "exception",)2) (c) "choice", (3) (d) "interpellation",(4) (e) "particular mention",(5) and (f) "disjunction".(6)

While the first two (a and b) are the dictionary meanings of the term which, here, are not helpful towards the understanding of the term as it is used in the logic of propositions, the next three (c, d, e) probably arose out of an attempt to make sense of the passages in which the term occurs and, are, strictly speaking, not translations as such. "Disjunction" does not translate istithnā although we shall find later that istithnā syllogisms included the disjunctive." (p. 88)

(1) (i) Nicholas Reacher: Al-Fārābī,'s *Short Commentary on Aristotle's Prior Analytics,* Pittsburgh, 1963, pp. 75 ff. This translation has been found to contain a large number of serious mistakes. See

Dr. A. I. Sabra's review in the *Journal of the American Oriental Society*, vol. 85, 1965, pp. 241-43 .

(ii) Israel Efros: Maimonides' Treatise on Logic, American Academy for Jewish Research, 1938, p. 45. Efros made his translation from an Arabic manuscript in Hebrew characters. The Arabic text was published in 1960 by Mubahat Tūrker in *Instanbul University: Publications of the Faculty*' 1960, vol. 3, pt. 2, pp. 87-110.

(2) S. M. Afnan: *Avicenna, His Life and Works,* London, 1958, p. 99. He uses also "exclusion", p. 100.

(3) A . M. Goichon: *Lexique*, pp. 32, 33, and Ibn Sina, *Livre des Directives et Remarques*, Paris and Beyrouth, 1951, p. 194, footnote 6, and p. 218, footnote 3, although she regards istithnā propositions as hypothetical" propositions.

(4) S. A. Kamali: A Translation of Al-Ghazālī,'s *Tahāfut al-Falasifah*, Lahore, 1963, p. 145.

(5) D. M. Dunlop, "Al-Farab'i,'s Introductory Sections on Logic", *Islamic Quarterly,* vol. 2, no. 4, 1955, p. 270 (Arabic), p. 278 (English tr.).

(6) S. Van den Bergh, translation of Averroes' *Tahāfut al-Tahāfut*, London, 1954, vol. 2, p. 146.

57. ———. 1979. *Arabic Logic: Ibn al-Tayyb's Commentary on Porphyry's Eisagoge*. Albany: State University of New York Press.

Contents: Preface IX-X; Introduction 1; Logic in Medieval Islam 1; Porphyry's *Eisagoge*: Its Subject Matter 7; Some Points of Philosophical or Logical Interest in this Book 9; Greek Commentaries on the Eisagoge 13; Syriac Translations and Commentaries on the Eisagoge 16; Arabic Translations and Commentaries on the Eisagoge 17; The Manuscripts 20; The Format of Ibn al-Tayyib's Commentary 22; Its Relation to the Alexandrian Commentaries 23; English Translation of the Arabic Text 25; Commentary 159; Notes 219; Glossary of Arabic-Greek Logical Terms. 231; Bibliography 237; Index of

Proper Names 243; Index of Arabic Terms Referred to in the Introduction and Commentary 245.

"This is a translation and a study of Ibn al-Tayyib's commentary* on the *Eisagoge* of Porphyry. The study takes into account the "Eisagoge" (*al-Madkhal*) of Avicenna (Ibn Sina), a contemporary of Ibn al-Tayyib. Avicenna's work is, strictly speaking, not a commentary in the sense in which Ibn al-Tayyib's is. That is to say, he, unlike Ibn al-Tayyib, does not quote verbatim a passage from Porphyry's work and comment upon it. His "Eisagoge" is rather a restatement or paraphrase of the subject matter of Porphyry in his own way and with his own views on it. The views of the eminent philosopher, al-Farabi, have, where relevant, also been mentioned. Ibn al- Tayyib's own commentary on the *Categories* (as yet unpublished) has been referred to in a handful of places. The study also takes into account the four extant Greek commentaries of Ammonius, Elias, Pseudo-Elias and David. Parallels between the commentaries of Ibn al-Tayyib and these Alexandrian scholars have been pointed out in the Commentary." (*Preface*, p. IX)

* My edition of the Arabic text was published by Dar al-Mashreq (Beirut) in 1975. The translation covers the commentary proper, i.e. excluding Ibn al-Tayyib's own introduction (paragraphs 1-88 of the Arabic text.). Paragraphs 1-347 of the translation thus corresponds to paragraphs 89-437 of the Arabic text.

Ancient Islamic Logic. Selected bibliography of studies in English: Hal - Mari

Bibliography

1. Hallaq, Wael B. 1987. "A Tenth-Eleventh Century Treatise on Juridical Dialectic." *The Muslim World* no. 77:197–206.

   "Abū al-Ḥusayn al-Baṣrī's (d. 4361 1044) *Kitāb al-Qiyās al-Shar'ī*, translated here as the *Book of Juridical Qiyās*, represents one of the earliest extant writings on juridical dialectic (*al-jadal al-fiqh*ī) in Islam. The author's Ḥanafī-Mu'tazili persuasion lends the work further importance, as the combination of these two particular schools of thought seems to have been of rare occurrence among authors of works on juridical dialectic. In this treatise al-Baṣrī draws significantly upon his magum opus *al-Mu'tamad fi Uṣū al-Figh* which was to become a milestone in the later development of legal theory. The subject of the treatise is rather complex and therefore warrants a brief introduction into the nature, form, and methods of juridical dialectic and its relationship to legal theory which provided the premises and points of departure for dialectic." (p. 197, notes omitted)

2. ———. 1990. "Logic, Formal Arguments and Formalization of Arguments in Sunnī Jurisprudence." *Arabica* no. 37:315–358.

   Part I. Logic and Formal Arguments

   Some decades before the translation movement from Greek into Arabic began, a battle over the ultimate source of Law had already been fought and won by Traditionalist Islam, represented by the well-known Ibn Idrīs al-Shāfi'ī (d. 204/820). The triumph of the theory of the divine origins of law compelled Islamic jurisprudence to dissociate itself from all rationalist tendencies involved in philosophical ventures. Chief among these tendencies were the discussions on metaphysics in

which logic served as the guiding spirit of philosophical argumentation. Associated with such heretical enterprises, logic as an organon of philosophy could hardly be distinguished from substantive metaphysical doctrines, and in such an environment Traditionalist jurisprudence kept suspected logic at bay. It was not until the appearance of the Shāfi'ī-Ash'arī intellectual Abū Ḥāmid al-Ghazālī (d. 505/1111) that logic as a method was sifted out of Aristotelian philosophy and thus cleared of its "non-theistic" tenndencies. Ghazālī's endeavor in bringing logic into law, and the persistence of what may be called the Ghazālīan thesis among some of his influential *uṣūlist* successors, will form the subject of this essay. While the following section attempts, in general terms, to analyze Ghazālī 's attitude towards logic in the law, it is not until Part II of this essay that we will encounter, in the form of a translation, what may be described as one of the most revealing statements which Ghazālī made on the logic of legal argument." (p. 315)

3. ———. 1993. *Ibn Taymiyya Against the Greek Logicians*. Oxford: Clarendon Press.

   Translated with an Introduction and notes by Wael B. Hallaq.

   "Ibn Taymiyya could hardly avoid criticizing the logical foundations of speculative mysticism since he categorically rejected the doctrine of the Unity of Existence (wahdat al-wujüd), its logical underpinnings, and its relationship to Platonic philosophy." (*Introduction*, p. XII)

   (...)

   "Even if we were to reduce the objects of Ibn Taymiyya's attacks to the writings of Ibn Slnä and Ibn Arabī, and set aside his scathing and massive criticism of countless other philosophical, mystical, theological, and sectarian doctrines, we would still come to the realization that what Ibn Taymiyya was fighting against amounted to everything that directly or indirectly derived from what was termed 'the ancient sciences' (*ulüm al-awä'il*).(9) Ibn Slnä's cosmology had for its foundation Aristotelian-Ptolemaic doctrines with a Neoplatonic structure in which the emanationist philosophy of being was thoroughly incorporated. His logic was manifestly Aristotelian but not

without Stoic and Neoplatonic influences. Likewise, Ibn 'Arabī made use of the Platonic Ideas, and his cosmology integrated not only the pseudo-Empedoclean doctrines of Ibn Masarra (d. 319/931) but above all Alexandrian elements as found in the doctrines of Ikhwän al-Safä'. Admittedly, the latter were indebted to the teachings of Pythagoras and Nichomachus, particularly in their treatment of the metaphysics of number. They were no less indebted to Jäbir b. Hayyän (d. 160/776), who was in turn influenced by Plato, Pythagoras, and Apollonius as well as by Indian and Hermetic ources.(10)" (*Introduction*, p. XII-XIII)

(9) See e.g. his *Jahd*, 176 (Translation, par. 167, below), where he speaks of the influence the philosophers had over the Süfls and others. See also a*l-Radd*, 186-7.

(10) See Nasr, *An Introduction to Islamic Cosmological Doctrine*, (Boulder: Shambhala Publications, 1978), 37-8.

4. Halper, Yehuda. 2016. "Dialecticians and Dialectics in Averroe's Long Commrntary on Gamma 2 of Aristotle's *Metaphysics*." *Arabic Sciences and Philosophy* no. 26:161–184.

Abstract: "While Averroes' work is often considered to represent the culmination of the method of Aristotelian demonstration in Arabic philosophy, a short passage of his *Long Commentary on Aristotle's Metaphysics* Γ 2 emphasizes the prominence of dialectic and calls for a re-examination of dialectic and demonstration in Averroes' philosophical works. In this passage Averroes describes dialectic as an acceptable form of philosophy and the dialectician as a kind of scientist. In putting dialectic and demonstration on an equal, or nearly equal footing, Averroes seems to go against his own account of the dialectical and demonstrative classes of people in the *Decisive Treatise*. Moreover, this interpretation of *Metaphysics* Γ.2 also contradicts Averroes' explanation of the same passage in the *Middle Commentary on the Metaphysics* as well as Aristotle's own description of dialectic throughout the *Metaphysics*. That is, in the *Long Commentary on the Metaphysics*, Averroes departs from his earlier views, and describes dialectic as a necessary part of metaphysics, even

though the centrality of dialectic argumentation could call into question the entire project of metaphysics and consequently of the sciences whose demonstrations rely on metaphysical ground, i.e., all sciences. Averroes does not emphasize this view, but its presence is nevertheless unambiguous."

5. ———. 2019. "Are there Second Intentions in De Interpretatione 16 a 3-8? The Hebrew Aristotelian Commentary Tradition in the 13th-15th centuries." *Studia graeco-arabica* no. 9:243–260.

   Abstract: "*Aristotle's De Interpretatione* 16 a 3-8 describes the relationship between writing, words, meanings, and things.

   Christian and Jewish interpreters took different approaches to interpreting this passage. Scholastic thinkers tended to examine the differences between meanings and the meaning of meanings, or first-second intentions, and this terminology is even reflected in William of Luna's translation of Averroes' *Middle Commentary* on this passage. The 14th c. Jewish interpreters, who relied on Jacob Anatoli's 13th c. translation of Averroe's *Middle Commentary*, tended not to find the first-second intention distinction in *De Interpretatione* 16 a 3-8, and instead took Averroes' account of meaning at face value. This changed in the 15th c. when Jewish thinkers began to engage more directly and more significantly with Latin scholastic works, and began to interpret Aristotle accordingly."

6. ———. 2021. "Debate by the Book, about the Book, in a Book: Shem Tob Falaquera's *Epistle of the Debate*, Al-Fārābī's *Book of Dialectic*, and Aristotle's *Topics* on Philosophy and the Holy Writings." *Studia graeco-arabica* no. 11:93–106.

   Abstract: "Shem Tov Falaquera's *Epistle of the Debate* describes a debate between a Pietist who is knowledgeable only in Jewish law and religious texts and a Scholar who is well versed in both Jewish and philosophical works about whether according to Scripture studying philosophy is forbidden, permitted, or necessary for the perfection of human beings. I argue that to a large extent the form, style, and much of the content of the arguments in the debate are based on Al-Fārābī's *Book of Dialectic*. Falaquera thus provides an example of a

debate by the book (Al-Fārābī's *Dialectic*), about the Book (Scripture), and in a book (*The Epistle of the Debate*). Moreover, by examining the arguments of the *Epistle* in light of Al-Fārābī's *Dialectic*, we can see how dialectic can provide both training in adversarial debates and an introduction to philosophy and science."

7. Hasnawi, Ahmad. 2001. "Topic and Analysis: the Arabic Tradition." In *Whose Aristotle? Whose Aristotelianism?*, edited by Sharples, Robert W., 28–62. Aldershot: Ashgate.

8. Hasnawi, Ahmad, and Hodges, Wilfrid. 2016. "Arabic Logic up to Avicenna." In *The Cambridge Companion to Medieval Logic*, edited by Novaes, Catarina Dutilh and Read, Stephen, 45–66. Cambridge: Cambridge University Press.

   "In this chapter we discuss, first, how the Arabic logicians up to the end of the tenth century took over Greek material and added to it material of their own and how they reshaped the subject of logic in the process. We have included references to the young Averroes, although he wrote in the twelfth century, inasmuch as he belongs in the tradition of al-Fārābī (d. 950). After this we turn to the formal innovations of Avicenna's in the early eleventh century. Many of the questions that we discuss are treated also in Street (2004)." (p. 45)

   References

   Street Tony. 'Arabic Logic'. In D. M. Gabbay and J. Woods (eds.), *Handbook of the History of Logic*. Amsterdam: Elsevier, 523-596.

9. Hodges, Wilfrid. 2018. "Two early Arabic applications of model-theoretic consequence." *Logica Universalis* no. 12:37–54.

   Abstract: "We trace two logical ideas further back than they have previously been traced. One is the idea of using diagrams to prove that certain logical premises do—or don't—have certain logical consequences. This idea is usually credited to Venn, and before him Euler, and before him Leibniz. We find the idea correctly and vigorously used by Abū al-Barakāt in 12th century Baghdad. The second is the idea that in formal logic, P

logically entails Q if and only if every model of P is a model of Q. This idea is usually credited to Tarski, and before him Bolzano. But again we find Abū al-Barakāt already exploiting the idea for logical calculations.

Abū al-Barakāt's work follows on from related but inchoate research of Ibn Sīnā in eleventh century Persia. We briefly trace the notion of model-theoretical consequence back through Paul the Persian (sixth century) and in some form back to Aristotle himself."

10. ———. 2020. "Medieval Arabic Notions of Algorithm: Some Further Raw Evidence." In *Fields of Logic and Computation III: Essays Dedicated to Yuri Gurevich on the Occasion of His 80th Birthday*, edited by Blass, Andreas, Cégielski, Patrick, Dershowitz, Nachum, Droste, Manfred and Finkbeiner, Bernd, 133–146. Cham (Switzerland): Springer.

    Abstract: "During Yuri Fest 2010 the discovery of a proof search algorithm devised in the 1020s by Ibn Sīnā (Avicenna) was announced.

    A Gurevich abstract state machine was given in evidence that Ibn Sīnā really did intend an algorithm; this was needed because Ibn Sīnā explained the algorithm by a long sequence of exercises, not by a rigorous definition. More recently a radically original logical decision algorithm has come to light in the work of the 12th century Baghdad scholar Abū al-Barakāt. Taking these algorithms alongside the already known algorithms of al-Khwārizmī for solving quadratic equations, and of al-Khalīl for listing finite sequences of letters, we can see that the medieval Arabic scholars uncovered a range of algorithms of various kinds. But it seems that they never brought these algorithms together under a single notion of 'algorithm'; in fact we know of no writer who drew a comparison between any two of these algorithms. A natural question for historical research is to uncover what kinds of entity the medieval Arabic scholars thought these algorithms were. The present paper assembles some raw material that should be relevant to this question, including a not very successful attempt by al-Fārābī to institute a theory of logical procedures."

11. Hodjati, Seyyed Mohammad Ali. 2008. "Kātibī on the Relation of Opposition of Concepts." *History and Philosophy of Logic* no. 29:207–221.

    Abstract: "According to a rule of traditional logic concerning the relation between general (or universal) concepts, if a given concept is more general than a second one, then the opposition (or contradictory) of the first concept is more specific than the opposition (or contradictory) of the second one. Kātibī, one of the Muslim logicians in the 13th century, has raised a question against this rule and, by giving some counterexamples, claims that it results in contradiction. Some Muslim logicians have replied to Kātibī, and in this paper I have examined their replies. Also, by using rules of modern logic, we may easily show that either Kātibī's argumentation is fallacious or it does not result in contradiction; however, it seems that if modern logic rules had been epresented to Muslim logicians, some of those rules would have been rejected by them."

12. Ighbariah, Ahmad. 2012. "Between Logic and Mathematics: Al-Kindī's Approach to the Aristotelian Categories." *Arabic Sciences and Philosophy* no. 22:51–68.

    Abstract: "What is the function of logic in al-Kindī's corpus? What kind of relation does it have with mathematics? This article tackles these questions by examining al-Kindī's theory of categories as itwas presented in his epistle On the Number of Aristotle's Books (*Fī Kammiyyat kutub Aristū*), from which we can learn about his special attitude towards Aristotle theory of categories and his interpretation, as well. Al-Kindī treats the *Categories* as a logical book, but in a manner different from that of the classical Aristotelian tradition. He ascribes a special status to the categories Quantity (*kammiyya*) and Quality (*kayfiyya*), whereas the rest of the categories are thought to be no more than different combinations of these two categories with the category Substance. The discussion will pay special attention to the function of the categories of Quantity and Quality as mediators between logic and mathematics."

13. ———. 2016. "Grammatical features in Ibn al-Muqaffaʿ's C*ategories*." *Jerusalem Studies in Arabic and Islam* no.

43:251–271.
14. Imamoglugil, Halil. 2025. "The Influence of al-Ghazali on the Use of Logic as a Thinking Methodology in Islamic Sciences." *Entelekya. Logico-Metaphysical Review* no. 9:107–124.

    Abstract: "Al-Ghazali (d. 1111) represents one of the most important turning points in the history of logic in the Islamic world. He emphasized logic in particular in his efforts to remedy the shortcomings he observed in the traditions of *Fiqh* (Islamic Jurisprudence and *Kalam* (Islamic Theology) and to make these sciences more systematic. Al-Ghazali's terminology, views, and conceptualizations were influential in the beginning of the use of logic as a methodology of thought in Islamic sciences. Al-Ghazali's work in the field of logic, primarily directed toward practical goals in the religious sciences, presented a comprehensive example of applied logic that had not been seen before. He offered a wide range of suitable examples that could appeal to the minds of those engaged in religious sciences. His emphasis on the importance and value of logic helped spread it throughout the Islamic world and incorporate it into the *madrasa* curriculum. He ended the debates on logic in Islamic philosophy, thereby establishing a legitimate foundation for logic in the Islamic world. Thus, logic became an important part not only of philosophy but also of all religious sciences, especially theology. Many Islamic thinkers, especially theologians, benefited from logic to acquire knowledge."

15. Inati, Shams. 1996. "Logic." In *History of Islamic Philosophy: Volume II*, edited by Nasr, Seyyed Hossein and Leaman, Oliver, 1409–1450. New York: Routledge.

    "The task of this chapter is extremely difficult, not only because it is impossible to cover in one short chapter the long history of the field of Arabic logic and the enormous quantity of material encompassed by it but also because many Arabic logical writings have not reached us. In addition, of those works that have reached us, many are still in manuscript form.

    Thus, it must be stressed at the outset that this is not the full story of Arabic logic or even the recounting of all its important

elements, as a comprehensive study of the field is not possible at this point. Rather, this is a modest attempt to trace the outline of the history of Arabic logic, pointing out within the space allowed some of the essential features of this field which are accessible to us." (p. 802)

(...)

"The relation of logic to philosophy

One of the issues that preoccupied Arabic logicians was whether logic is a part of or an instrument of philosophy. The controversy over this issue emerged in ancient times. The Platonists considered logic both a part and an instrument of philosophy; the Peripatetics considered it only an instrument of philosophy; and the Stoics considered it only a part of philosophy.

The history of Arabic logic is full of references to the idea that logic is an instrument (*dlah*) of philosophy.(89) However, some, such as Ibn Slna, spoke of logic at times as an instrument and at other times as a science, i.e., as a part of philosophy.(90) This is because he finds no conflict in considering logic both as an instrument of and as a part of philosophy.

The conflict, he asserts, arises from using the term philosophy in two different senses. If philosophy is used in the sense of the study of "things inasmuch as they exist and are divided into the two types of existence", meaning the external and the mental, then logic is not "a part of philosophy. But inasmuch as logic is useful for this study, it is an instrument of philosophy." If, on the other hand, philosophy is used in the sense of the study of "every theoretical matter and from every point of view", then logic is "a part of philosophy and an instrument of the other parts of philosophy".(91) According to him, to engage in a dispute over such a matter is to engage in falsehood, because the rwo positions are not contradictory, and in futility, because concerning oneself with such a matter leads to no benefit.(92)" (p. 814)

(89) See, for example, al-Farabi, *al-Alfāẓ*: 107; Ibn Slna, *Remarks*: 47; *Mantiq*: 5, 8 and 10; al-Ghazzalī, *Tahafut*. 45; Alī

ibn Muhammad al-Sharīf al-Jurjānī, Kitāb al-tārīfāt (Beirut, 1969): 351 .

(90) Ibn Sina, *Remarks*: 47.

(91) Ibn Slna, *al-Madkhal*: 15-16.

(92) Ibid. 16.

16. Ismail, Mohd Zaidi bin. 1996. "Logic in Al-Ghazali's Theory of Certitude." *Al-Shajarah: Journal of the International Institute of Islamic Thought and Civilization (ISTAC)* no. 1:1–2.

"Although certitude might be considered by many to be very personal, and because of that, too subjective, one needs more than just gallantry to make an outright denial of its importance in life. Perhaps it is precisely because of its being objectively subjective that one cannot do without it.

(..)

Or, to put it differently, is it conceivable that we have certitude concerning a matter which is totally rejected by our reason? This question, for us, is by no means artificial. Rather, it provides the necessary framework for our present discussion.

It is not hard to see why al-Ghazalī, as a scholar who was very much interested in the problem of knowledge and faith, was so involved in the problem of certitude. Since logic is the property of reason, concerns the correct laws of thought, and is highly regarded by al-Ghazalī, he could not but give as well an account of its status in his overall solution to that problem. In the present paper, we will concern ourselves with surveying what al-Ghazalī's answer is and how he provides such a solution. But before that, and since certitude, truth and knowledge are only different aspects of a single item, it is very relevant to see how he perceives truth-reality (*al-ḥaqq*.) (1)

(1) When referring to the word *al-ḥaqq,* we have to combine these two English words, 'truth' and 'reality', for in Arabic such a word connotes both meanings. For further analysis of this term, and how it is related to taṣdīq, see Syed Muhammad Naquib al-Attas, *Islam and the Philosophy of Science* (Kuala

Lumpur: ISTAC, 1989), 17-25; and his *A Commentary on the Ḥujjat al-Ṣiddīq of Nūr al-Dīn al-Rānīrī* (Kuala Lumpur: Ministry of Culture, 1986), 128-129, 149-153, 183,187, and 234.

17. Izutsu, Toshihiko. 1974. "Basic Problems of "Abstract Quiddity"." In *Collected Texts and Papers on Logic and Language*, edited by Mohaghegh, M. and Izutsu, Toshihiko, 1–25. Tehran: Tehran University Press.

    "The concept of "quiddity" (*māhiyah*) plays an exceedingly important role in Islamic philosophy, not only in metaphysics but also in logic. For the *Eisagoge* (Ar. *Ishāgūjī*), which constitutes the First Book of classical Aristotelian logic as it has been accepted by the Muslims, is in its essentials nothing other than an elaborate theory of "quiddity". In the course of history, the concept of "quiddity" has raised in Islamic thought a number of interesting problems. The so-called *i'tibārāt* of "quiddity" is surely of the most irnportant of those problems."

    The word *i'tibārāt* (sg. *i'tibār*) means "(various possible) ways of looking at" a thing. The expression "*i'tibārāt* of quiddity", therefore, refers to various possible ways in which "quiddity" can be viewed at the level of conceptual analysis. It must be noted that the expression in no wise suggests the existence of various kinds of "quiddity". All that it indicates is that every "quiddity" can be rationally approached from a number of different angles, or can be conceived in a number of different dimensions, and that at each of the dimensions "quiddity" discloses different rational characteristics.

    Three *i'tibārāt* have been consecrated by philosophic tradition as being the most fundamental among all the imaginable approaches:

    1) *lā bi-sharṭ* or a non - conditioned".

    2) *bi-sharṭ lā* or "negatively conditioned".

    3) *bi-sharṭ* shay' or "positively conditioned".

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(1) *Tajrīd al-l'tiqād* (or *Tajrīd al-'Aqa'id*) in Kashf al-Murād by al-Hillī, Qum, undated, p. 60.

(...)

"We have examined in the foregoing some of the representative views on the nature and structure of "quiddity qua negatively conditioned". In spite of an exceeding importance that has been attached to it --- or, we might say, precisely because of it-- the problem does not seem to have reached any final solution. However this may be, the distinction between the two meanings of "qua negatively conditioned", together with the more general distinction between the two systems of the *i'tibārāt* of "quiddity", have exercised an indelible influence on the development of Islamic philosophy in all its branches including the semantic theory of jurisprudence. But to go further into details about these matters will take us too far beyond the scope of the present paper." (p. 23)

18. Jacobsen Ben Hammed, Nora. 2020. "Meno's Paradox and First Principles in Fakhr al-Dīn al-Rāzī." *Oriens* no. 48:320–344.

Abstract: "This article examines Fakhr al-Dīn al-Rāzī's (d. 606/1210) epistemology and his understanding of syllogistic reasoning through a consideration of *Meno*'s paradox. It focuses on later works, namely, *al-Maṭālib al-ʿāliya, Kitāb al-*

Jabr, and *al-Tafsīr al-kabīr* as well as his treatment of the subject in *al-Mulakhkhaṣ fī l-ḥikma*. Informed by the theories of epistemology developed through the philosophical tradition of Meno's paradox and first principles, Rāzī views all knowledge formed through syllogistic reasoning as dependent on axiomatic truths (*al-badīhiyyāt*), a concept with roots in both the philosophical and theological traditions. These first principles are formed immediately upon the presence of the requisite concepts in the mind, and thus comprise Rāzī's implicit response to the paradox in that all subsequent knowledge does indeed require previous fundamental knowledge that is not sought nor acquired voluntarily. Finally, the article discusses a separate paradox implicit in Rāzī's works, namely that he both asserts in sections treating divine determinism that no knowledge can in fact be acquired whatsoever while elsewhere emphasizing the fundamental importance of knowledge acquisition."

19. Janssens, Jules. 2010. "Al-Ghazālī: The Introduction of Peripatetic Syllogistic in Islamic Law (and Kalām)." *MIDÉO : Mélanges de l'Institut dominicain d'études orientales du Caire* no. 28:219–233.

    "For a better, and hence correct understanding of the proper contents and way of expression of philosophically articulated logic, al-Ghazālī eventually points to his work Mi'yār al-'ilm, *The Standard for Knowledge*(2). As I have tried to show elsewhere, al-Ghazālī, in this latter work, consults a wide range of texts, especially Avicennian (*Najāt, Ishārāt, Dānesh-Nāmeh* (*Maqāṣid*) and *Kitāb al-ḥudūd*) and Farabian (*al-Qiyā aṣ-ṣaghīr* and *al-Maqūlāt)*(3). Very broadly speaking, it is undoubted that the logic of both Ibn Sīnā and al-Fārābī is ultimately Aristotelian inspired, but also is largely based on further developments of the Stagirite's ideas in the "Alexandrian" tradition(4).

    Let me stress that this does not mean that they are just slavish imitators of that tradition, nor that their logical doctrines are identical. It simply shows that there exists a common background, which offers al-Ghazālī the possibility to combine

parts of their works. The very fact that al-Ghazālī's does so, does not in itself prove that he totally identified with their respective logical thoughts. It only indicates that he was aware that some issues were better, or, at least, more completely developed, in one of them." (p. 220)

(2)Al-Ghazālī, *The Incoherence of the Philosophers*, A parallel English-Arabic Text, translated, introduced and annotated by M. E. Marmura (Islamic Translation Series). Provo, Utah, Brigham Young University

Press, 1997 p. 10, 1.

(3) See Janssens J., «Le *Mi'yār al-'ilm fī fann al-manṭiq* d'al-Ghazālī: sources avicenniennes et farabiennes», *Archives d'histoire doctrinale et littéraire du Moyen Age*, 69 (2002), p. 39-66, now reprinted in J. Janssens, *Ibn Sina and his Influence on the Arabic and Latin World* (Variorum Collected Studies Series CS 843). Aldershot, Hampshire, Ashgate, 2006, IX. Note that the designation *Dānesh-Nāmeh* (*Maqāṣid*) implies that al-Ghazālī's wording is in the present work sometimes although not always, closer to that of his own *Maqāṣid*, which is a slightly modified Arabic translation of Ibn Sīnā's Persian work.

(4) For a general survey of Arabic logic, see Street T., «Arabic Logic», in *Handbook of the History of Logic*, ed. Dov M. Gabbay and J. Woods. Amsterdam, Elsevier, 2004, p. 523-96, especially p. 523-60 (where he mainly deals with al-Farābī and Ibn Sīnā, and the precise nature of the relation between their respective logical systems). Street also offers a basic bibliographical list (ibid., p. 586-90)."

20. ———. 2016. "Abu al-Barakat al-Baghdadı and His Use of Ibn Sına's al-Hikma al-'Arudiyya (or another work closely related to it) in the Logical Part of His *Kitab al-Mu'tabar*." *Nazariyat Journal for the History of Islamic Philosophy and Sciences* no. 3:1–22.

Abstract: "The last four sections of the first book of Abū al-Barakāt al-Baghdādī's summa, entitled *Kitāb al-Mu'tabar*, deal with dialectics, sophistical refutations, rhetoric, and poetics in full line with Aristotle's *Organon*. However, they are not so

much based on Aristotle's works, but on a work of the young Ibn Sīnā, namely *al-Hikma al-ʿArūdiyya*. Both texts have much in common not only in their structure, but also in their very wording. The article presents a basic survey of the correspondences for all four sections and also highlights the most significant differences. However, important part of these differences has a counterpart in an (incomplete) logical text, which is present in the manuscript Nuruosmaniye 4894 and which is, in turn, very close to, albeit not identical, with Ibn Sīnā's a*l-Hikma al-ʿArūdiyya* as conserved in the unique manuscript Uppsala 364. Therefore, it is obvious that Abū al-Barakāt takes over many formulations and, at once, many ideas from Ibn Sīnā. However, he adds clearly personal elements that often seem to have been religiously inspired and, on occasion, consciously returns to Aristotle's wording."

21. Kalbarczyk, Nora. 2019. "In the Footsteps of Ibn Sīnā? The Uṣūlī Debate on the *Argumentum e Contrario*." In *Philosophy and Jurisprudence in the Islamic World*, edited by Adamson, Peter, 53–65. Berlin: de Gruyter.

    "From al-Ghazālī (d. 505/1111) onwards we should not expect to see any direct reception of Greek logic – the question is rather in which way *uṣūl al-fiqh* texts were influenced by Avicennian philosophy of language and logic and how the two traditions interacted. In this chapter I intend to show how the debate on the argumentum *e contrario* (*mafhūm al-mukhālafa* or *dalīl al-khiṭāb*) was informed by Avicennian philosophy of language and logic.

    I will start by outlining the controversial aspects of the argumentum *e contrario* in general before turning to Fakhr al-Dīn al-Rāzī's (d. 606/1210) reasoning against it, and then to the modifications of both the Avicennian position and al-Rāzī's critique in the subsequent commentary literature. We will be able to discern a shift in the *madhhab* positions on this issue: even though Fakhr al-Dīn al-Rāzī was a Shāfiʿī scholar, Ḥanafīs standardly use a modified refutation of his criticism of the argumentum *e contrario* against its Shāfiʿī proponents." (pp. 53-54)

22. Karabela, Mehmet Kadri. 2010. *The Development of Dialectic and Argumentation Theory in Post-classical Islamic Intellectual History*, McGill University.

    Available at Academia.edu

    Abstract: "This dissertation is an analysis of the development of dialectic and argumentation theory in post-classical Islamic intellectual history. The central concerns of the thesis are; treatises on the theoretical understanding of the concept of dialectic and argumentation theory, and how, in practice,

    the concept of dialectic, as expressed in the Greek classical tradition, was received and used by five communities in the Islamic intellectual camp. It shows how dialectic as an argumentative discourse diffused into five communities (theologicians, poets, grammarians, philosophers and jurists) and how these local dialectics that the individual communities developed fused into a single system to form a general argumentation theory (*ādāb albaḥth*) applicable to all fields.

    I evaluate a treatise by Shams al-Dīn Samarqandī (d.702/1302), the founder of this general theory, and the treatises that were written after him as a result of his work. I concentrate specifically on work by ʻAd}ud al-Dīn al-Ījī (d.756/1355), Sayyid Sharīf al-Jurjānī (d.816/1413), Taşköprüzâde (d.968/1561), Saçaklızâde (d.1150/1737) and Gelenbevî (d.1205/1791) and analyze how each writer (from Samarqandī to Gelenbevî) altered the shape of argumentative discourse and how later intellectuals in the post-classical Islamic world responded to that discourse bequeathed by their predecessors.

    What is striking about the period that this dissertation investigates (from 1300-1800) is the persistence of what could be called the linguistic turn in argumentation theory. After a centuries-long run, the *jadal*-based dialectic of the classical period was displaced by a new argumentation theory, which was dominantly linguistic in character. This linguistic turn in argumentation dates from the final quarter of the fourteenth century in Ījī's impressively prescient work on *ʻilm al-wadʻ*.

This idea, which finally surfaced in the post-classical period, that argumentation is about definition and that, therefore, defining is the business of language—even perhaps, that language is the only available medium for understanding and being understood—affected the way that argumentation theory was processed throughout most of the period in question.

The argumentative discourse that started with Ibn al-Rāwandī in the third/ninth century left a permanent imprint on Islamic intellectual history, which was then full of concepts, terminology and objectives from this discourse up until the late nineteenth century. From this perspective, Islamic intellectual history can be read as the tension between two languages: the ‚language of dialectic' (*jadal*) and the language of demonstration' (*burhān*), each of which refer not only to a significant feature of that history, but also to a feature that could dramatically alter the interpretation of that history."

23. Karimullah, Kamran I. 2017. "Influence of Late-Antique (ca. 200–800 A.D.) Prolegomena to Aristotle's *Categories* on Arabic Doctrines of the Subject Matter of Logic: Alfarabi (d. ca. 950 A.D.), Baghdad Peripatetics, Avicenna (d. 1037 A.D.)." *Archiv für Geschichte der Philosophie* no. 99:237–299.

    Abstract: "In this article, I explore how Avicenna's (d. 1037) views about the subject matter of logic relate to earlier debates about Aristotle's *Categories* among Aristotle's Platonist commentators and the Baghdad Peripatetics, chief among them being Alfarabi (d. ca. 950). I argue that Alfarabi invents the idea of secondary intelligibles (or "second intentions"). I show, however, that under the influence of the middle and late Platonist commentary tradition on the *Categories*, he insists that primary intelligibles, not secondary intelligibles, are the subject matter of logic. While Avicenna thus takes over the idea of secondary intelligibles from Alfarabi, I show that Avicenna rejects Alfarabi's view that primary intelligibles are the subject matter of logic. I conclude that what motivated Avicenna to hold that secondary intelligibles are the subject matter of logic was his belief that logic is a discipline of philosophy and not merely an instrument of it."

24. Kassem, Omar. 2016\. "Abū Ḥāmid al-Ghazālī on intensional logic, freedom and justice." *Journal of Islamic Philosophy* no. 10:19–61.

    "Aristotelian vs. intensional logic: It was Aristotle who first brought up the three fundamental laws of identity, non-contradiction and the excluded middle, but in Aristotle these are descriptions of reality contained in his *Metaphysics*, in Book Gamma at 1005b19. For Aristotle, logic didn't have the psychological dimension to be intensional, and knowledge was simply the realistic view that knowledge of reality was direct and unmediated. Intensionality arises in Ghazālī, however, from the very first discussion of *Tahāfut*, where the human "will" (*irāda*) is not only something that is apart from the things we find in this world, but is that upon which perception ultimately depends, as in the example of the thirsty man facing two equidistant glasses of water [*Tahāfut*, p. 38:11-41:3]. It is not the nature of a thing which make one incline towards one of two possible contradictories (*nisbat al-dhāt ilā al-ḍiddayn wāḥida*) [*Iqtiṣād* 101:6-7].

    In the European tradition, Antoine Arnauld and Pierre Nicole in *The Port Royal Logic* [*La Logique ou l'art de penser*] (1662) made the first signal advance over the Aristotelian understanding of logic, which in its time it sought to explain in terms of "... the reflections men have made on the four main operations of their mind-conceiving, judging, reasoning, and ordering."(23) But this description of intensionality still presupposed that ideas are prior to judgments, and that the function of judgments is merely to state the combinations of ideas that follow from comparing them(24). Kant goes towards a fuller intensionality in that he doesn't presuppose a plurality of already determined ideas that could be combined into judgments when they are compared at all. What he sees is an indeterminate manifold of representations which the judgment must then bring to one and the same "objective unity of apperception" [CPR B141-2, p. 251].

    It is precisely in this way that the language concerning human judgments in Ghazālī, such as 'affirmation' (*ithbāt*) and

‘negation’ (*nafā* or negated: *nafī*), is determinative of ideas and that, as a consequence, the categories themselves are related to thought processes and are of a different logical order to the Aristotelian categories." (pp.28-29)

(23) Béatrice Longuenesse, *Kant and the Capacity to Judge*, (trans.) Charles T. Wolfe, Princeton: Princeton University Press (1998), p. 74, note 2

(24) Ibid., p. 74

25. Kemal, Salim. 1997. "Al-Ghazalī, Metaphor and Logic." In *Across the Mediterranean Frontiers: Trade, Politics and Religion, 650-1450*, edited by Agius, Dionisius A. and Netton, Ian Richard, 205–223. Turnhout: Brepols.

"Any Muslim religious philosopher must account for the status and seriousness of figurative language since it occurs frequently in the Qur'an. Perhaps surprisingly, given his reputation for rejecting philosophy and for a commitment to mysticism, al-Ghazalī (d. 505/1111) finds logic crucial to this explanation. In the space available in this paper my intention is to sketch out al-Ghazalī,'s account of figurative language, to show how he deals with truth, and thereby to identify some of the issues this raises that need further consideration." (p, 205, a note omitted)

(...)

"Further issues

This explanation of al-Ghazalī's conception of metaphor and figurative language leaves a number of issues uncharted. For example, we need to consider in more detail the source and nature of the premises about which we reason and which we can develop in figurative language. Given his mysticism, we may have to accept that some premises occur as intuitions or insights into the nature of reality. This is entirely compatible with the use of logic as a tool of reason, however, in that the insights and premises cannot be self-contradictory if they are to be taken seriously, regardless of whether their expression is precise or relies on figurative language. This comparison also requires us to consider further how al-Ghazalī understands the sources of premises - an issue that is clearly connected with the

nature of essential and other existences and the issue of how fully it is possible to set out the rules and conditions for particular levels of existence. In any case, what I wanted to emphasise in this paper is that reason has an important role to play in al-Ghazalī's work, and it would be unfortunate if we were to reject its place for the sake of ascribing a merely irrational mysticism to this philosopher." (p. 223)

26. Key, Alexander. 2018. *Language between God and the Poets: Maʿnā in the Eleventh Century*. Oakland: University of California Press.

    Chapter 6, *Logic*, pp. 152-195.

    "What is language? How does language work? Scholars writing in Arabic in the eleventh century had good answers to these two questions. Their theories of language, mind, and reality—of words, ideas, and things—appear in books about how to describe God, how to interpret scripture, how to solve logical problems, and how to criticize poetry. They used a conceptual vocabulary very different from the Anglophone or European toolbox that academia provides for us today. This book is a study of their Arabic intellectual world and a translation of their approaches to questions that still concern us a millennium later. It is a book about these scholars' analyses of how their minds worked, and of the role language played when they turned those minds to the world outside.

    My methodological principle in this research has been to follow eleventh-century Arabic scholars' conceptual vocabulary into their areas of concern. This is consequently a book about maʿnā (their word for mental content) and about ḥaqīqah (their word for accuracy). It is very much a work of philology." (p. 1)

    "Ibn Sīnā inherited Greek and Arabic Aristotelianism and turned it into a new synthesis with a new conceptual vocabulary. Translation lay at the heart of this process.

    In the eleventh century, Ibn Sīnā wrote in dialogue with both the philhellenic commentary tradition and the Arabic tradition of thought about language. Where the Baghdad School of

Aristotelian philosophers had claimed that logic enabled them to dispense with Arabic grammar (see my article with Peter Adamson),(1) and al-Fārābī had tended to use calques of Greek words (Zimmermann argues persuasively that he did so deliberately),(2) Ibn Sīnā chose to write Arabic with all the challenges and rewards such a decision entailed. He was faced with Aristotle in Arabic and translation choices made by other scholars. The Arabic conceptual vocabulary he developed gave him the tools to rethink human cognition, logical process, and the role of God." (p. 152)

(1) Key and Adamson (2015).

(2) Zimmermann (1981, cxxix–cxxxvii).

References

Key, Alexander, and Peter Adamson. 2015. “Philosophy of Language in the Medieval Arabic Tradition.” In M. Cameron and R. J. Stainton, eds., *Linguistic Content: New Essays on the History of Philosophy of Language*. Oxford: Oxford University Press.

Zimmermann, F. W. 1981. *Al-Farabi’s Commentary and Short Treatise on Aristotle’s “De Interpretatione.”* Oxford: Oxford University Press for the British Academy.

27. ———. 2021. "Notes around Ambiguity: Ibn Sīnā’s Logic, ʿAbd al-Qāhir al-Jurjānī’s Poetics, Rāghib’s Two-Meanings-at-One-Time, and the Figures of Ibhām, Istikhdām, and Tawriya." In *Philosophy and Language in the Islamic World*, edited by Germann, Nadja and Najafi, Mostafa, 77–99. Berlin: de Gruyter.

"These notes are adapted from the 2018 monograph *Language Between God and the Poets: Maʿnā in the Eleventh Century*, to which an interested reader may turn in search of more detail about logic and poetics, the additional genres of lexicography and theology, and explanations of the methodology and translation strategy adopted here. The adapted sections have been rearranged around the question of ambiguity in logic and poetics, and new material concerning whether a word can have two meanings at the same time has been added, in addition to a

discussion of the rhetorical figures of *ibhām, istikhdām, and tawriya*.

We begin in the eleventh century with Ibn Sīnā's discussions of two Aristotelian questions that speak to language's potential for logical ambiguity: *pros hen* and Aristotelian homonymy. Next, we look at ʿAbd al-Qāhir al-Jurjānī's theory of lexical accuracy (*ḥaqīqa*), which takes the lexicon into the imaginary poetic image. In order to think more about ambiguity itself, we then turn to al-Rāghib al-Iṣfahānī's claim that a word could have two meanings at the same time, and to three figures used by critics over the next few centuries to manage and structure ambiguity: ibhām, istikhdām, and tawriya. In conclusion, we return to Jurjānī and syntax time." (p. 77)

28. King, Daniel. 2013. "Grammar and logic in Syriac (and Arabic)." *Journal of Semitic Studies* no. 58:101–120.

    Abstract: "In order to advance the debate surrounding the origins and background of the Arabic grammatical tradition, we offer an exploration of the Syriac grammatical tradition with a focus on the interdisciplinarity it shared with the study of logic. The essay demonstrates that the essentialist view of grammar adopted by many Greek thinkers led to the working assumption that logic and grammar were virtually the same discipline, and that the Syrians shared this view of things and transmitted it to Arab scholasticism. A number of philosophers and grammarians are explored with a view to demonstrating this point.

    Scholasticism in the Late Antique Near East was a cross-linguistic phenomenon which never respected the boundaries we like to draw between Greek, Syriac, Hebrew, and Arabic worlds. Arabic grammar grew out of this background, while being driven by its own internal genius."

29. ———. 2015. "Logic in the Service of Ancient Eastern Christianity: An Exploration of Motives." *Archiv für Geschichte der Philosophie* no. 97:1–33.

    Abstract: "The present article explores the motives behind the so-called 'appropriation' of Aristotelian logic by the Syriac-

speaking community in the Near East from the sixth to the ninth centuries. While it is often assumed that the Syrians adopted Greek logic for religious, and polemical, ends, we aim to show rather that the underlying reasons given for the study of logic and its propagation through educational institutions were much the same among Syriac as they were for Greek practitioners of philosophy in Late Antiquity. There was a marked continuity between the late ancient Greek centres of learning and the Syriac monasteries.

Syriac theologians rarely, if ever, sought to use Aristotle as a crutch in sectarian religious debates. There are implications for our understanding of how and why the Arabic renaissance in logic came about."

30. Kleven, Terence. 2016. "Rhetoric, Poetics, and the *Organon*." In *The Routledge Companion to Islamic Philosophy*, edited by Taylor, Richard C. and López-Farjeat, Luis Xavier, 82–99. New York: Routledge.

    "As an instrument it was not obviously controversial, if used for the right purposes, and it could be helpful in distinguishing true from false opinions. It was necessary, however, to know what logic was, and there was more than one opinion on the matter. One particular question that emerged in this inquiry of the nature and scope of logic was which books of Aristotle actually constituted his “instrument” of study. Aristotle’s *Rhetoric* and *Poetics* were included as two of the syllogistic arts by some ancient and medieval scholars and excluded by others. Classical Islamic philosophy devoted considerable attention to the place of these two books among the logical arts, and thus the title of this chapter introduces a topic for inquiry that is forcefully present in Islamic philosophy. The purpose of this chapter is to articulate the reasoning on the basis of which two of the finest Arabic philosophers—al-Fārābī and Ibn Rushd (Averroes)—included rhetoric and poetry in the corpus of logical arts in the Islamic world." (pp. 82-83)

31. Klinger, Dustin D. 2019. "A New Take on Semantics, Syntax, and the Copula: Note on Qutb al-Din al-Razi al-Tahtani’s Analysis of Atomic Propositions in the *Lawāmiʿ al-asrār*."

Nazariyat Journal for the History of Islamic Philosophy and Sciences no. 5:59–80.

Abstract: "In logic, Quṭb al-Dīn al-Razī was broadly an orthodox Avicennan. However, in his enormously influential commentary on al-Urmawī's logic handbook *Maṭāli ʿ al-anwā*r, he explicitly criticizes Avicenna and advances a novel analysis of atomic propositions. As a later addition that only survives in two manuscripts shows, Quṭb al-Dīn was troubled by traditional accounts of the syntax and semantics of atomic propositions. For him, the main problem was a confused understanding of the copula. In atomic propositions of the form "A is B," the copula is the word that indicates that B is predicated of A ("is" in English, "esti" in Greek, but not usually expressed in Arabic). Avicenna had maintained, for lack of an Arabic equivalent to Aristotle's "esti," that the Arabic pronoun "huwa" should be used to form complete atomic propositions (e.g., "Jīm huwa bā'"). Quṭb al-Dīn considers this to be mistaken on several levels. To straighten out the mistake, he disambiguates the predicative nexus of a proposition from its judgment, formulates a unified notion of unsaturatedness for predicates, and gives an account of the judgment-nexus. An upshot of this novel analysis is a reinterpretation of the Aristotelian distinction between *secundum adiacens* and *tertium adiacens propositions*."

32. ———. 2024. "Forms of Carroll's Paradox in Post-Classical Arabic Logic." *History and Philosophy of Logic* no. 45:262–277.

Abstract: "Arabic logicians in the thirteenth century discussed a set of arguments raised by the theologian Fakhr al-Dīn al-Rāzī (d. 1210) that in some respects closely resembles Carroll's paradox. Roughly, the paradox states that we can never reach a conclusion from a set of premises without incurring an infinite regress. The present article presents and discusses Rāzī's formulation of the problem with syllogistic deduction, his own solutions to the problem, and the contributions of Afḍal al-Dīn al-Khūnajī (d. 1248) and Najm al-Dīn al-Kātibī (d. 1276). It is argued that the proposed solutions developed by these authors

are best understood as tending in the direction of Gilbert Ryle's distinction between *knowing-that* and *knowing-how*."

33. ———. 2025. "A 12th Century Attack on Peripatetic Logic: Rashīd ad-Dīn al-Waṭwāṭ's (d. 1182) Treatise "A Doubt About reductio ad absurdum" and Its Aftermath." In *Logic, Soul, and World: Essays in Arabic Philosophy in Honor of Tony Street*, edited by Ahmed, Asad Q., Zarepour, Mohammad Saleh and Strobino, Riccardo, 326–365. Leiden: Brill.

    "In this article I argue that a text that has only recently been attributed with certainty to Rashīd ad-Dīn al-Waṭwāṭ (d. 1182), a courtier and literary figure otherwise not associated with logic, sheds new light on the pre-Rāzīan engagement with Avicenna's modal logic, specifically with problems arising for conversion from the profusion of propositional types. After a brief contextualization of Waṭwāṭ, his text, and the history of Arabic logic in 12th century Khwārazm, I propose to read Rashīd ad-Dīn's "A Doubt About *reductio ad absurdum*" as a wholesale attack on the consistency of Avicennan logic (section 2). This attack is based on the following argument: Since *reductio* is needed to prove certain conversions that in turn are needed to prove the validity of all but the four first figure syllogistic moods, *reductio* is indispensable for the entire deductive system.

    However, *reductio* can be used to prove several distinct propositions as conversions of a single proposition. As every proposition only has one converse, some of them must be false. Hence, *reductio* is not an adequate proof strategy for conversion, and, by extension, not for the validity of syllogistic moods. The argument, as I explain in detail in section (3), would not work against Aristotle's assertoric syllogistic, as it capitalizes on the profusion of propositional types. The earliest detailed response, most likely from ar-Rāzī's interlocutor in the Transoxanian Debates(7) Afḍal ad-Dīn Ibn Ghaylān al-Balkhī (d. ca. 1194), was, I argue, eventually not successful (4). Another contemporary, Shihāb ad-Dīn as-Suhrawardī (d. 1191), acquiesced in the insufficiency of reductio proofs, but believed there was no harm for logic overall (5). It was only with ar-Rāzī,

whose toolkit of newly forged logical terms for novel distinctions was richer than al-Waṭwāṭ's, that the attack was forcefully and, it seems, decisively met (6). I conclude with a summary and some broader observations on what this debate may tell us about the history of logic and philosophy in the 12th century (7)." (p. 328)

(7) Munāẓarāt Fakhr ad-Dīn ar-Rāzī fī bilād mā warāʾa an-nahr, in: Fathalla Kholeif, A Study on Fakhr al-Dīn al-Rāzī and His Controversies in Transoxiana (Beirut: Dar al-Mashriq, 1966), 31 (55 of Kholeif's translation). See also Ayman Shihadeh, "From al-Ghazālī to al-Rāzī: 6th/12th Century Developments in Muslim Philosophical Theology," Arabic Sciences and Philosophy 15, no. 1 (2005): 153.

34. Komath, Muhammed. 2024. "Defeasible Reasoning in Islamic Legal Theory." *Informal Logic* no. 44:431–467.

Abstract: "Logicians commonly understand nonmonotonic types of reasoning can warrant rational acceptance of conclusions. The significance and legitimacy of these forms of arguments, which were long considered fallacious, has been contentious among logicians in the Aristotelian logical tradition. In contrast, Islamic jurisprudence (*fiqh*), has long recognised the importance of non-deductive forms of reasoning, and demonstrated how conventionally understood fallacies are not essentially fallacies. *Qiyās* – generally representing analogical reasoning – is such a case of defeasible reasoning in Islamic legal theories. I show through works of two emblematic medieval Muslim jurist-logicians, al-Juwainī and al-Ghazzālī, that understanding the legitimacy of non-deductive forms of arguments is core to Islamic legal theories (*usūl al-fiqh*), which proposed a dialectical method (*jadal*) of approach."

35. ———. 2025. "Rational Force of Analogy/Qiyās in Law: Logic of Law in Islamic and Contemporary Legal Reasoning." *Informal Logic* no. 45:423–448.

Abstract: "Analogy is an inherently fragile form of argument, as the conclusion is derived from similarity, while overlooking dissimilarities. Yet law necessarily depends upon analogical

reasoning to ensure consistency and predictability in its rulings. This entanglement of fragility and necessity compels the legal traditions, like Islamic and common laws, to formulate a justification of analogy when applied in law. The most successful justification, I argue, is the one that is anchored in logic. This logical grounding is a shared feature among contemporary legal theorist Scott Brewer, the informal logician Douglas Walton, and the 12th-century Muslim jurist-logician al-Ghazzālī, as all three insist that the justification of legal analogy is logical.

This paper aims to trace the thematic contours of their explanation in order to demonstrate, drawing primarily on al-Ghazzālī's two works: *al-Mustaṣfā fī Uṣūl al-Fiq*h and *al-Muntaḥal fī al-Jadal,* that al-Ghazālī's model of analogical reasoning effectively integrates key elements of Brewer's abduction model and Walton's model of defeasible argument."

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Brewer, Scott. 1996. "Exemplary reasoning: Semantics, pragmatics, and the rational force of legal argument by analogy." *Harvard Law Review* 109 (5): 923–1028.

Walton, Douglas, Christopher Reed, and Fabrizio Macagno. 2008. *Argumentation schemes*. Cambridge: Cambridge University Press.

36. Kukkonen, Taneli. 2005. ""The Impossible, insofar as it is possible": Ibn Rushd and Jean Buridan on Logic and Natural Theology." In *Logik und Theologie. Das Organon im arabischen und im lateinischen Mittelalte*, edited by Perler, Dominik and Rudolph, Ulrich, 447–467. Leiden: Brill.

"Abû l-Walîd Muhammad Ibn Rushd's (the Latin Averroës, d. 1198) commentaries on Aristotle attest to how the Andalusian philosopher and jurisprudent tinkered with the interpretation of his master's thought until the very end of his life. Ibn Rushd's seemingly evergrowing appreciation for the minutiae of Aristotelian lore came coupled with a penchant for formalisation. The long commentaries, the crowning

achievement of a long and distinguished career, are lined with attempts to knock informal arguments into syllogistic shape.(1)

(…)

"The following presentation takes its cue from (I) Ibn Rushd's eighth physical *Question*, which presents a novel interpretation of the argumentative structure of the *Physics* proof for an immaterial First Mover.

(II) An examination of the logical underpinnings of Ibn Rushd's proposed interpretation gives way to (III) a consideration of the theological concerns that fuelled Ibn Rushd's search for a structurally sound reading of Aristotle. (IV) From here, I move to John Buridan's comments on Aristotle's argumentation in natural philosophy, which are explicitly directed against the Commentator and his followers in the Latin world, most notably Thomas Aquinas. Supplementary materials from Nicole Oresme serve to illustrate the difference between the two types of explanation, a difference that is to an extent (V) paralleled by a division among current theorists of philosophical logic." (pp. 447-448)

(1) See Druart (1994).

References

Druart, Therese-Anne, "Averroes: The Commentator and the Commentators", in L. P. Schrenk (ed.), *Aristotle in Late Antiquity*, Washington, D.C. 1994, 184–202.

37. ———. 2010. "Al-Ghazālī on the Signification of Names." *Vivarium* no. 48:55–74.

Abstract: "Al-Ghazālī's most detailed explanation of how signification works occurs in his treatise on *The Beautiful Names of God*. Al-Ghazālī builds squarely on the commentary tradition on Aristotle's *Peri hermeneias:* words signify things by means of concepts and correspondingly, existence is laid out on three levels, linguistic, conceptual, and particular (i.e. extramental). This framework allows al-Ghazālī to put forward what is essentially an Aristotelian reading of what happens when a name successfully picks out a being: when a quiddity is

named by some kind term, its referent in the mind is formally identical to the quiddity of an individual existent which belongs to that natural kind. Al-Ghazālī then proceeds to tease out the implications of this scheme for the special problem of signifying God. It turns out that the Peripatetic theory, which al-Ghazālī appropriates from Ibn Sīnā, is ill equipped for the task as al-Ghazālī envisions it."

38. Kuşlu, Harun. 2024. "Context-Sensitive Terms In Islamic Philosophy of Language: A Study On The Logicalization of Demonstrative Pronoun." *Nazariyat Journal for the History of Islamic Philosophy and Sciences* no. 10:73–104.

    Abstract: "The issue of ambiguous words (*al-mubhamât*), which occupies the core subject of ʻAdud al-Dīn al-Ījī's (d. 756/1355) *al-Risālat al-wadʻiyya*, has blossomed into subject of a serious logical and semantical dispute between two great names of later Islamic thought, Saʻd al-Dīn al-Taftāzānī (d. 792/1390) and Sayyid Sharīf al-Jurjānī (d. 816/1413). The operant traces of the debate can palpably be traced up to the late Ottoman polymath Ismail Gelenbevī (d. 1205/1791) and his commentators. In this paper, I take up the relevant debate with reference to the problem of context-sensitive terms in the contemporary philosophy of language. Throughout the article, I examine both the course of the issue in the philosophy of language tradition by using the literature following al-Ījī's treatise and how al-Taftāzānī has made this topic into a matter of logic by referring to some works of logic. Thus, I intend to show the contributions or criticisms of some philosophers from al-Taftāzānī to Gelenbevī towards the logicalization of context-sensitive terms."

39. Lagerlund, Henrik. 2008. "The Assimilation of Aristotelian and Arabic Logic up to the Later Thirteenth Century." In *Handbook of the History of Logic, Volume 2: Mediaeval and Renaissance Logic*, edited by Gabbay, Dov M. and Woods, John, 281–346. Amsterdam: Elsevier North-Holland.

    "The development of logic from the rediscovery of the complete corpus of Aristotle in the early twelfth century through the thirteenth and fourteenth centuries cannot be characterised as

anything else than remarkable. No other time in history, except the late nineteenth and twentieth centuries, has seen such a development of logic.

In this chapter, I will try to give an account of some of the problems and developments from the late twelfth century into the mid-thirteenth century. My focus will primarily be on the commentary tradition of Aristotle's logical works, that is, the *Categories, De interpretatione, Prior Analytics, Posterior Analytics, Topics,* and *Sophistici Elenchi.*(1) Running parallel to the commentary tradition is a less known and much less studied tradition, namely the history of the Arabic logical works available in Latin at this time. Most scholars are of the opinion that Arabic logic had very little if any influence on Western logic, but, although Arabic logic did not revolutionise western logic as was once thought, it certainly is part of the Western logical tradition and as such it had a not insignificant influence; although not in the way previously thought. I will here highlight some of the more interesting things I have noticed about these works.(2)" (p. 281)

(1) I will not say anything about the commentaries on the *Posterior Analytics*. This tradition is hardly studied and its development seems to be a little bit different than the other works.

Although it is a work on method it is unclear whether thirteenth century logicians saw it as a work in logic. For an overview of this tradition see [Longeway, 2007, 3–79].

(2) For a more detailed study of this tradition and its influence on Western logic I will have to refer the reader to a forthcoming monograph of mine with the title Latin Arabic Logic in the Middle Ages: The Doctrines and Influences of Arabic Works on Logic Translated into Latin in the 12th and 13th Centuries.

40. ———. 2010. "Al-Ghazālī on the form and matter of the syllogisms." *Vivarium* no. 48:193–214.

Abstract: "Al-Ghazālī's *Maqāsid al-falāsifa* [*The Aims of the Philosophers*] [*] is an intelligent reworking of Avicenna's *Dānesh-name* (Book of Science). It was assumed by Latin

scholastics that the *Maqāsid* contained the views of Al-Ghazālī himself. Very well read in Latin translation, it was the basic text from which the Latin authors gained their knowledge of Arabic logic. This article examines the views on the form and matter of the syllogism given in the *Maqāsid* and considers how they would have been viewed by a Latin reader in the thirteenth century."

[*] Marco Signori, *Abū Ḥāmid al-Gazālī. The Intentions of the Philosophers* [*Maqāṣid al-falāsifa*]. Introduction, Translation, and Commentary, Tesi di perfezionamento in Storia della filosofia medievale, Anno accademico 2021-2022.

41. ———. 2020. "Logic, Arabic, in the Latin Middle Ages." In *Encyclopedia of Medieval Philosophy. Second Edition*, edited by Lagerlund, Henrik, 1083–1086. Dordrecht: Springer.

    Abstract: "C. Prantl argued in the mid-nineteenth century that the part of western logic nowadays called *logica modernorum*, that is, the so called theories of the properties of terms, entered into the Latin world from translations of Byzantine and Arabic logical works. This was, as M.L. de Rijk showed in the 1960s, completely wrong. He argued convincingly that this part of medieval logic was partly due to Aristotle's *Sophistici elenchi* but foremost it was due to the creative minds of late twelfth-century logicians.

    His judgment of earlier views was so harsh, however, that Arabic logic in the Latin tradition has hardly been studied at all. Most scholars are of the opinion that Arabic logic had very little, if any, influence on western logic, but although Arabic logic did not revolutionize western logic as was once thought, it certainly is part of the western logical tradition and as such it had quite a significant influence, though not in the way previously thought."

42. Lameer, Joep. 1993. "Aristotelian rhetoric and poetics as logical arts in medieval Islamic philosophy." *Bibliotheca Orientalis* no. 5:563–582.

    Review of Deborah Black, *Logic and Aristotle's Rhetoric and Poetics in Medieval Arabic Philosophy*.

43. ———. 1996. "The Organon of Aristotle in the Medieval Oriental and Occidental Traditions." *Journal of the American Oriental Society* no. 116:90–98.

    Abstract: "In this review article of Charles Burnett's edition of Glosses and Commentaries on Aristotelian Logical Texts: The Syriac, Arabic and Medieval Latin Traditions, the focus will be on the two contributions which concern the medieval Arabic tradition, whereas my comments on the Syriac and medieval Latin sections will be of a more succinct and marginal character. In his "Remarques sur la tradition arabe de L'Organon d'aprés le manuscrit Paris, Bibliothèque Nationale, ar. 2346," Henri Hugonnard-Roche argues, against Richard Walzer, that a significant part of the marginal and interlinear glosses and notes to the Arabic translations of the *Organon* as contained in this famous manuscript are not merely philological, but constitute evidence of a difference in understanding the logic of Aristotle. Challenging though it is in proposing a new perspective, the majority of the examples given by Hugonnard-Roche do not support this thesis, as I will venture to show. My comments on Dimitri Gutas' "Aspects of Literary Form and Genre in Arabic Logical Works" are of a more complementary character, with a special emphasis on al-Farabi. A complete listing of the surviving copies of epitomes of Ibn al-Tayyib's commentaries on the *Organon* is also given."

44. ———. 2013. "Ibn Ḥazm' Logical Pedigree." In *Ibn Ḥazm of Cordoba: The Life and Works of a Controversial Thinker*, edited by Adang, Camilla, Fierro, Maribel and Schmidtke, Sabine, 417–428. Leiden: Brill.

    "Many years ago, I drew attention to the fact that after Abū Naṣr Fārābī (d. 339/950), Ibn Ḥazm was among the earliest Muslim authors to have suggested that a parallel can be drawn between Aristotelian modal logic and the modalities of a system of norms.(1) The subject is not unimportant, because norms regulate human behaviour, so that a better understanding of their perceived interconnections will lead to a better understanding of the workings of normative (i.e. legal) systems. As a Ẓāhirī, Ibn Ḥazm was a declared advocate of a literalist

interpretation of the sources of Islamic jurisprudence.(2) It is therefore reasonable to assume that his discussions of the modalities must have been aimed at strengthening his literalist legal views. But ahead of any future examination of this hypothesis, it will be helpful to first determine Ibn Ḥazm's lineage in the field of Aristotelian logic, which is what this article proposes to do." (pp. 417-418, a note omitted)

(1) Joep Lameer, *Al-Fārābī and Aristotelian Syllogistics: Greek Theory and Islamic Practice*, Leiden 1994, p. 240f. What is meant is the idea that a comparison can be made between the concepts of necessity, possibility and impossibility on the one hand, and the notions of obligation, permission and prohibition on the other. In western philosophy it is not until much later that we can find traces of similar ideas, for which see e.g. Georg Henrik von Wright, "On the Logic of Norms and Actions," *New Studies in Deontic Logic. Norms, Actions and the Foundations of Ethics*, ed. Risto Hilpinen, Dordrecht 1981, (3–35) p. 3 (referring to Leibniz, 1646–1716), and Simo Knuuttila, "The Emergence of Deontic Logic in the Fourteenth Century," *New Studies in Deontic Logic*, pp. 225–226, 240 (referring to Robert Holcot and Roger Rosetus, both 14th cent.). See also Paul McNamara, "Deontic Logic," The Stanford Encyclopedia of Philosophy (Fall 2010 Edition), ed. Edward N. Zalta).

(2) Abdel Magid Turki, "al-Ẓāhiriyya," *The Encyclopaedia of Isla*m, New Edition, vol. 11, pp. 394a–396b.

45. ———. 2014. "(*Ghayr al-ma'lūmyamtanï al-ḥukm 'atayhi*) An Exploratory Anthology of a False aradox in Medieval Islamic Philosophyl." *Oriens* no. 42:397–453.

Abstract: "In Islamic philosophy, knowledge is divided into 'conception' (*taṣawwur*) and 'belief' (*taṣdīq*). While there is no objection to dividing knowledge in this way, problems arose when belief was described as being 'composed' of conceptions. An early objection to belief's dependence upon conceptions was based on a self-referential reading of the principle that 'the unknown cannot be a subject of predication,' which was another way of saying that 'what is not conceived, cannot be believed.' This objection was answered in various ways. While

Naṣīr al-Din Ṭūsī (d. 672/1274) may have been the first to know how to solve paradoxes of self-reference, it was Sirāj al-Dīn Urmawī (d. 682/1283) who dominated most of the later discussions."

46. ———. 2019. "Deontic Modalities in Ibn Ḥazm." In *Philosophy and Jurisprudence in the Islamic World*, edited by Adamson, Peter, 113–128. Berlin: de Gruyter.

"To this day, not much has been written about obligations, permissions, and prohibitions in Islamic law and their place in medieval Arabic logic.(1)"

(...)

"After al-Fārābī, the second earliest Muslim author known to have suggested that a parallel might be drawn between the modalities of Aristotelian logic and the deontic qualifications of "obligatory", "permissible", and "impermissible" is the Andalusian polymath Ibn Ḥazm (d. 456/1064), who earned his fame as a poet, historian, theologian, jurist, and minor philosopher (EI2 [*Encyclopaedia of islam*, Second edition], "Ibn Ḥazm").(12)

The comparison in question is found in his treatise on Aristotelian logic, a*l-Taqrīb li-ḥadd al-manṭiq* (*A Clarification of the Essence of Logic*).(13) Even if he did study logic in the tradition of the Baghdad school in logic as represented by Abū Bishr Mattā b. Yūnus and al-Fārābī (Lameer 2013, 417–428), Ibn Ḥazm was not a logician, but mostly a jurist and theologian. As such, he is especially known as a representative of the Ẓāhirī school, which propagated a literal interpretation of the Qur'an and the traditions (EI2 "al-Ẓāhiriyya")."

(1) The only relevant publications that I know of are Mikhail 2004, referred to in note 33 below; Auda 1428/2007, 237, where he says that Georg H. von Wright's "law of commitment" which states that "If doing what we ought to do commits us to do something else, then this new act is also something that we ought to do" is identical to the rule stating "*mā lā yatimmu al-wājib illā bihi fa-huwa wājib*" in Islamic law; Lameer 1994, 239–256, mentioned below in reference to al-Fārābī.

(12) See also Adang, Fierro, and Schmidtke 2013, with a bibliography of secondary sources by Leigh Chipman on pages 761–787.

(13) Ibn Ḥazm 1980–1983, 4:93–356: K*itāb al-Taqrīb li-ḥadd al-manṭiq wa'l-mudkhal ilayhi bi'lalfāẓ al-ʿāmmiyya wa'l-amthila al-fiqhiyya*. I have not seen the edition by ʿAbd al-Ḥaqq al-Turkumānī (Beirut: Dār Ibn Ḥazm, 2007).

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Mikhail, John. "Islamic Rationalism and the Foundation of Human Rights." In *Pluralism and Law: Proceedings of the 20th IVR Congress,* vol. 3: Global Problems, ed. Arend Soeteman, 61–70. Frankfurt: Steiner, 2004.

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47. Lamprakis, Alexander. 2025. "Dialectical Premises, Dialectical Problems and the Concept of *Topoi* in Arabic Philosophy: An Overview." In *Revisiting Medieval Dialectics*, edited by Mora-Márquez, Ana María and Fernández Walker, Gustavo, 59–95. Cham (Switzerland): Springer.

Abstract: "This article introduces critical areas in studying dialectic and Aristotle's *Topics* in Medieval Arabic Philosophy. It includes a historical review that aims to present the material available in Arabic (including Hebrew and Latin translations and commentaries) and an introduction to and overview of two

areas of study: Dialectical premises and problems, on the one hand, and the theory of *topoi,* on the other. The article primarily aims to present the authors and their works and introduce their contributions to the topics under discussion. This endeavor aims to increase our understanding of how the reception of Aristotle's *Topics* developed in the Islamic world."

48. Larkin, Margaret. 1982. "Al-Jurjani's Theory of Discourse." *Alif: Journal of Comparative Poetics* no. 2:76–86.

    Contain the translation of "On composition and stylistic excellence" (pp. 78-86).

    "Little is known about the life of Abui Bakr ᶜAbd al-Qa.hir b. ᶜAbd al-Rahmain al-Jurjāni(1), the author of the following translated selection.(2) Noted among his contemporaries as a grammarian, he was the student, in Jurjān, of ᶜAli b. ᶜAbd al-ᶜAziz al-Jurjāni and of Abu- l-usayn al-Fārisi, the maternal nephew of Abui ᶜ̲Ali al-Fārisi. He is not known to have studied anywhere outside his native Jurjān. His date of death is given as 471 a.h./1078 A.D. or 474 a.h./1081 A.D. Among his most important grammatical works are *Mi'at ᶜamil* (with its many commentaries) and *Kitāb al-jumal*. In the field of poetics, we have his two major treatises, *Asrar al-balāgha* and *Dalā'il iᶜjāz al-Qur'ān*. The following selection, translated from the latter of these two, constitutes the first succinct statement in the course of *Dalā'il iᶜjāz al-Qur'ān* of the stylistic theory ᶜAbd al-Qāhir is presenting." (p. ā76)

49. Laughlin, Burgess. 1995. *The Aristotle Adventure: A Guide to the Greek, Arabic, and Latin Scholars who Transmitted Aristotle's Logic to the Renaissance*. Flagstaff: Hale.

    "*The Aristotle Adventure* is a guide to individuals who had the courage and integrity to pursue their highest values despite distractions, setbacks, and threats. The object of their struggle was logic, the tool of an ancient philosophy of reason—a philosophy which offers the promise of happiness, here in this world.

This book is mainly a guide to the past, from the standpoint of one subject—Aristotle's logic. Where scarce historical evidence permits, this book is also partly:

* A saga (a straightforward account of a sequence of people and events).

* A drama (an account of fundamental values in conflict).

* An adventure story (an account of a bold, risky enterprise whose outcome was uncertain and hazardous).

This book is not a history of Aristotelianism, philosophy, or logic. Nor is it a scholarly book. (In the main text, I have not debated the evidence for my claims.) However, abundant end-notes allow readers to pursue more information.

In doing research for another project, I searched for a book such as *The Aristotle Adventure*.

I couldn't find one, so I wrote one. Specifically, this book has three purposes:

* Recreate the story from scattered bits and pieces in our record of the past.

* Offer the story as an inspiration to anyone who lives by reason today.

* Give perspective to anyone passing a philosophy of reason to the future." (*Preface*, p. VII)

50. Leaman, Oliver. 1997. "Logic and Language in Islamic Philosophy." In *Companion Encyclopedia of Asian Philosophy*, edited by Carr, Brian and Mahalingam, Indira, 862–874. London: Routledge.

"The development of logic in Islamic philosophy is significant not so much for its contribution to philosophy but for the part it played in the structure of Islamic law and theology. Although we tend now to regard logic as a part of philosophy, within Islamic philosophy logic came to have a rather controversial position which fostered its transplantation into other bodies of theory. The introduction of logic into the Islamic world followed the same sort of pattern as that of philosophy itself.

The tenth-century translators in Baghdad had available to them a large body of Syriac works covering wide areas of Greek thought, both practical and theoretical." (p. 862)

(...)

"Yet this positive role of logic was not universally acknowledged, as is revealed by the popular slogan *man taman aqa tazandaqa* ('whoever is in favour of logic is in favour of heresy'). What was the nature of Arabic logic which was both so favoured and so reviled? It consisted of Aristotle's *Organon* supplemented by Porphyry's *Eisagōgē* and Stoic and Neoplatonic developments. A popular organization of logic was the *Eisagōgē* presented as an introduction to the *Organon*, generally consisting of the Categories, *Hermeneutics, Analytics, Apodeictics, Topics, Sophistics, Rhetoric* and *Poetics*."

51. ———. 2000. "Islamic Philosophy and the Attack on Logic." *Topoi* no. 19:17–24.

"When Greek logic first entered the Islamic world it was treated by many thinkers with suspicion as a foreign interloper.(2) Logic sees itself as the most abstract theoretical vehicle for analysis, and although it may take the form of language, it actually regards itself as the deep structure of that language. Natural language has as its framework logic, and to understand language fully we need to understand logic first. Al-Fārābī, perhaps the most influential of all the *mashshāī* thinkers, presented this argument time and time again.(3) Some thinkers opposed the introduction of logic into Islamic culture since they saw it as setting up an alternative system of explanation to the Islamic sciences (grammar, jurisprudence, theology etc.) and so subtly challenging the universality and self-sufficiency of Islam itself.(4) This radical critique of logic obviously had a good deal of support, and an influential group of thinkers remained hostile to any theoretical machinery which could not display genuine Islamic credentials. Yet there was also an influential group who supported logic at the expense of philosophy. That is, they argued that logic could be cleansed as it were of its philosophical associations and used entirely neutrally in order

to express more perspicuously the truths which are otherwise available through religion. An important thinker within this latter tradition is al-Ghāzalī,(5) who strenuously opposed many aspects of philosophy on both religious and intellectual grounds, and yet who insisted nonetheless that the sort of logic which the philosophers pursued was valuable in itself and not to be ignored.(6)" (p. 17)

(2) Inati, S.: 1996, 'Logic', in S. Nasr and O. Leaman (Eds.), *History of Islamic Philosophy*, London: Routledge, 1996, pp. 802–823.

Leaman, O.: 1985, 'Introduction', *An Introduction to Medieval Islamic Philosophy*, Cambridge: Cambridge University Press, pp. 1–21. [Leaman, O.].: 1997, 'Logic and Language in Islamic Philosophy',

in B. Carr and I. Mahalingam (Eds.), *Companion Encyclopedia of Asian Philosophy*, pp. 950–994.

(3) Abed, S.: 1991, *Aristotelian Logic and the Arabic Language in Alfarabi,* Albany: State University of New York Press. Black, 'Al-Fārābī', in Nasr and Leaman, op. cit., pp. 178–197.

(4) Leaman, O.: 1999, 'Philosophical and Scientific Achievements in Islamic History', in F. Daftary (Ed.), *Intellectual Traditions in Islam*, London: IB Tauris, forthcoming [2000].

(5) Campanini, M., 'Al-Ghazzālī', in Nasr and Leaman, op. cit., pp. 258–274.

(6) Al-Ghazālī, *Al-Qistās al-mustaqīm* (*The correct balance*), trans. R. McCarthy (1980), Freedom and Fulfillment, Boston: Twayne, pp. 287–332.

52. ———. 2006. "Logic and Islamic Philosophy." In *The Biographical Encyclopedia of Islamic Philosophy*, edited by Leaman, Oliver, 290–302. New York: Bloomsbury Academic.

"Logic in Islamic philosophy

A number of features characterize logic in Islamic philosophy. First of all there was the development of a tradition of

commentary on the major Greek logical texts, commentaries that often were very perceptive in their scope. Some of these were to be translated into Latin and become much used in Christian Europe when philosophy was taken up there, a long time later than its career in the Islamic world. Some thinkers were far more than commentators, though. Ibn Sina (Avicenna) made several bold moves away from the Greeks, developing the notion of “second intentions” or “secondary concepts” by contrast with “first intentions.” The secondary nature is a characterization of the second order activity of the logician, in that the technique is applied to an existing subject matter and so is intrinsically secondary and reflective on something already existing.

This idea led him to posit also a sharp distinction between existence and essence, a distinction that was to play a large role in later Islamic and European philosophy. He also did a lot to construct the theory behind modal logic, the area that operates with the concepts of possibility and necessity. Later thinkers developed views on the nature of the syllogism, the issue of universals, the link between predication and existence, and the constant issue of logic and its relationship with grammar." (p. 296)

53. López-Farjeat, Luis Xavier. 2022. *Classical Islamic Philosophy: A Thematic Introduction*. New York: Routledge.

Chapter 4: *The Classification of the Sciences, Logic, and Language*, pp. 89-129.

"2. Logic and Language

This section explains al-Fārābī’s contributions to logic and its relation with language. Al-Fārābī, and later Ibn Sīnā, were pivotal philosophers in the development of logic within the Islamic context." (p. 104)

"2.2 The Aristotelian–Fārābīan–Avicennian Logical Tradition

Ibn Sīnā picked up two notions used by al-Fārābī that are crucial for understanding the logic of Islamic philosophers: conceptualization or concept formation (*taṣawwur*) and assent (*taṣdīq*) (Black 2006: 36–38). By ‘conceptualization’ Ibn Sīnā

means the way in which the human intellect forms simple concepts or terms with no reference to their meaning within a proposition or to its truth-value. Assent, sometimes translated as ‘verification’, refers to the way in which the intellect combines those concepts, forming a proposition with a truth-value (1952a: 17). These two notions are equivalent, respectively, to the notions of simple apprehension and judgment, or to what Aristotle understands by *noesis* (understanding) and *apophantikós logos* (a declaratory statement with a truth-value). According to Ibn Sīnā, concept formation consists in the recognition of universal terms (intelligibles or first intentions), according to the five predicables (second intentions), namely, genus, difference, species, property, and accident." (p. 107)

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Black Deborah, 2006. “Knowledge (*‘ilm*) and Certitude *(yaqīn*) in al-Fārābī’s Epistemology.” *Arabic Sciences and Philosophy* 16: 11–45.

54. Mahdi, Muhsin. 1970. "Language and Logic in Classical Islam." In *Logic in Classical Islamic Culture*, edited by von Grunebaum, Gustave E., 51–83. Wiesbaden: Ottto Harassowitz.

Reprinted in Ramzi Baalbaki (ed.), *The Early Islamic Grammatical Tradition*, Aldershot: Ashgate 2007 and New York: Routledge 2016, pp. 51-167.

"In the normal course of learning or teaching and understanding or speaking a language, we assume two things: the separateness of names and of the things they name, and a correspondence between the name we hear or utter and the thing named by it. Both assumptions appear amply supported by common experience.

But as we reflect on them we see that our convictions are largely unexamined. Are the things named themselves as separate from or related to each other as the names designating

them make them out to be ? If so, why do the same names designate things that are evidently separate from each other? Are the names themselves as separate from or related to each other as the things they name require them to be? If so, why do the same things have different names?. More generally, is the separateness of the things named a function of the separateness of names, or is the separateness of names a function of the separateness of the things they name? And on what ground does the name-maker or name-giver separate names and the things they name and establish the former as corresponding to the latter? Is it the nature of things and of names, which he learns more or less correctly; or an arbitrary convention that he establishes, an opinion that he imposes, or a law that he gives? Our initial assumptions about language and normal experience with it provide no clear answers to such questions, which seem to lead directly to an inquiry into the relation between nature and convention or law. This inquiry occupies the center of the stage in the discussion of language in classical Islamic thought as it had done earlier in classical Greek thought." (pp. 51-52 of the reprint)

55. Mahmmoud, Yagoubi. 2020. "Theory of Syllogisms with Categorical, Conditional and Disjunctive Connectives Developed by Arabian Logicians." *Studia Humana* no. 9:19–27.

    Abstract: "In this paper we are trying to summarize the peak of achievement of the Arabian logicians of the fifteenth century by making a classification and sketching in familiar terms the conditional and subjunctive syllogisms in Muḥammad Ibn Yusūf al Sinūsi's (1426-1490) work, i.e. in his explanation of *Kitāb al-Muḫtaşar fi al-Mantiq* of al-Imām Muhammad Ibn 'Arafa (1316-1401)."

56. Mahmmoud, Yagoubi, and Fatahine, Moussa. 2020. "The Status of Conditional Syllogism in Syllogistics." *Studia Humana* no. 9:12–18.

    Abstract: "The form of the conditional syllogism resembles that of the categorical syllogism, while its subject matter is at least a conditional premise, but its conclusion is always conditional conjunctive or disjunctive. This mixed structure to which we

apply the rules of the categorical syllogism, is a structure of which Aristotle did not have an idea, and which the Stoics did not conceive, and which the non-Arabian logicians did not know until in modern times. But what we have to notice here is the putting of a conditional matter in the form of the categorical syllogism, and it is this kind of hybridization, if we dare to say, which generated this mixed structure which appeared for the first time in the history of logic in the treatise on the logic of Ibn Sina and which can be considered a discovery by this author until proof to the contrary, and that the ancient Arabian logicians have taken the habit of exhibiting in their treatises."

57. Maman, Aharon. 2013. "Ibn Janāḥ: between logic and grammar and his classification of the parts of speech." In *Judaeo-Arabic culture in al-Andalus: Proceedings of the 13th Conference of the Society for Judaeo-Arabic Studies Cordoba 2007*, edited by Ashur, Amir, 111–120. Cordoba: CNERU-CSIC.

58. Margoliouth, David Samuel. 1905. "The Discussion between Abu Bishr Matta and Abu Sa'id al-Sirafi on the Merits of Logic and grammar." *Journal of the Royal Asiatic Society*:79–129.

    "In his notice of the philosopher Abū Bishr, of Dair Kunnā, lbn al-Kiftī(1) mentions that he had a public discussion with the grammarian Abū Sa'id al Ḥusan al-Sirāfī, famous for his commentaries on Sibawaihi's grammar.(2) This discussion is reported at length by Yākūt in his invaluable *Mu'jum al-udabū*, (3) on the authority of Abū Ḥayyān, from whose works Yākūt derives much that is interesting, though he accusesAbū Ḥayyān of habitually romancing." (p. 79)

    (...)

    "Discussion between Mattā Ihn Yunus of Dair Kunnā, the phlosopher, and Abū Sa'īd al-Sīrāfī.

    ... the vizier Ibn al - Furāt addressed them as follows:

    I desire someone to come forward and debate with Mattā (Matthew) on the subject of Logic. He declares that it is impossible to know what is correct from what is incorrect, truth

from falsehood, right from wrong, proof from sophism, doubt from certainty, except by our command of logic, our control of the system estahlished and defined hy its author, and our acquaintance through him with its doctrines." (p. 111)

59. Marion, Mathieu. 2013. "Some Remarks on syllogistic, dialectic, and the study of their History." *Al-Mukhatabat* no. 8:9–36.

    Abstract: "In this paper, I argue that one should approach the study of Ancient Logic, Greek, Medieval and Arabic through a better understanding of the relation between dialectic and syllogistic. No claims are made about these, however, except concerning Aristotle and the invention of syllogistic. Numerous defects of the early a-historical study of syllogistic by Łukasiewicz in terms of axiomatic systems are presented in section 2, that show its inappropriateness. It is further argued that a proper consideration

    of the context of *Prior Analytics* shows that it involved the common practice of dialectical games, a characterization of which, in terms of game semantics, is provided in section 3. In the concluding remarks, the interest of this new approach is illustrated by explaining aspects of *Prior Analytics* that had been hitherto left unexplained."

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1. Marmura, Michael E. 1975. "Ghazali's attitude to the secular sciences and logic." In *Essays on Islamic Philosophy and Science*, edited by Hourani, Albert, 100–111. Albany: State University of New York Press.

   "Religious zealots were prone to condemn such secular, “foreign” sciences [logic, mathematics, and physics] as contrary to Islamic teaching. What if these sciences were demonstrably true? Would not such condemnation result in detriment to religious principle? To what extent, if at all, did each of these sciences have an actual bearing on religion? It is to such questions that Ghazali in his *Tahāfut al-Falāsifa* (*The Incoherence of the Philosophers*) and other related writings addressed himself.

   The criterion Ghazali employed in answering such questions was that of demonstrability. A science whose conclusions are not demonstrably true and which are in conflict with the literal assertions of scripture must be rejected. On the other hand, if what is demonstrably true contradicts the literal sense of scriptural language, then the latter must be interpreted metaphorically. Ghazali shared with the majority of medieval thinkers the rationalist view that God cannot enact what is self-contradictory. The Islamic philosophers’ cardinal metaphysical doctrines, he tried to show in detail, failed to satisfy the conditions of demonstrative proof. Some, he argued, in fact were self-contradictory. Moreover, since these doctrines were not consistent with scriptural language, or its intent, as Ghazali understood it, he condemned many of them as heretical innovations (*bidāᶜ*), some as constituting outright Islamic unbelief (*kufr*).

Unlike metaphysics, Ghazali held mathematics to be demonstrably true. But, he argued, it has no bearing on religious matters, nor, for that matter, is the study of it necessary for understanding metaphysics, contrary to what the philosophers claim.(2)

The two sciences that concern us most are logic and physics. As we shall see, Ghazali insisted that the philosophers' logic is a doctrinally neutral tool of knowledge and can be used to advantage in the defense of religion.(3)" (p. 101)

(2) *Tahāfut al-Falāsifa*, pp. 14-15.

(3) *ibid*. pp. 15-16,

2. ———. 1990. "The Fortuna of the "Posterior Analytics" in the Arabic Middle Ages." In *Knowledge and the Sciences in Medieval Philosophy*. *Vol I*, 85–103. Helsinki: Acta Philosophica Phennica.

   "In terms of the history of the transmission of Greek thought to medieval Islam, the *Posterior Analytics* was a relatively late arrival. A complete Syriac version was made by the Nestorian scholar Ishaq Ibn Hunayn (d. 910) and then, based on this Syriac version, another Nestorian scholar, the logician Abu Bishr Malta (d. 940) made the Arabic translation that has survived. The work became the object of intensive study by the tenth-century Baghdadi school of logicians that included the philosopher Alfarabi (al-Fārābī) (d. 950).(2)

   There are indications, however, that such earlier philosophers as Kindi (al-Kindī) (d. ca. 870) and his student al-Sarakhsī (d. 899) had some knowledge of the work.(3)

   But, properly speaking, the credit for its introduction to the main stream of Arabic philosophy belongs to the school of Baghdadi logicians.

   Its entry into medieval Islam marked a turning point in the development of Arabic philosophy. It provided the conceptual framework within which philosophical and scientific investigations operated. Its precepts became part of the texture of Arabic philosophical discourse, as the world came to be

perceived through the medium of logical connections, expressed in the language of middle terms. Its influence, moreover, went beyond philosophy to reach Islamic speculative theology, *kalām*. Thus, in the eleventh century, as will be indicated more fully, Ghazali (al-Ghazalf) (d. 1111), a leading member of the then dominant school of *kalām*, the Ash^{c}arite, suggested ways for retaining the Aristotelian requirements for demonstration within a non-Aristotelian occasionalist view of the world." (pp. 85-86, notes omitted)

3. Maróth, Miklós. 2003. "Logic and Stylistics." In *Problems in Arabic Philosophy*, edited by Maróth, Miklós, 25–35. Piliscsaba: The Avicenna Institute of Middle Eastern Studies.
4. ———. 2003. "Greek Logic and Arabic Stylistics." In *Problems in Arabic Philosophy*, edited by Maróth, Miklós, 87–107. Piliscsaba: The Avicenna Institute of Middle Eastern Studies.
5. ———. 2010. "Subject and Predicate in Arabic Linguistics and Logic." *Studia Slavica Academiae Scientiarum Hungaricae* no. 55:381–388.
6. Mas, Ruth. 1998. "Qiyās: a Study in Islamic Logic." *Folia Orientalia* no. 34:113–128.

   "We will trace the introduction of the syllogism and the problems posed by its practical application to three thinkers: the philosopher Abū Naṣr al-Fārābī (d. 950), the theologian/jurist Abū Ḥāmid al-Ghazālī (d. 1111), and the Hanbali jurist TaqI ai-Din Ibn Taymiyya (d. 1263). al-Fārābī is considered the first and greatest commentator on Aristotelian logic, a logician in his own right. Because he is instrumental in helping to introduce Aristotelian thought to Islamic literature, his work will proffer a point of departure for our other two thinkers who, themselves, provide the focal points of this discussion.

   Following al-Fārābī, al-Ghazālī recognized the dichotomy existing between logical and onto-logical realms, and attempted to relate Ash'arite theology and jurisprudence to Greek syllogistics without relying too heavily on the notion of causality. The uncomfortable discrepancy that arose in

Ghazālī's thought was unavoidable. Finally, we shall turn to Ibn Taymiyya who is perhaps the most polemical thinker of the three. His astute attack on the Aristotelian syllogism and the metaphysical contents which accompanied it were echoed several centuries later by the Scottish philosopher David Hume (d. 1776), albeit in a different metaphysical context." (pp. 114-115)

7. Mazlum, Farhad, and Azizi, Hassan. 2015. "The Nature of Language: Three Muslim Thinkers′ Perspectives." *The Polish Journal of the Arts and Culture* no. 1:77–89.

   Abstract: "One of the key issues attracting thinkers throughout the history of science was to set and define criteria for studying language – whether that of man or God – and to study its relation to the mind on the one hand and to the external world on the other. The purpose of this paper is to investigate three Muslim thinkers' [Al-Farabi, Fakhr ad-Din ar-Razi, Al-Ghazali] views about the nature and 'whatness' of language by focusing on their works. The rationale to choose these three thinkers is the fact that their views and ideas cover the issues inherent in the purpose of this study extensively. The issues addressed in paper include:

   1. What are the constituent elements of language?

   2. How does it affect mind and thought?

   3. What is its semantic function?

   Our findings indicate that the 'whatness' and nature of language of both God and men are the same. The elements are written and spoken, gestures and entity that serve to communicate meaning. As for the second question, language elements act like signs which evoke meaning and assist communication. As far as the semantic functions of language elements are concerned, when the communication of meaning is undertaken, the truth of *kalam* (speech, word) is different from the 'whatness' of meaning and the *mutakallim* (the one who makes words and speech). As a result of this discrepancy, language communicates something (i.e. meaning) different from the *mutakallim*′s inner world.

Although the constituent elements of language and how they affect mind and thought have been thoroughly investigated in Western philosophy (e.g. Wittgenstein), there has been little attention to such issues in Eastern philosophy. This paper is believed to be one of the few investigations that adopt a new perspective in attempting to provide a definition for language based on three Muslim thinkers′ dialectics and logics. The paper contributes to the field by defining language in a way that all its functions, particularly the religious function – that explains the relation between man and God – are taken into account."

8. Miller, Larry Benjamin. 1989. "A Brief History of the Liar Paradox." In *Of Scholars, Savants, and their Texts: Studies in Philosophy and Religious Thought. Essays in Honor of Arthur Hyman*, edited by Link-Salinger, Ruth, 173–182. Bern: Peter Lang.

   "The liar paradox or antinomy, the statement: "Whal I am saying is false", has occupied the attention of Russell, Wittgenstein, Tarski and many other modern philosophers. As is well-known, it has a long history stretching back to the very beginnings of Western logic.(1) Aristotle, for example, alludes to it in his *Sophistical Refutations,* while other ancient authors associated it with Epimenides of Megara and Eubulides of Miletus, a pupil of Euclid.

   It is less well-known that medieval Islamic scholars wrote highly sophisticated and independent discussions of the liar paradox. Virtually no work at all has been done on the subject, and to make matters worse, none of the major works on the paradox has been published.

   In what follows, I should like to give a brief sketch of the history of the liar paradox in Islamic thought from the tenth through sixteenth centuries highlighting a few important discussions. I should also like to suggest that Islamic philosophers anticipated modern solutions to the paradox.

   The first known reference to the liar paradox in Islamic philosophy appears as early as the tenth century. The Christian philosopher Yaḥyā ibn 'Adi mentions the paradox in a treatise

on sophisms deriving from Aristotle's *Sophistical Refutation*s. (2) But in theology, authors of the ninth century make use of it in religious disputations. A theological polemic of the early tenth century uses the paradox, in an argument propounded by the theologian Ibrahim al-Nazzām (d. 836), to refute Manichaean dualists." (p. 173)

(1) The above formulation comes from Cicero, *Academica*, 2,29 *si te mcntiri dicis idque verum dicis, mentiris an verum dicis?* A similar formulation is found in Alexander of Aphrodisias, CAG, *Comm. in Soph. El*, p. 171, lines 17 ff. Other references are given in Pranll, *Geschichre der Logik* (1955 Reprint of 1855 Edition] 1.50-51 and footnote 83; Bochenski, *A History of Formal Logic*, trans. I. Thomas (South Bend, 1961) pp. 237 ff.

(2) Gerhard Endress, *The works of Yaḥyā ibn 'Adi* [an analytic inventory] (Wiesbaden, [Rickert] 1977) p. 44.

9. ———. 2020. *Islamic Disputation Theory: The Uses & Rules of Argument in Medieval Islam*. Cham (Switzerland): Springer.

"Readers who, in the current volume, are first learning of this work and its author may be surprised to hear Larry Benjamin Miller's doctoral dissertation pronounced one of the more important contributions to Islamic Studies from the latter half of the twentieth century. This itself is a symptom of the considerable disciplinary void occasioned by its not being published—as it most certainly ought to have been—close after its acceptance in October 1984 by the Department of Near Eastern Studies at Princeton University." (*Foreword* by Walter Edward Young. p. VII)

(...)

"Why is this such a seminal work? The reasons are many, and stem from the importance of the field which Miller explores as well as the qualities and insights of his exploration. Though a handful of respected Islamicists had scouted certain shallows and bays of the vast ocean of Islamicate dialectical theory and practice,(1) Miller was the first to sound its depths and sketch its coastlines in systematic fashion. His broad survey (though it was, and remains, impossible to be fully comprehensive),

coupled with his logical analyses, revealed a series of rich and evolving genres of dialogical argument, directing us towards what, in the end, has proven to be a large and influential body of theory traditions cultivated in hundreds of treatises, commentaries, supercommentaries, and glosses." (*Foreword*, pp. VII-VIII)

(1) See Josef van Ess, “Disputationspraxis in der Islamischen Theologie. Eine Vorläufige Skizze,” *Revue des Études Islamiques* 44 (1976): 23–60; idem “The Logical Structure of Islamic Theology,”

in *Logic in Classical Islamic Culture*, ed. G. von Grunebaum (Wiesbaden: Otto Harrassowitz, 1970): 21–50; George Makdisi, *The Rise of Colleges: Institutions of Learning in Islam and the West* (Edinburgh: Edinburgh University Press, 1981); idem “Dialectic and Disputation. The relation between the Texts of Qirqisani and Ibn ʿAqil,” in P. Salmon (ed.): *Mélanges d’islamologie. Volume dédié à la mémoire de Armand Abel,* (Leiden: 1974–78), vol. I, pp. 201–206; Wolfhart Heinrichs, “Gˇadal bei aṭ-Ṭūfī, eine Interpretation seiner Beispielsammlung,” in *Zeitschrift der Deutschen Morgenländischen Gesellschaft*, Supplement III, 1. (Wiesbaden: 1977), pp. 463–473; and G. Vajda, “Etudes sur Qirqisānī V: Les règles de la controverse dialectique,” in *Revue des Etudes Juives* 122 (1963): pp. 7–74.

10. Mlika, Hamdi. 2020. "Perspectives on the Notion of Truth in Arabic Philosophy." *Studia Humana* no. 9:28–39.

    Abstract: " In the present paper, I assume that the notion of “truth” in philosophy would not have been clarified and tackled properly, if philosophers did not take into account earlier Arabic Medieval research contributions and build upon previous research findings. In the first place, I embark on the scrutiny of the rich aspect (or nature) of the Arabic Lexicon in terms of the “truth” meaning.

    In the second place, I take on the assumption that Arabic linguistic traditions imply different kinds of truths, depending on various spheres of human thoughts and actions based on the logical approach to “truth” (from Al-Kindi up to Averroes via

Al-Farabi and Avicenna) and the term “al-haqiqha” as transliterated from Arabic, remain central. In conclusion, I take on an approach to “truth” that gives worth to logical perspectives at the very heart of Medieval Arab traditions in the light of what I would label as the “Omni-cultural Universality of Logic and Science”."

11. Mohaghegh, M., and Izutsu, Toshihiko, eds. 1974. *Collected Texts and Papers on Logic and Language*. Tehran: Tehran University Press.

    Contents: T. Izutsu: Basic Problems of "Abstract Quiddity" 1; I. Madkour: La logique d' Aristotle chez les Motakallemin 29; M. Khānsārī Ghazzali et le *Mi'yar al- 'Ilm* 49; A-Badawi: Un commentaire inconnu sur "l'Organon" d'Aristote 65; M. Paradis: Relativité linguistique et philosophie 85-105.

12. Moqbel, Tareq. 2025. "The Logic of Divine Discourse: Fakhr ad-Dīn ar-Rāzī’s Application of Logic to Qurʾānic Interpretation." In *Logic, Soul, and World: Essays in Arabic Philosophy in Honor of Tony Street*, edited by Ahmed, Asad Q., Zarepour, Mohammad Saleh and Strobino, Riccardo, 271–299. Leiden: Brill.

    "This article proposes to show in what way ar-Rāzī made use in *Mafātīḥ al-Ghayb* of views stated in the works of logic—in other words, how the theory of logic finds its way into his *tafsīr*. On the one hand this article shows us, through ar-Rāzī, what help logic can offer the exegete of the Qurʾān. On the other hand, it offers some hints for assessing the practical implications of ar-Rāzī’s logical project and, by extension, the reach of his philosophic oeuvre. I will proceed by briefly cataloguing the ways by which ar-Rāzī incorporates logic in his *tafsīr*.

    The main part of the article will then illustrate this application by way of concrete cases. I should also add that the aim of this article is not purely to show how logic was *used* in Qurʾānic interpretation, but it also has a forward-looking dimension: by taking ar-Rāzī as a model, it envisions how fresh and contemporary interpretations of the Qurʾān can be modelled

after ar-Rāzī through incorporating logical modes into the interpretation of the Qurʾān. More generally, ar-Rāzī's daring hermeneutical manoeuvres—within the knowledge of his day and age—can inspire readers today to think about novel ways for reading the Qurʾān including, but not limited to, logic." (pp. 271-272)

13. Movahed, Zia. 2010. "De re and de dicto modality in the Islamic traditional logic." *Sophia Perennis* no. 2:5–19.

    Abstract: "In Islamic traditional textbooks modal operators sometimes come before propositions, sometimes before the predicates and sometimes at the end of propositions. This makes the interpretation of modality in each case as *de re* or *de dicto* difficult. Given Ibn Sinā's discussion of and sensitivity to this distinction, in this paper by examining the position of modality in the contradictories and converses of modal categorical propositions as well as their positions in modal syllogisms I will try to find a reasonable answer to this important issue."

14. ———. 2010. "Suhrawardi on Syllogisms." *Sophia Perennis. The Semiannual Journal of Sapiential Wisdom and Philosophy* no. 2:5–18.

    Abstract: "Shihāb al- Dīn al-Suhrawardī (d. 1194), in his most important book, *Hikmat al-Ishrāq*, claims that he has simplified the Aristotelian theory of syllogisms by reducing its many rules to a few by which the validity of all moods can be proven. This is done by reducing all negative and particular categorical propositions to universal affirmative propositions and introducing two meta-language rules, one for the second and the other for the third figure. This is an exposition of the non-modal part of his syllogism and an examination of his claim to simplifying the Aristotelian theory of syllogism."

15. Nasr, Seyyed Hossein. 1978. "Metaphysics, Poetry and Logic in Oriental Traditions." *Sophia Perennis* no. 3:119–128.

    "The definitions given in Oriental civilizations for logic and poetry would be easily understood by Western students of these subjects, well versed in the knowledge of Western culture and

its roots, whether these definitions came from a Nagarjuna on the one hand, or an Ibn Sina (Avicenna) on the other. Logic in Eastern doctrines deals with the laws governing the movement of the human mind in its journey from the known to the unknown, whatever might be the epistemological foundations which make the attainment of logical certitude possible, and whatever differences may exist between let us say Nyaya logic and Aristotelian logic. As for poetry, it deals with human language as molded by the principles of harmony and rhythm, which also govern the cosmos. These two disciplines or activities of the human mind and soul have nearly completely parted ways in the modem West while they have preserved their complementarity and close association in theory and practice wherever the Oriental traditions still survive. There has always been in the Orient a logical aspect to poetry and a poetic aspect to the great expressions of logical thought. Still today, in many Oriental languages, works of a logical nature are studied in a poetic form which facilitates their mastery(2) while there is an innate logic to traditional poetry to the extent that this type of poetry is often used instead of a strictly logical argument, to prove a logical point." (p. 120)

(2) This is particularly evident in Islamic civilization where to this day many scientific disciplines are first taught as poems, for example the *al-Urjūzah fl' l-ṭibb* of lbn Sina in medicine, the *Alfiyyah* of lbn Mālik in grammar and *al-Sharḥ, al-manzūmah* of Ḥajjī Mullā Hādī Sabziwārī in logic and metaphysics.

16. Ndoye, Moussa, and Rahman, Shahid. 2025. Necessity and the Logical Turn in Arabic Debate Theory: Ādāb al-Baḥth Encounters Avicenna's Logic of Causation. *STL - Savoirs, Textes, Langage - Université de Lille*: 1–13.

    Preprint.

    Abstract: "Recent scholarship by Rahman and collaborators, inspired by Suhrawardī's Illuminationism, has undertaken a dialectical expansion of Avicenna's logic, opening new avenues for exploring both its potentials and limitations. This project is particularly significant in light of Avicenna's dismissal of dialectical reasoning within Islamic debate theory (*Risāla fī*

ta ʿaqqub al-mawḍiʿ al-jadalī), revealing what he took to be a tension between the formal rigor of logic and the, according to him, vague features of Islamic debate practice.

This tension becomes most visible in the "logical turn" in *adāb al-baḥth*, where debate theorists drew upon Avicennian modal logic to articulate the principles of legal causation. In this process, Avicenna's syllogistic framework was not merely applied but imaginatively reworked: its elements were woven into systematic structures that both extended and transformed his logic (see Young, 2021a,b,c). The turn thus operates on two levels at once, functioning as both a critique of Avicenna's skepticism toward juridical dialectics and a constructive reconfiguration of his logical legacy.

This paper examines this intersection, with particular attention to how the logical turn in debate theory coincided with efforts to produce a streamlined taxonomy of argumentative moves. This dual movement illuminates the interplay between formal reasoning and rhetorical practice, showing how classical logic was simultaneously preserved, adapted, and creatively reinvented to meet the demands of juridical and scholarly discourse. By tracing these developments, the paper highlights the inventive strategies through which scholars negotiated inherited theoretical structures alongside emerging methods of argumentation, offering a fresh perspective on the enduring and adaptable legacy of Avicennian thought."

(2) Di Vincenzo, S. (2025). "Avicenna on the Forms of Argumentation of the Mutakallimūn: An Analysis of the *Risāla fī ta ʿaqqub al-mawḍiʿ al-jadalī*» Talk at the Workshop *Avicenna and the kalām III: Epistemology and Natural Science*", 5-6 March 2025 | Université Paris Cité, France.

(3) Young, W. E. (2021a). "The Formal Evolution of Islamic Juridical Dialectic: A Brief Glimpse." In *New Developments in Legal Reasoning and Logic: From Ancient Law to Modern Legal Systems*. Ed. by Shahid Rahman, Matthias Armgardt, Hans Christian Nordtveit Kvernenes. Dordrecht; New York; Cham: Springer, 2021, 83-114. Young, W. E. (2021b), "Dialectic

in the Religious Sciences." In. K. Fleet, G. Krämer, D. Matringe, J.Nawas, and E. Rowson (eds), *Encyclopaedia of Islam Three*. Eds. Leiden: Brill. https://referenceworks.brillonline.com/entries/encyclopaedia-of-islam- 3/dialectic-in-the-religious-sciences-COM_27351.
Young, W. E. (2021c),. On the Protocols for Dialectical Inquiry (*Ādāb al-Baḥth*): A Critical Edition and Parallel Translation of the *Sharḥ al-Risāla al-Samarqandiyya* by Quṭb al-Dīn al-Kīlānī (fl. ca. 830/1427), Prefaced by a Critical Edition and Parallel Translation of its Grundtext: *The Risāla fī Ādāb al-Baḥth* by Shams al-Dīn al-Samarqandī (d.722/1322). 2021. Forthcoming.

17. Opwis, Felicitas. 2019. "Syllogistic Logic in Islamic Legal Theory: al-Ghazālī's Arguments for the Certainty of Legal Analogy (*Qiyās*)." In *Philosophy and Jurisprudence in the Islamic World*, edited by Adamson, Peter, 93–99. Berlin: de Gruyter.

"Logic as a science, in particular Aristotelian syllogistic reasoning, has been known among Muslim scholars since at least the early third/ninth century. Most Greek works on logic were translated into Arabic by the end of the third/ninth century. Al-Fārābī (d. 339/950) commented extensively on them (EI2 [*Encyclopaedia of islam*, Second edition], "Manṭiḳ"), and Ibn Sīnā's (d. 428/1037) writings on logic were well-absorbed in Islamic scholarship, not only in philosophy but also in theology (Rescher 1964, 15–18, 29, 40, 46, 51–53). Nevertheless, in jurisprudential writings, Aristotelian syllogistic logic was somewhat of a late-comer, not making itself felt much before the fifth/eleventh century. This is not to say that Islamic law was illogical or irrational nor that Greek logic had no impact on the articulation of legal theory prior to the late fifth/eleventh century. Al-Shāfiʿī's (d. 204/820) discussion of analogy (*qiyās*) was influenced by Aristotle's *Topics* (EI2, "Manṭiḳ"). Yet, by the end of the fourth/tenth century, one finds little use made of logic in legal arguments beyond the conjunctive and disjunctive syllogism (Hallaq 1990, 316–318)." (p. 95)

18. Ouyang, Wen-Chin. 2016. "Literature and Thought: Re-reading al-Tawḥīdī's Transcription of the Debate between Logic and Grammar." In *The Heritage of Arabo-Islamic Learning: Studies Presented to Wadad Kadi*, edited by Pomerantz, Maurice A. and Shahin, Aram A., 444–460. Leiden: Brill.

    "I will focus on one duality associated with al-Tawḥīdī, that he is both *faylasūf al-udabāʾ wa-adīb al-falāsifa*, and a story he tells on the eighth night of *al-Imtāʿ wa-l-muʾānasa* of the debate between Mattā b. Yūnus (d. 328/940) and Abū Saʿīd al-Sīrāfī (d. 368/978) on the "superiority" of Greek logic or Arabic grammar. I begin by showing the way in which the debate recounted in this story has come to be "mythologized" in past and present discourses as an antagonism between Greek philosophy and the Arabic language crystallized in the *munāẓara* between "logic" and "grammar." "Myth" according to Roland Barthes is an old "sign" emptied of its original "historical" context and replanted in a completely new historical context. The significance of the sign is now derived from this new "historical" context.(11) The debate between Mattā and al-Sīrāfī, as transcribed by al-Tawḥīdī, is often extracted as an autonomous, coherent text and interpreted outside the context of *al-Imtā wa-l-muʾānasa*, which is in turn a text, onto which the very same debate, similarly an extract, is grafted. In both cases, in *al-Imtāʿ wa-l-muʾānasa*, and later "texts" (e.g., *Muʿjam al-udabāʾ* by Yāqūt), the same debate is given a new context. For example, while Yāqūt situates this debate as the crown in the jewels of al-Sīrāfī's learnedness, contemporary discourses on medieval Islam structure various moments of the 'tension' between Greek philosophy and Arabic sciences before and after the debate around this seminal event. (12)" (p. 449)

    (11) Roland Barthes, "Myth Today," in *Mythologies*, trans. Anette Lavers (New York: Hill and Wang, 1987), 109–158.

    (12) See, for example, Gerhard Endress, "The Defense of Reason: The Plea for Philosophy in the Religious Community," *Zeitschrift für Geschichte der Arabisch-Islamischen*

Wissenchaften 6 (1990): 1–49. See also, Taha Abderrhamane, “Discussion entre Abū Saʿīd al-Sīrāfī, le grammairien et Mattā b. Yūnus, le philosophe,” *Arabica* 25.3 (1978): 310–323; Gerhard Endress, “The Debate between Grammar and Greek logic,” *Journal for the History of Arabic Sciences* 2.2 (1977): 106–118; and D.S. Margoliouth, “The Discussion between Abū Bishr Mattā b. Yūnus and Abū Saʿīd al-Sīrāfī on the Merits of Logic and Grammar,” *Journal of the Royal Asiatic Society* (1905): 79–129.

19. Owen, A. David K. 2016. "The Poetic Syllogism: Foray into an Inductive Research Proposal." In *Essays in Islamic Philology, History, and Philosophy*, edited by Korangy, Alireza, Thackston, Wheeler M., Mottahedeh, Roy P. and Granara, William, 240–247. Berlin: de Gruyter.

    "This essay on the poetic syllogism (qiyās[-i] shiʿrī) takes as its point of departure two prominent treatments of our topic from the literature on Arabic philosophy.(2)" (p. 240)

    (...)

    "But what is a “poetic syllogism”?(5) The ‘poetic syllogism’ is a tool for (a) the regimentation of statements and (b) the analysis of images and (c) the formalization of inferences as these three occur in rhetorical and poetic speech. The poetic syllogism resembles the theoretical and practical syllogisms, but rarely, if ever, leads to a deductively valid inference. What a ‘poetic syllogism’ is, is intimated by Farabi in his reflections on the analysis of poetic imagery in *Qawānīn al-shiʿr*, the *Ars Rhetorica* commentary, *al-Qawl fī al-tanāsub*, inter alios; and is most explicitly formalized by Ibn Sina in his treatment of *qiyās* (roughly speaking, ‘semi-formal inference’) in the *manṭiq* (logic) section of his magnum opus *al-Shifā*’ (The Healing)." (p. 242)

    (2) Deborah Black, *Logic and Aristotle’s Rhetoric and Poetics in Medieval Arabic philosophy* (Leiden: E. J. Brill, 1990); Aouad, “Le syllogisme poétique selon al-Fārābī: un syllogisme incorrect de la deuxième figure,” in Arabic Sciences and Philosophy 12 (2002), [pp. 185-196].

(5) 5 Black (p. 212) paraphrases an example from Avicenna:

m. So and so is handsome S – M

M. Everything handsome is a moon M – P

Therefore, So and so is a moon S – P.

20. Özturan, Mehmet. 2015. "On Sayyid Sharīf al-Jurjānī's *Risala fī taqsīm al-ʿilm*: Analysis and Critical Edition." *Nazariyat Journal for the History of Islamic Philosophy and Sciences*:95–124.

Abstract: "This research focuses on the previously unpublished treatise by Sayyid Sharīf al-Jurjānī, *Risala fī taqsīm al-ʿilm*. the research is based on comparative evaluation of available manuscipts and is composed of a critical edition of the treatise and its analysis. The treatise is about the division (*taqsīm*) of *taṣawwur* (conception) and *taṣdīq* (assent) as divisions of knowledge. Al-Jurjānī presents views from diferent schools of logic. In the analysis section, I discuss the treatise's philosophical background and show that the aforementioned division is the first step of a chain of propositions on what the goal and methods of logic are focusing on the possibility of learning.

Remaining sections focus on the references in the treatise to various views and summarise them. Finally al-Jurjānī's position in this scene is made explicit through his critical analysis of competing views advocated by these diferent schools.

For al-Jurjānī, division of knowledge can be analysed formally and informally. Formally, the division should be restrictive and informally, it should emphasize methods of logic, that are proof (*ḥujja*) and definition (*taʿrīf*). The article shows that the goal of al-Jurjānī's discussion on the division of knowledge as conception and assent is basically to take the discussion out the context of traditional discussions on quiddity but rather build it on the division formally and the goals of the division informally."

21. ———. 2018. "An Introduction to the Critique of the Theory of Definition in Arabic Logic: Is Complete Definition Circular?" *Nazariyat: Journal for the History of Islamic Philosophy and Sciences*:85–117.

Abstract: "This study focuses on Fakhr al-Dīn al-Rāzī's thesis of the impossibility of giving a complete definition (al-ḥadd al-tāmm) and discusses its impact, the parties to the debate, and especially the positive argument contra al-Rāzī by the Ottoman savant Ṭāşköprīzāde. The negative argument of al-Rāzī postulates that the complete definition is strictly circular, for the totality of parts that makes up the defined object are included in the definition, and the object is identical to the sum of its parts. Therefore, complete definition strictly commits the fallacy of definining a thing by itself. Ṭāşköprīzāde argues against this view by defending the possibility of complete definition. According to him, although in complete definition the defined object and the defining features include the same set of things, the modes of their presentation to the mind are different. Thus, a complete definition becomes circular only if both the content of the defined object and its mode of presentation to the mind are the same. If it can be shown that the contents of the definiendum and definiens have distinct modes of presentation, then the charge of circularity is discarded. In this article, I illustrate the two opposing approaches by distinguishing between form and content, or sense and reference. Both parties take for granted that the contents of the *definiens* and the *definiendum* are the same when it comes to the complete definition. The main point of contention lies in the modes of apprehending the contents. This article analyzes the arguments of two opposing semantic theories particular to the complete definition and shows that the question emerges as a result of the theories of constant form and variable form concerning meaning. In the period between al-Rāzī and Ṭāşköprīzāde, Ṭūsī bolstered the complete definition whereas al-Ījī refuted it. Both Ṭūsī's and al-Ījī's arguments will be discussed, though briefly, in the body of paper as well."

22. Pacheco, Juan Antonio. 2012. "Ibn 'Arabī and Aristotelian Logic." *Ishraq: Islamic Philosophy Yearbook* no. 3:201–219.

    Abstract: "An inquiry into the works of Ibn ʻArabī reveals them to be like a web with indefinite frontiers between reason and faith, because his thought is primarily a thought and it must be linguistic or symbolic in character; that is, it must presuppose communication, and above all, understanding. In the vast and fecund wealth of ideas which was the intellectual background of Ibn ʻArabī, the originality of his rational thought grows from a broad and solid logical foundation as a product of his conviction that rational and mathematical elements must provide proof of spiritual achievements. The aim of this paper is to demonstrate the presence of logic in two of his works, The Book of Alif and Fuṣūṣ al-Ḥikam, as a paradigm of truth values that by means of its evident and rational principles can aid the Sufis' efforts to gain a correct understanding of the Truth."

23. Parildar, Sümeyye. 2017. "Applying gradational ontology to logic: Mullā Ṣadrā on propositions." In *Philosophy and the Intellectual Life in Shi ʿah Islam*, edited by Ahmad, Saiyad Nizamuddin and Rivivi, Sajjad H., 135–157. London: The Shīʿah Institute Press.

24. Porcasi, Germana. 2008. "On the Islamic judicial logic in al-Ghazālī's ʾ*asās al-qiyās*." *Journal of Islamic Philosophy*:68–111.

25. Pournamdar, Amir Hossein. 2017. "Šaḫṣ: Its Origin and Development as a Logical Term." *Studia graeco-arabica* no. 7:277–290.

    Abstract: "Abundantly used as a technical term in the Arabic classical texts of logic and philosophy, the word *šaḫṣ* will be studied in detail as a preamble to a thorough analysis of a turning point which occurred in its meaning, during the Graeco-Arabic translation movement (starting from the 8th century). Through discovering the genuine meaning of *šaḫṣ* in the context of the Arabic language at the time of the emergence of Islam and its following two or three centuries, it will be ascertained that this term, in its common usage in the

intellectual tradition of Islam, i.e. ‘a thing or a person belonging to a species’, has imposed itself upon the non-specialized, ordinary language of the Arabs as the result of the dominance of the logico-philosophical literature. *Šaḫṣ* was never used to serve such a meaning before the transmission of the philosophical works to the Arab world, and it was the attempts of the translators that made this word signifying ‘a specific entity or individual’, in contrast to its real meaning, viz. ‘body’, ‘material appearance’. In the second part, by taking into account one of the oldest extant logical works in the Islamic tradition, i.e. *al-Manṭiq* attributed to Ibn al-Muqafaʿ, it is suggested that this change of meaning could be regarded as a case of Arabic borrowings from Persian."

26. Rahman, Shahid, and Seck, Alioune. 2025. "As-Suhrawardī’s Stance on Modalities and the Logic of Presence." In *Logic, Soul, and World: Essays in Arabic Philosophy in Honor of Tony Street*, edited by Ahmed, Asad Q., Zarepour, Mohammad Saleh and Strobino, Riccardo, 227–270. Leiden: Brill.

    "The objective of this paper is to contribute to a more unified interpretation of as-Suhrawardī’s thought, although the focus is primarily on the development of the elements of his modal logic initiated by Tony Street.(3) In more precise terms, we will do so by examining three crucial points as-Suhrawardī explicitly makes concerning the meaning of modalities. These are:

    (1) Modalities are to be understood as the different ways a predicate temporally relates to its subject.

    (2) Proving that a necessarily contingent relation holds requires relating every presence of the subject term—i.e. every instance of the subject—with a capacity or potentiality (neither necessarily nor impossibly actualised), expressed by the predicate.

    (3) The dependence of presences witnessing the actualisation of the predicate term upon those of the subject term constitutes the foundation of as-Suhrawardī’s logic." (p. 228)

    (3) See Tony Street, “Suhrawardī on Modal Syllogism”. See also Zia Movahed, “Suhrawardī’s Modal Syllogisms,” *Sophia*

Perennis 2, no. 4 (2012): 5–17; who follows the general lines of Street's interpretation—namely the embedding of a *de re ne*cessary or contingent modality in a *de dicto* necessary modality.

27. Rahman, Shahid, and Young, Walter Edward. 2022. "Argumentation and Arabic Philosophy of Language: Introduction." *Methodos. Savoirs et textes* no. 22:1–15.

    "With this in mind, the main objective behind this special volume of *Methodos* was to p rovide a venue for studies of hermeneutics, linguistic analysis, and deductivereasoning in the theory / practice of argumentation relevant to the Arabic philosophy oflanguage, including contributions on:

    1. theories which are geared towards argument (e.g., dialectical justifications and objections, linguistic fallacies, strategies and protocols for engagement on particular issues, etc.);

    2. the dynamic of argument in shaping concepts and theories (e.g., explaining how systematic argument fashioned certain scholars' solutions); and

    3. theories "in action" (e.g., argument analyses of the historical, scholarly dialectic on a certain problem).

28. ———. 2023. "Outside the Logic of Necessity: Deontic Puzzles and 'Breaking' Compound Causal Properties in Islamic Legal Theory and Dialectic." In *Fallacies in the Arabic, Byzantine, Hebrew and Latin Traditions*, edited by Cesalli, Laurent, Gazziero, Leoe, Manekin, Charles, Rahman, Shahid, Street, Tony and Trizio, Michele, 153–185. Turnhout: Brepols.

    Abstract: "This study examines an Islamic dialectical objection called *kasr,* or 'breaking', as treated by the dialecticians and legal theorists Abū Isḥāq al-Shīrāzī (d. 1083 CE) and Abū al-Walīd al-Bājī (d. 1081 CE). *Kasr* has both legitimate and illegitimate applications, and we confront the fallacious modes denounced by our theorists with deontic paradoxes and puzzles falling under the rubric of logical extrapolation fallacy. Our primary claim is that, whereas logical extrapolation produces fallacies or paradoxes by unsafely applying inference rules of standard alethic and/or logical necessity to the deontic realm,

the fallacies generated by illegitimate modes of kasr in Islamic legal theory (wherein logical rules are expressed dialectically) constitute a genuine source for reflecting on what patterns of reasoning should be endorsed for determining causality in legal – and, perhaps, natural – epistemological contexts. Ultimately, this is the first step towards a larger study of kasr, which will compare it with other dialectical objections and treat relevant critical discourses from later Muslim legal theorists and dialecticians."

29. Rahman, Shahid, Zidani, Farid, and Young, Walter Edward. 2022. "Ibn Ḥazm on Heteronomous Imperatives. A Landmark in the History of the Logical Analysis of Norms." In *Agency, Norms, Inquiry, and Artifacts: Essays in Honor of Risto Hilpinen*, edited by McNamara, Paul, Jones, Andrew J. I. and Brown, Mark A., 139–171. Cham (Switzerland): Springer.

    Abstract: "Ibn Ḥazm of Córdoba's (994–1064) defence of logic has lasting consequences for the logic of norms. His book *Facilitating the Understanding of the Rules of Logic and Introduction Thereto, with Common Expressions and Juristic Examples* is a demonstration of how Aristotelian logic may be applied in the religious sciences, especially law. Among other things, he thoroughly investigates deontic notions and their modal counterparts, assuring him a place among the fathers of the logic

    of norms. The basic units of Islamic deontic logic qualify the performance of actions as subject to either reward, or sanction, or neither; and they might therefore be called, indulging in terminological anachronism, heteronomous imperatives.

    With remarkable insight, Ibn Ḥazm pairs these with the natural modalities of necessity, possibility, and impossibility. Employing some features of Martin-Löf's Constructive Type Theory (CTT) to shape the logic of heteronomous imperatives thus emerging from Ibn Ḥazm's insights, the authors formulate a new approach to the logical analysis of deontic categories."

30. Ramon, Rafael. 2010. "The Beginning of Logic in Al-Andalus: Ibn Hazm of Cordoba." *Revista de Hispanismo Filosofico* no.

15:31–42.

Abstract: "The earliest texts of logic began to be known in the Arab world of the Middle East at the late eighth century. However, the development of logic did not occur until the tenth century. This took place with the work of logicians Christians and Muslims. It is not known in what time the logic was introduced in Muslim Spain. It is said that it occurred in the second half of the tenth century. The extant first text is dated at the beginning of the eleventh century. It is the work of Ibn Hazm of Cordoba titled Approximation to the Definition of Logic."

31. Ravitsky, Aviram. 2018. "Yaʿqūb al-Qirqisānī on human intellect, legal inference, and the meaning of the Aristotelian syllogism." *Journal of Jewish Thought and Philosophy* no. 26:149–173.

    Abstract: "In the fourth treatise of his legal-theological work *Kitāb al-Anwār wa-al-Marāqib*, Yaqūb al-Qirqisānī analyzes a criticism of the Aristotelian syllogism and its epistemological foundations. Qirqisānī defends Aristotelian logic by quoting a passage from an unknown commentary on Aristotle in which the Aristotelian theory of syllogism is explicated. This paper focuses on the historical, theological, and philosophical meanings of the criticism of the syllogism in Qirqisānī's discussion and analyzes his interpretation of the syllogism as a source of knowledge that should be applied in the realm of legal reasoning and in the interpretation of biblical law."

32. Rayan, Sobhi. 2010. "Ibn Taymiyya's Criticism of Aristotelian Definition." *American Journal of Islam and Society* no. 27:68–91.

    Abstract: "Aristotle wrote of two "points of definition": one posited in negative and the other in positive terms. The negative formulation argues that concepts can be comprehended only through definition, while the positive point stresses the consequences of definition by focusing on the benefits to the sciences achieved through those "concepts." Ibn Taymiyya criticizes these ideas on the grounds that definition neither necessarily leads to the revelation of the facts and

truths of things and their quiddities, nor does it necessarily help in developing the sciences. We notice that his main criticism is directed at specific metaphysical elements of definition, such as genus, species, differences (differentia/divisions), quiddity, and universality. He argues that these elements are purely mental and do not necessarily correspond to existence.

Ibn Taymiyya differentiates between metaphysics and the concrete physical world for, in his opinion, not all that comes to mind necessarily corresponds to existing objects in the concrete physical world. Therefore, human knowledge should be established on concrete rules subject to experiment. He therefore refutes the logic of quiddity, which depends upon pure intellect, and calls for an experimental logic devoid of metaphysics."

33. ———. 2011. "Ibn Taymiyya's Criticism of the Syllogism." *Der Islam* no. 86:93–121.

Abstract: "The purpose of this study is to examine Ibn Taymiyya's criticism of Aristotelian logic, and to test the arguments he raises against it, as well as the theory he proposes as an alternative.

Ibn Taymiyya tries to prove that Aristotelian logic cannot contribute to knowledge because it is based on metaphysical foundations. He raises arguments that are intended to expose the contradictions of Aristotelian logic. These arguments are based partly on the principles of relativity and skepticism, and partly on empirical presuppositions.

Ibn Taymiyya proposed the use of analogical reasoning (*qiyās al-tamthīl*) which is a type of evaluation and measurement based on the comparison between particulars, or the relations between two similar or dissimilar things. It can be seen that the most important and decisive thing in this relation is the common attribute that links two particular occurrences. Therefore, this inference deals with the relations between things and the causal connections between them. This is expressed in the research method used in the Islamic juridical sciences, which are causal methods, such as: the

coextensiveness and coexclusiveness (*tard wa-ᵉaks*), coextensiveness-cum-coexclusiveness (*dawarān*), and classification and successive elimination (*al-sabr wa l-taqsīm*)."

34. ———. 2012. "Criticism of Ibn Taymiyyah on the Aristotelian Logical Proposition." *Islamic Studies* no. 51:69–87.

    Abstract: "This article deals with Ibn Taymiyyah's criticism of the Aristotelian logical proposition. According to Ibn Taymiyyah, all universal judgments are in fact particular judgments. Therefore, the transition is from the particular to the universal.

    The basis for the axioms of proof is particular and not universal, and is founded upon experience and not on the intellect. This means that a person arrives at the particular proposition before the universal one."

35. ———. 2016. "Translation and Interpretation in Ibn Taymiyya's Logical Definition." *British Journal for the History of Philosophy* no. 19:1047–1065.

    Abstract: "This article deals with the concepts of translation and interpretation in Ibn Taymiyya's Theory of Definition. Translation is replacement of one name by another or of one named object by another, while, Interpretation is replacement of one name by a named object or of a named object by a name. The relationship between the definition and the definiendum is decided by the law of *al-Tard wa al-'Aks* (coextensiveness-cumcoexclusiveness) that looks at objects from all sides and decides the traits of the definiendum. It also aims at deciding the signification of the name and this is also the aim of the definition.

    Since the 'name' is a linguistic matter, the definition is related to the signification of the name and its language."

36. Reçber, Mehmet Sait. 2015. "On al-Ghazālī and Necessary Truths." In *900 Jahre al-Gazālī im Spiegel der islamischen Wissenschaften*, edited by Ucar, Bülent and Griffel, Frank, 117–126. Osnabrück: V&R unipress.

"Al-Ghazālī is well-known for his criticism of the Muslim philosophers (*al-Falāsifa*), predominately due to the mission he sets for himself in *Tahāfut al-falāsifa*." (p. 117)

(...)

"Instead, it will concentrate on the particular subject of necessary truths, which plays a significant role in al-Ghazālī's own philosophical agenda and reveals an essential character of his philosophical and theological thought.

Necessary truths primarily denote the propositions of logic and mathematics that are considered to be true no matter what, as they are analytic or true by definition. They are traditionally considered to be a priori as they are knowable independently of sense-experience. What has caused controversy, however, is the question regarding the ground of necessary truths: what sort of facts are supposed to be responsible for making certain propositions necessarily true? There have been various philosophical approaches on this issue, among the most notable of which are (Platonic) realism and varieties of conventionalism. In any case, the idea that necessary truths cannot conceivably be false has some considerable methodological implications on a system of thought inasmuch as they are not just responsible for its structural properties but also have semantic, metaphysical as well as epistemological implications.! (pp. 117-118)

(...)

"It is well-known that al-Ghazālī attached a great significance to logic. Considering that one's knowledge of logic is a precondition for a person's, so to speak, epistemic reliability, he introduced the study of logic – that is, the logico-inguistic categories and various methods of deductive reasoning – as a preliminary introduction to the study of the other sciences. This is not to mention the books he devoted exclusively to logic. Considering that it is logic that provides the elements of valid reasoning which underlie sound thinking in religious matters, the motivation for such an initiative ought to be appreciated." (pp. 118-119)

37. Rescher, Nicholas. 1962. "Some Arabic Technical Terms of Syllogistic Logic and their Greek Originals." *Journal of the American Oriental Society* no. 82:202–204.

    "We shall be concerned with the meaning in Arabic logical texts of three technical terms of syllogistic logic : *qarīnah* (" connection ") *ǧāimi'ah* (" union "), and *ṣan'ah* (" construction "). None of these words are treated satisfactorily in even the specialized lexicons of philosophical Arabic.(1) Particular interest and importance attaches to the third of these terms." (p. 202)

    (1) M. Horten, *Die Spekulative und Positive Theologie des Islams* (Leipzig, 1912) ; A. M. Goichon, *Lexique de la Langue Philosophique d'Ibn Sinā* (Paris, 1938). Miss Goichon gives an adequate explanation of only the first of our terms: *qarīnah* (p. 303).

38. ———. 1963. "Al-Kindi's Sketch of Aristotle's *Organon*." *The New Scholasticism* no. 37:44–58.

    Reprinted as Chapter 2 in N. Rescher, *Studies in the History of Logic*, Frankfurt: Ontos Verlag 2006, pp. 15-27.

    "In the present discussion, our sole concern will be with al-Kindī as a logician, more accurately as a student of logic. For he was, unlike his successor al-Fārābī, no specialist in logic. His encyclopedic interests embraced all of Greek science and philosophy, and his concern with logic was derivative in nature, resulting almost as a by-product from the fact that logic was not only an integral but even a fundamental branch of Greek philosophico-scientific knowledge. (p. 15 of the reprint)

    (...)

    "It is a matter which cannot but cause regret to students of the history of logic that none of these logical works of al-Kindī's have survived.

    In view of these losses, it is a piece of good fortune that we possess, in Arabic, a treatise by al-Kindī bearing the title "On the quantity of the books of Aristotle and what is needful of them for the attainment of philosophy", the text of which was

published by M. Guidi and R. Walzer in 1940.(5) This treatise contains a sketch, amounting to roughly a third of the whole, of Aristotle's Organon which qualifies as *the oldest extant Arabic logical text*.(6)" (p. 16 of the reprint)

(5) Guidi-Walzer (1940) gives the *editio princips* of our text, together with an Italian translation. The Arabic text is also printed in Abū Rīdah (1950).

(6) This statement requires slight qualification. In two instances the "old" Arabic translations of Aristotelian logical texts—antedating the work of Hunain ibn Ishāq and his associates—have survived: that of *Anal. Pr*. by one "Theodore" and that of *Soph. Elen*. by 'Abd-al-Mashīh ibn Nā'imah al-Himsī. But in these two cases the surviving versions were "modernized" in the school of Hunain. See R. Walzer, "New Light on the Arabic Translations of Aristotle," *Oriens*, vol. 6 (1953), pp. 91-142.

References

Guidi-Walzer (1940). Michelangelo Guidi and Richard Walzer. "Studi su al-Kindī: I. Uno scritto introduttivo allo studio di Aristotele," *Atti della Reale Accademia dei Lincei,* Memorie della classe di scienze morali, storiche e filologiche, ser. 6, VI, fasc. 5 (Rome, 1940) pp. 375-405.

Abū Rīdah (1950-1953). Muhammad 'Abd-al-Hādī abū Rīdah (editor). *Rasā'il al-kindī al-falsafiyyah*. Two vols. (Cairo, 1950; 1953). (A collection of the extant treatises of al-Kindī. Arabic text only.)

39. ———. 1963. "Averroes' Quaesitum on Assertoric (Absolute) Propositions." *Journal of the History of Philosophy* no. 1:80–93.

"Until 1962 only one logical work of Averroes existed in print in the original Arabic(1) this late date, D. M. Dunlop published the Arabic text of the short tract by Averroes on the modality of propositions with which we shall be concerned here.(2)

The text published by Professor Dunlop forms part of a collection of treatises by Averroes which has long been known

to exist in the immensely valuable collection of Arabic manuscripts of the Escorial Library, near Madrid.' The collection is simply entitled *Masā'il* (*Questions*),' faithfully reflected in the rubric of *Quaesita* under which several of these treatises are given in Latin versions in the sixteenth-century editions of *Aristotelis Opera cure Averrois Commentariis*.

The particular treatise published by Prof. Dunlop deals with the problem of the relationship of assertoric propositions to the modalities of possibility and necessity." (p. 80, two note omitted)

(1) Maurice Bouyges, ed., Averroes: *Talkhiç Kitāb al-Maqoulāt* ("Middle Commentary on Aristotle's *Categoriae*") Beyrouth, 1932 (Vol. IV of Bibliotheca Arabica-Sholasticorum, Série Arabe).

(2) M. Dunlop, "Averroes (Ibn Rushd) on the Modality of Propositions," *Islamic Studies* (Journal of the Gentral Institute of Islamic Research, Karachi), Vol. I (1962), 23-34.

40. ———. 1963. "A Tenth-Century Arab-Christian Apologia for Logic." *Islamic Studies* no. 2:1–16.

"The existence of widespread distrust towards Greek science, philosophy, and logic within the three major religious communities upon which Greek learning made its impact in the 6/12th centuries -the Christians,(1) Muslims,(2) and Jews(3)-is a well-known phenomenon.

An entire genre of literature-the *defense raisonnée* of the religious acceptability of philosophical studies-is known to have developed on account of this antagonism. My present concern is with a portion of an almost unexplored sector of this tradition-the *apologia* for logic." (p. 1)

(1) E. Gilson has graphically described the unremitting opposition with which, since the days of Tertullian, some Christian circles combated philosophical speculation in general, and dialectical techniques in particular. *Reason and Revelation in the Middle Ages* (N.Y. 1938), pp. 5-15 (especially pages 6 and 11).

(2) See the classic study of Ignaz Goldziher, "Stellung der Alten Islamischen Orthodoxie zu den Antiken Wissenschaften," *Abhandlungen der Preussischen Akademie der Wissenschaften* (Philosophisch-historische Klasse) Berlin, 1916 (Jahrgary 1915). Already al-Kindi, the first notable Muslim philosopher, included in his treatise on metaphysics a chapter "That religion does not conflict with philosophy" (*fī anna-' l-dīn Iā yata 'āriḍ ma' al-falsafah*). See pp. 82-3 of A.F. al-Ahwani (ed.), *Kitāb al-Kindi fl' l-falsafah al-ūlā*, Cairo 1948.

(3) Cf. Leo Strauss, *Persecution and the Art of Writing* (Glencoe, Ill.) p. 20. Note also his comment that, "As late as 1765 Moses Mendelssohn felt it necessary to apologize for recommending the study of logic, and to show why the prohibition against the reading of extraneous or profane books does not apply to works on logic" (*ibid.*)

41. ———. 1964. *The Development of Arabic Logic*. Pittsburgh: University of Pittsburgh Press.

Contents: Preface 7; Introduction 11; Part I. Survey of Arabic Logic; 1. The First Century of Arabic Logic 15; 2. The First Flowering of Arabic Logic 33; 3. The Century of Avicenna 48; 4. The Century of Averroes 55; 5. The Clash of the Schools 64; 6. The Period of “Reconciliation” and The Age of Schoolmasters 73; Conclusion 82; Part II. Register of Arabic Logicians; Contents [166 names] 87; The Register 93; General Bibliography 256; Index 259-262.

"While much has been written about Arabic medicine, astronomy, mathematics, philosophy, etc., the story of the evolution of logical studies in Islam has never even been attempted, with the result that this important chapter in intellectual history remains almost wholly unopened. Although this terrain cannot yet be mapped with the precision of an aerial photograph, enough materials are now available to make it possible to draw a rough sketch of the area. This limited objective is our aim here.

This book falls into two parts. Part I is devoted to an exposition of the structure of Arabic work in logic, describing its main features, giving generalized accounts of the trends and

tendencies of its development, and attempting to identify major contributions.

Part II gives a register of Arabic logicians, placing each contributor into his context in the tradition, and identifying his personal contribution to the development of Arabic logic.

Much of the discussion will perforce have to be devoted to considering the substantive contents of Arabic logic in general outline, rather than with a view to individual details and to the particular content of specific theories and doctrines. In part, but in part only, is this due to the chosen character of the present work as a general and synoptic survey. To a regrettably large extent it is attributable to the paucity of preparatory investigations of points of detail and the deplorably large mass of yet unexamined manuscript material. At least another generation's worth of work will have to be done before the historian of Arabic logic can traverse his ground with the sure foot needed for the accurate appraisal of specific contributions. A sampling—though one that is admittedly minuscule—of the sort of detailed investigations needed on a vastly increased scale is given in a companion piece to the present work, the writer's *Studies in the History of Arabic Logic* (University of Pittsburgh Press, 1963)." (*Introduction*, p.11)

42. ———. 1964. *Studies in the History of Arabic Logic*. Pittsburgh: University of Pittsburgh Press.

    Contents: Preface 7; Introduction 11; I. Arabic Logic: A Brief Account 13; II. Al-FarabI on Logical Tradition 21; III. Al-Kindi's Sketch of Aristotle's *Organon* 28; IV. Al-FarabI on the Question: Is Existence a Predicate? 39; V. An Interpretation of Aristotle's Doctrine of Future Contingency and Excluded Middle 43; VI. A Tenth-Century Arab-Christian Apologia for Logic 55; VII. The Logic-Chapter of Muhammad ibn Ahmad al-Khwarizml's Encyclopedia, *Keys to the Sciences* 64; VIII. Avicenna on the Logic of "Conditional" Propositions 76; IX. Abu-'l-Salt of Denia on Modal Syllogisms 87; X. Averroes' Quaesitum on Assertoric (Absolute) Propositions 91; Index 107-108.

"Six of these studies have appeared as articles in learned journals. (See the Preface for detailed citations.) Four papers—numbers I, V, VI, and IX—are here published for the first time.

Chapters II -X deal with selected special topics in the history of Arabic logic. The first chapter, presenting a "Brief History" of Arabic logic, is of a different character. Written especially for this volume, this historical survey presents the requisite background for the more specialized studies that follow. Each of the contributors to Arabic logic subsequently dealt with is here put into his proper context in the historical development of the subject. While it is hoped that these studies will provide information useful to the historian of philosophy and the student of the intellectual history of Islam, their author hopes fondly that their perusal will provide an incentive to others to carry further the work which he has here taken in hand and has carried forward, as he knows full well, but very little." (*Introduction*, p. 11)

43. ———. 1967. *Temporal Modalities in Arabic Logic*. Dordrecht: Reidel.

"In the wake of A. N. Prior's book on *Time and Modality*(1) an active interest has sprung up among logicians in the logical theory of chronological propositions generally, and particularly in the relationships that obtain between such propositions and modal concepts. This phenomenon is not surprising, because the issue is one that ramifies widely into various topics of logico-philosophical interest: the theory of tensed discourse, the problem of determinism, and the puzzle of future contingency, among others. The modern discussions have gone forward wholly oblivious to the fact that medieval Arabic logicians had given extensive attention to the development of a theory of temporal modalities, and had developed an extensive and subtle machinery for dealing with problems in this area. The aim of the present monograph is one of "intellectual archeology" - to present the Arabic contributions to this branch of logic in such a way that their linkage with ideas and concepts of present-day interest can be assessed and appreciated." (p. 1)

(1) Oxford, The Clarendon Press, 1957.

44. ———. 1968. *Studies in Arabic Philosophy*. Pittsburgh: University of Pittsburgh Press.

    Contents: Preface V; I. Al-Kindī's Epistle on the concentric structure of the universe 1: II. Al-Kindī's Treatise on Platonic solids 15; III. Yaḥyā ibn'Adi's tratise "On the Four Scientific Questions Regarding the Art of Logic" 38; IV. Avicenna on the logic of questions 48; V. Ibn al Ṣalāh on Aristotle on causation 54; VI. The concept of existence in Arabic logic and philosophy 69; VII. The theory of temporal modalities in Arabic logic and philosophy 81; VIII. Ibn al 'Assāl' discourse on logic 111; IX.Nicholas of Cusa on the Qur'ān 137; X. The impact of Arabci philosophy on the West 147; Index 159-162.

45. ———. 2006. *Studies in the History of Logic*. Frankfurt: Ontos Verlag.

    Table of Contents: Preface; 1. On Aristotle's Apodeictic Syllogisms 1; 2. Al-Kindi's Sketch of Aristotle's *Organon* 15; 3. A Ninth-Century Arabic Logician on: Is Existence A Predicate? 29; 4. Avicenna on the Logic of "Conditional" Propositions 33; 5. Avicenna on the Logic of Questions 47; 6. The Arabic Theory of Temporal Modal Syllogistic 55; 7. Choice Without Preference: The Problem of "Buridan's Ass" 91; 8. Leibniz's Interpretation of his Logical Calculi 141; 9. Russell and Modal Logic 159; 10. Default Reasoning 173; Index of Names 185-190.

46. ———. 2006. "Logic in the Islamic World." In *Encyclopedia of Philosophy. Second Edition*, edited by Borchert, Donald M., 417–420. New York: Thomson Gale.

    Arabic logic, like the rest of medieval Arabic science and philosophy, is entirely Western and has nothing to do with Oriental philosophy. It developed wholly in the wake of the classical Greek tradition as preserved in and transmitted through late Greek Aristotelianism. The present account briefly traces the evolution of Arabic logic from its inception in the late eighth century to its stultification in the sixteenth century, mentioning only the most important trends, figures, and achievements. Information on individual writers can be found in Carl Brockelmann's monumental *Geschichte der arabischen*

Litteratur, cited hereafter as GAL (2 vols.—I, II—Weimar, 1890; Berlin, 1902; 2nd ed., Leiden, 1943–1949; 3 supp. vols.—SI, SII, SIII—Leiden, 1937–1942)." (p. 417)

With an *Addendum* by Tony Street, p. 421.

"For more on everything in the entry, see especially Hans Daiber's *Bibliography of Islamic Philosophy* (1999). Few scholars would now accept that Arabic logic is "entirely Western"; it grew out of Greek texts, but developed differently from both Hellenistic and Latin logic." (p. 421)

References

Brockelmann, Carl. *History of the Arabic Written Tradition*, trans. by Joep Lameer, *Handbook of Oriental Studies*, 5 volumes in 6 tomes,(Leiden: Brill, 2016-19.

Daiber, Hans. *A Bibliography of Islamic Philosophy*. Leiden: Brill, 1999.

47. Rescher, Nicholas, and van der Nat, A. 1974. "The Theory of Modal Syllogistic in Medieval Arabic Philosophy." In *Studies in Modality*, edited by Rescher, Nicholas, Manor, R., vander Nat, A. and Z., Parks., 17–56. Oxford: Blackwell.

"The aim of the present discussion is one of "intellectual archeology" —to present the Arabic contributions to this branch of logic in such a way that their linkage with ideas and concepts of present-day interest can be assessed and appreciated.

The logic of modality was a relative latecomer to the domain of Arabic logic. Only after the time of Abu Bishr Matta ibn Yunus (ca. 870-940), translator of *Posterior Analytics*, did the study of Aristotle's modal syllogistic come to be taken up.(2)" (p. 17)

(...)

"The present essay seeks to present in systematic form the theory of modal temporal syllogistic as it is presented in tracts by two authors, al-Qazwīnī and al-Shirwānī. It goes perhaps without saying, that although we base our discussion in the main upon the treatises of these two authors, the exposition will draw upon a wider range of Arabic logicians, including

such more prominent figures as Avicenna and Averroes. In particular, we shall see that al-Qazwīnī al-Kātibī follows and draws upon Avicenna. Details of this reliance will be obvious at many points to anyone who compares al-Qazwīnī's treatment with the corresponding treatment of Avicenna's *Kitāb al-ishārāt wa-l- tanbīhāt,* which is fortunately accessible to European scholars in an excellent French version: A. M. Goichon (tr.), Ibn Sinā'. *Livre des Directives et Remarques* (Beyrouth and Paris, 1951). al-Qazwīnī's dependence upon Avicenna is strikingly evidenced by the close parallelism in organization, mode of treatment, and substance between the two treaties." (p. 19)

(2) "Al-Farabi on Logical Tradition" in N. Rescher, *Studies in the History of Arabic Logic* (Pittsburgh, 1963), pp. 21-27-

48. Rescher, Nicholas, and van der Nat, Arnold. 1975. "The Arabic Theory of Temporal Modal Syllogistic." In *Essays on Islamic Philosophy and Science*, edited by Hourani, Albert, 189–221. Albany: State University of New York Press.

"Arabic manuscript codex OR 12405 of the British Museum contains a logical treatise entitled *Sharḥ Al-takrmīl fī 'l-manṭiq*, whose author is one Muhammad ibn Fayḍ Allah ibn Muḥammad Amīn al-Shirwānī.

(...)

"Al-Shirwānī's treatise is of some interest because it enables us to confirm and extend in significant ways our information regarding the Arabic theory of temporal modal syllogistic as available from other sources.(4) This paper seeks to present the new light this source affords for our knowledge of Arabic logic. On the information now available it would seem that the theory of temporal modalities represents the most significant addition made by the medieval Arabic logicians to the body of logical material that they received from the Greeks. The entire subject has only begun to be studied in recent years, and until many more texts have been studied and analyzed our conclusions must remain provisional and tentative. Much work remains to be done before our feet can be set on firm ground. But already

at this early juncture a claim can be entered with considerable assurance regarding the value and interest of such further work." (p. 189, a note omitted)

[On this essay see Tony Street, *Rescher on Arabic Logic*, (2008) note 3 p. 309.

49. Rezakhany, Hassan. 2023. "A Forgotten Mereological Paradox." In *Fallacies in the Arabic, Byzantine, Hebrew and Latin Traditions*, edited by Cesalli, Laurent, Gazziero, Leoe, Manekin, Charles, Rahman, Shahid, Street, Tony and Trizio, Michele, 187–207. Turnhout: Brepols.

    Abstract: "From the thirteenth century to the nineteenth, philosophers of the eastern Islamic world (Iraq to India) studied a mereological paradox of great philosophical interest.

    Here are documented many of the important formulations of the paradox, solutions, and objections to those solutions. After the philosophical contributions to the literature are summarized, there follows a section analyzing their merits and shortcomings as well as a section plotting their historical evolution and trajectory. In addition to the article's intrinsic philosophical interest, it is also a touchstone for evaluating historical hypotheses regarding the intellectual decline of the post-classical Islamic world. In the 'Historical Development' section, it is briefly argued that the paradox is functionally equivalent to Russell's. The study ends with an appendix of translations."

50. Rundgren, Frithiof. 2007. "On the Greek Influence on Arabic Grammar." In *The Early Islamic Grammatical Tradition*, edited by Baalbaki, Ramzi, 75–100. Aldershot: Ashgate.

    "Arab tradition generally considers Abu 1-Aswad al-Du'alīī (d. - according to al-Mada'inī - 688 in Basra) to have been the originator of Arabic national grammar.(1)" (p. 75)

    (...)

    "The Arabic language, the language of the Qur'ān, was at first the only tie that bound the different ethnic groups of the rapidly growing empire together. The Arabic language spoken

in 'Iraqi war camps was by no means homogeneous and often deviated considerably from the standards set by ancient poetry and, gradually,(5) the Qur'ān. Moreover, the Qur'ān was considered to be the unattainable paragon of the art of language and had to be recited absolutely correctly. Therefore people had to master the rules established subsequently for the Arabic dialect of the Qur'ān." (p. 76)

(...)

"However that may be, the concept of grammatical errors presupposes an existing understanding of correct speech of the kind that had been found among the Greeks since Antiquity and was now beginning to evolve among the Arabs. Thus it is not too far-fetched to assume that the προσῳδία of Greek philology can in some way be found behind the Arabic term. After all, Arabic philology evolved among the *qurra'* who devoted themselves to the correct recitation of the Qur'ān,. It is safe to assume that these were the circles where *laḥn* first assumed the definitive meaning of 'melody of speech, manner of speech'. According to Mujahid (d. ca. 720) there is a tradition: *wa marra 'Umaru bi-qawmin, yatanāḍalūna fa-laḥana aḥaduhum fa-qāla 'Umaru: su'u l-laḥni aqbaḥu min su'i l-ramyi* (Chester Beatty Collection, MS Arab. 705, ed. P Kahle, The Cairo Geniza,[2] 1959, p. 346). In the phrase *su'u l-laḥni*, *laḥn* probably had the meaning 'manner of speech' in general." (p. 77)

(1) A. Spitaler might possibly prefer the term national-Arabic grammar here, cf. *Orientalistische Literaturzeitung* 63/1968 p. 50ff.

(5) P. Kahle, The Cairo Geniza[2] (1959) p. 141ff.

51. Sabra, Abdelhamid I. 1965. "A twelfth-century defence of the fourth figure of the syllogism." *Journal of the Warburg and Courtauld Institutes*:14–28.

Reprinted in A. I. Sabra, *Optics, Astronomy and Logic: Studies in Arabic Science and Philosophy*, Aldershot: Variorum 1994. (Essay XVI).

"It was widely believed until recently that the fourth figure, omitted by Aristotle in his systematic treatment of the syllogisms, was invented by Galen in the second century a.d. This view is known to have been first circulated in the West through the work of Averroes.(1) It is, however, contradicted by Galen himself in the *Introduction to Logic*, the only complete logical work of his that has survived in Greek. Galen says in this work that there cannot be more than three figures for the categorical syllogisms, adding that he has shown this in his book *On Demonstration*.(2) A new light was thrown on this question when J. Lukasiewicz drew attention to a published Greek scholium which may be taken to explain how the doctrine of four figures came to be attributed to Galen. The unknown scholiast divides categorical syllogisms into simple and compound. In accordance with Aristotle, he divides simple syllogisms consisting of three terms into three figures. Then he continues: 'Galen, however, says in his *Apodeictic* that there are four figures, because he looks at the compound syllogisms consisting of four terms, as he has found many such syllogisms in Plato's dialogues.(3) It would thus appear that someone who misunderstood the relevant passage in Galen's book, or who had simply heard about 'Galen's four figures', assumed that Galen's doctrine applied to simple, not compound syllogisms. (4)

It is known that Galen's *Demonstration* was translated into Arabic in the second half of the ninth century.(...)" (p. 14, a note omitted)

(...)

"It is, therefore, only natural to turn to the Arabic sources for more light on the historical problems connected with the fourth figure. The present article is a first attempt in this direction. It is based on a twelfth-century Arabic work, entitled 'On the fourth figure of the categorical syllogism, which is the figure attributed to Galen'. The author, Najm al-Din Abu-l-Futuh Ahmad ibn Muhammad ibn al-Sari, also known as Ibn al-Salah, was educated at Baghdad where he studied logic, mathematics

and medicine; he later settled in Damascus where he died in a.h. 548 = a.d. 153-54.)(..)" (p. 15)

(....)

"In Part II of this article I shall give a translation of the prologue to Ibn al-Sariì treatise, followed in Part III by a commentary on the translated text. Part IV will be devoted to an analysis of Ibn al-Sari's arguments contained in the bodv of his treatise." (p. 16)

(1) Averroes ascribes the fourth figure to Galen both in his *Expositio media* (Bk. I, Chaps. 8 and 23) and *Epitome* (Ch. i) of the *Prior Analytics;* he does not indicate his source in either place.(...)

(2) Galeni *Jnstitutio Logica* (ed. C. Kalbfleisch), Leipzig, 1896, p. 26; German translation in Jurgen Mau, *Galen: Einführung in die Logik. Kritisch-exegetischer Kommentar mit deutscher Ŭbersetznng,* Berlin, 1960, p. 14 (of the separately bound translation). See William and Martha Kneale, *The Development of Logic*, Oxford, 1962, p. 183.

(3) Jan Lukasiewicz, Aristotle's Syllogistic, 2nd enlarged ed., Oxford, 1957, p. 39. (1st ed., 1951.)

(4) Ibid., pp. 41-42.

52. Sanson, David, and Alwishah, Ahmed. 2016. "Al-Taftāzānī on the Liar Paradox." *Oxford Studies in Medieval Philosophy* no. 4:100–124.

"Saʿad al-Dīn Masūd ibn ʿUmar ibn ʿAbd Allāh al-Taftāzānī (1322–1390) was a Persian polymath who wrote on a wide range of subjects— grammar, logic, theology (*kalām*), jurisprudence (*fiqh*), and literature.

Here we translate and discuss his remarks on the Liar Paradox, in which he (a) presents the first example of a Liar Cycle or Deferred Liar in the tradition, (b) gives the paradox a puzzling name—the fallacy of the "irrational root" (*al-jadhr al-aṣamm*) —which became the standard name for the paradox in the tradition, and (c) suggests a connection between the paradox and what it tells us about the nature of truth and falsehood, and

related puzzles concerning reason and the nature of goodness and badness." (p. 100)

53. Schleifer, Aliah. 1990. "Ibn Khaldun's Theories of Perception, Logic and Knowledge: An Islamic Phenomenology." *Islamic Quarterly* no. 34:225–231.

    "Ibn Khaldūn's theories about perception, logic and knowledge are clearly influenced by Aristotelian thought; however being somewhat eclectic, he adds, synthesizes and arrives at his own perspective. In addition, however novel Ibn Khaldūn's conclusions may be, there is the underlying awareness of the Source of all knowledge: "Knowledge comes only from Allah, the Strong, the Wise."' His philosophy, guided by the Qur'ān and the Sunnah and sparked by his own genius and capacity for speculative thought, sometimes has much in common with Scholastic Realism, and indeed might be classified as Islamic Phenomenology." (p. 225)

    (...)

    "In summary, Ibn Khaldūn presents man as the focal point of the Universe.

    But, man before he reaches the stage of discerning intellect, is simply matter in as much as he is ignorant of all knowledge. Through knowledge, however, he reaches the perfection of his form. It is the discerning intellect, the god given ability to think which enables man to arrange actions in an orderly, logical manner. The experimental intellect represents man's ability to acquire useful knowledge from his fellow men. The speculative intellect is man's ability to perceive existent things, whether present or absent. Thus, with the help of the soul and by Allah's mercy, man may acquire knowledge of a spiritual nature." (p. 230)

54. Schöck, Cornelia. 2016. "Major Issues and Controversies of Arabic Logic: Preface." *Oriens* no. 44:179–180.

    "The project "Major issues and controversies of Arabic logic and philosophy of language," co-funded by the British Arts and Humanities Research Council (ahrc) and the Deutsche Forschungsgemeinschaft (dfg), is an attempt to fill some gaps

in our knowledge regarding fundamental research questions to do with Arabic logic and philosophy of language. Against the twofold background of the late antique commentaries on Aristotle's *Organon* and of the debates on issues pertaining to logic and philosophy of language in the formative period of the Arabic-Muslim sciences, the focal points of the project are:

(a) the relationship of Arabic logic and philosophy of language with Arabic-Muslim theories of science and argumentation theory, including the ultimate reception of Greek-derived theories in Muslim jurisprudence, rhetoric, theology, and

(b) the development of Arabic logic and philosophy of language after Ibn Sīnā (d. 428/1037).

(…)

Over the last five years, a number of papers first presented and discussed at the project workshops at Cambridge have been published in *Oriens*. The papers published in the issues 44.3–4 (2016) of Oriens focus on problems of Arabic logic and on argumentation theory.

55. Schoeck, Cornelia. 2025. "'Subtraction' (*raf*)as Method for Finding First Principles of Demonstrations and for Establishing or Destroying: From Aristotle to al-Fārābī." In *Logic, Soul, and World: Essays in Arabic Philosophy in Honor of Tony Street*, edited by Ahmed, Asad Q., Zarepour, Mohammad Saleh and Strobino, Riccardo, 46–113. Leiden: Brill.

"The method of "subtracting," "taking away," or "removing" (Arab. *raf ʿ*; pass. *irtifā ʿ*) is omni-present in Ibn Sīnā's logic, in particular in the *Topics* (*K. al- Jadal*), the *Isagoge* (*K. al-Madkhal*) and the *Demonstration* (*K. al-Burhān*) of his *Shifā ʾ*, but also in the *Metaphysics* (*al-Ilāhiyyāt*) of his *Shifā ʾ* where he explains the ontological aspect of this method. And in the *Canon of Medicine* (*al-Qānūn fī aṭ-Ṭibb*) he applies this method. I intend to give an overview on how this method works in Aristotle up to al-Fārābī and to explain its philosophical and logical background and its function. I also refer to some influential passages in Alexander of Aphrodisias, Galen, Sextus Empiricus, Proclus, Philoponus, but I disregard influential

testimonies from ancient medicine and from Philodemus.(2). The aim is to provide the background before we should study Ibn Sīnā's theory of 'taking away' and consequence (luzūm), including his semantic theory of the signification of linguistic expressions (*dalālat al-alfāẓ*)." (pp. 46-47)

56. Schoeler, Gregor. 2013. "The 'Poetic Syllogism' Revisited." *Oriens* no. 41:1–26.

    Abstract: "The term 'poetic syllogism' appears in the late antique Greek commentary and scholia literature.

    Arabic philosophers, however, are the first to explain how this kind of syllogism is constructed; al-Fārābī introduces one type and Avicenna adds two more. Each syllogism that follows one of these three types includes among its premises or its conclusion at least one figurative statement. The poetic syllogism plays a key role in Arabic 'philosophical' poetics, which contains an important theory of figurative language.—A treatise on *Poetics* by Ibn ʿTumlūs discusses the relationship between the three types. The present study closely analyses Ibn ʿTumlūs's reasoning. Furthermore, it clarifies previously unexplained or misunderstood terms such as 'poetic statement', 'poetic premise' and 'poetic definition'.

    It finally points to an example for a specific type of sophistical inference Aristotle introduces in his *Sophistical Refutations* which Avicenna and other Arabic philosophers cite as a poetic syllogism. Commentators, perhaps as early as late antiquity, could have taken this type of inference to be the poetic syllogism they failed to find in Aristotle's *Poetics*."

57. Shehaby, Nabil. 1975. "The Influence of Stoic Logic on AI-Jaṣṣāṣ's Legal Theory." In *The Cultural Context of Medieval Learning*, edited by Murdoch, John Emery and Sylla, Edith Dudley, 61–80. Dordrecht: Reidel.

    Discussion, pp. 80-85.

    "My aim in writing this paper was to clarify some of the most obscure, and at the same time crucial, passages in al-Jaṣṣāṣ's *Usūl al-Fiqh*. These passages reveal part of the logical

apparatus that Muslim legal theorists used in building up their systems. In many instances this apparatus reflects a striking resemblance to Stoic views on logic, even though there is no proof that Stoic writings were available to Muslims. Some of this logic was also employed by the *mutakallimūn* (theologians); and it is for this reason that the above reflections may prove to have a wider significance by helping to decipher certain methods used in *kalām*. What I would like to add here is that the Stoic material in al-Jaṣṣāṣ's book does not come from the Aristotelian commentators. As I have shown in my recent *The Propositional Logic of Avicenna,* the Stoic material in Avicenna's treatment of conditional propositions and syllogisms in contrast bears the stamp of the Peripatetic philosophers." (p. 75)

58. Spevack, Aaron. 2010. "Apples and Oranges: The Logic of the Early and Later Arabic Logicians." *Islamic Law and Society*:159–184.

    Abstract: "In a recent article in *Islamic Law and Society*, Khaled El-Rouayheb proposed that opposition to logic was probably never the predominant view of Sunni Muslim scholars.

    El-Rouayheb also expressed doubt in the position of later scholars who argued that there existed two approaches to the study of logic, one whose permissibility was debated, and another whose permissibility was agreed upon. In response to El-Rouayheb,

    Mufti Ali argued in his own article that opposition to logic was the predominant view of Sunni Muslim scholars between the thirteenth and fifteenth centuries. In this article, I argue, pace Ali, that there is merit to the claim that neither opposition to, nor support for, logic achieved predominance, especially between the thirteenth and fifteenth centuries, even if favorable opinions came to be viewed as the soundest position in later centuries. I also argue, pace El-Rouayheb, that there is merit to the proposition that there are two distinct approaches to logic, one that mixes objectionable elements from Greek philosophy, and one that, in varying degrees, may have rid itself of these

elements. Additionally, I argue that the thirteenth through fifteenth centuries may have marked a transitional period during which the two approaches became more distinct, although some jurists who ruled on logic did not always notice, or acknowledge, the distinction."

59. ———. 2022. "Defending Definitions: The Tools of Disputation in Logic of al-Fanārī." *Methodos. Savoirs et textes* no. 22:1–30.

    Abstract: "Al-Abharī's (d.1265) *Isagoge* (*al-Īsāghūjī*) is an introductory primer in logic which has received numerous commentaries, each geared towards students of various levels of familiarity with this instrumental science. Al-Fanārī's (d. 1431) advanced commentary on the Isagoge, called *al-Fawā 'id al-Fanāriyya*, has confounded students of logic for centuries due to its terse and dense style as well as the presumption that the reader knows well the science of disputation along with the subtle interpretive disagreements discussed in other texts and commentaries."

60. Stodolsky, Muhammed Volkan Yildiran. 2023. "What is a Kalima, What is a Definition: The Relationship between Logic and Grammar in theLater Arabic Linguistic Tradition." *The American Society of Islamic Philosophy and Theology Online Journal*:1–31.

    "The purpose of the discipline of *naḥw* (Arabic syntax) has been defined as making one familiar with the endings of the *kalima,* meaning the case endings of nouns and moods of verbs. Hence, defining what a *kalima* is constitutes one of the most fundamental subjects of naḥw. This study will discuss and compare three explicit definitions of *kalima* by al-Zamakhsharī (d. 538/1144), Ibn al-Ḥājib (d. 646/1249), and Ibn Hishām al-Anṣārī (d. 761/1360), in light of ʿAbd al-Raḥmān al-Jāmī's (d. 898/1492) analysis and evaluation of the definitions of al-Zamakhsharī and Ibn al-Ḥājib in his commentary on the latter's al-Kāfiya. The articulation and evaluation of different definitions of *kalima* depend on selecting the criteria through which one definition becomes preferable to another.(2) This article will also study the different criteria Muslim grammarians and logicians have used in their conceptualization

of the best definition in the context of Ibn Hishām's attempt to fully use the criteria of logic in his grammatical

definition of *kalima*." (p. 1, a nte omitted)

(2) For an overview of the concept of definition, see Takashi Yagisawa, "Definition," in *Cambridge Dictionary of Philosophy*, edited by Robert Audi, 2d ed. (NY: Cambridge University Press, 2006).

Ancient Islamic Logic. Selected bibliography of studies in English: Str - Z

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1. Street, Tony. 2000. "Towards a History of Syllogistic after Avicenna: Notes on Rescher's Studies on Arabic Modal Logic." *Journal of Islamic Studies* no. 11:209–228.

   "The main contributions made by Rescher in these studies [on categorical syllogistic] lie, firstly, in recording the syntax of a system whose central features are common to both writers and, secondly, in putting forward a semantics which seems pretty much inferentially equivalent to that system.

   These are substantial contributions, not only to the study of two logicians [al-Qazwīnī al-Katībī (d. 1276) and Muhammad b. Fayd Allāh b. Muhammad Amīn al-Shirwānī (fl. early 15th c.?)] writing after Avicenna, but also to the study of Avicenna himself, providing us with purchase on systems set down as alternatives to the Avicennian.

   Notwithstanding the important contributions these studies make to the analysis of medieval logic, they suffer from a number of shortcomings."

   (...)

   "In my opinion, however, the most serious shortcomings in Rescher's work are the historical conclusions at which he arrives, and his failure to treat the Arabic technical terms. Among his claims regarding the history of logic, Rescher seeks to relate the writings of Qazwīnī and Shirwānī to Avicenna's *Pointers,* and characterizes that relation in ways which are at best distorted, and at worst wrong. The absence of any treatment of the Arabic technical terms for the propositions or operations which are described has meant that the studies have been less useful to Arabists than might otherwise have been the

case. What I seek to do in the following is, firstly, to assemble notes aimed at correcting and nuancing Rescher's historical conclusions, and, secondly, to gather some of the important terms together in an incipient conspectus which may help scholars read both Rescher, and the texts with which he worked." (pp. 211-212)

2. ———. 2004. "Arabic Logic." In *Handbook of the History of Logic, Volume 1: Greek, Indian and Arabic Logic*, edited by Gabbay, Dov M. and Woods, John, 523–596. Amsterdam: Elsevier North-Holland.

   "This chapter limits itself to logical writings in the peripatetic tradition produced in Arabic between 750 and 1350. It is intended to provide a tentative framework for analysis of these logical works by describing aspects of the historical and intellectual context within which they were written. This is done by testing the model put forward in Rescher's *Development of Arabic Logic* against accounts of the syllogistic in a number of authors.

   By about 900, the Organon had been translated into Arabic, and was subject to intensive study. We have texts from that time which come in particular from the Baghdad school of philosophy, a school which at its best proceeded by close textual analysis of the Aristotelian corpus. The school's most famous logician was Alfarabi (d. 950), who wrote a number of introductory treatises on logic as well as commentaries on the books of the *Organon*.

   (...)

   The success and rapid spread of Avicenna's philosophy and logic elicited a strong reaction from establishment theology, whose very intellectual vitality was perceived to be threatened. The clearest and most influential response to Avicenna was given about half a century after his death by Abū Ḥāmid al-Gazālī (d. 1111). A case had been made at least as early as Alfarabi that logic could help Muslim scholars in juristic and theological reasoning.

Gazālī accepted these arguments and went so far as to preface his juridical summa, *The distillation of the principles of jurisprudence,* with a short treatise on logic. Logic continued to face pious opposition after Gazālī but even scholars who were opposed to Greek philosophy in its various manifestations were agreed that, taken as a formal system, logic was unobjectionable.

(...)

By 1350, it is clear that the Avicennan tradition predominated over the Farabian and Averroist traditions throughout the Islamic world, and the systematic problems in Avicenna's formal syllogistic were taken as being settled. By this time, texts were being produced which continued to figure in the syllabus of the *madrasa* down until recent times. For centuries after, advanced logical investigations continued in the Islamic world, but the *madrasa* texts were always the way that Muslim scholars had come to be able to conduct those investigations." (pp. 523-524)

3. ———. 2005. "Logic." In *The Cambridge Companion to Arabic Philosophy*, edited by Peter, Adamson and Taylor, Richard C., 247–265. Cambridge: Cambridge University Press.

"A chapter on logic in an introductory book on Islamic philosophy could legitimately be expected to cover a range of topics, from the argument techniques used by ninth-century theologians and jurists to the semantical analyses of the fourteenth-century grammarians.(1)

But by the late tenth century, the Arabic word commonly translated as “logic,” *manṭiq*, had come to refer almost exclusively to Peripatetic traditions of distinguishing a good from a bad argument, and those are the traditions to which this chapter is limited. This means that the Arabic logical writings examined here are, like their medieval Latin counterparts, concerned with a problematic arising from the Aristotelian texts; more than medieval Latin logic, however, the dominant tradition of Arabic logic is mainly at one remove from those texts, as will be exemplified below.

Even with this limitation, the writings which fall under the chapter's remit stretch from 750 to the present day, covering the whole course of subjects developed in the *Organon*. For practical purposes, I impose the further limitation of referring the material covered back to *al-Risāla al-shamsiyya*, the Logic for Shams al-Dīn by Najm al-Dīn al-Kātibī (d. 1276).(2)" (p. 247)

(1) For information on these interesting topics, see respectively J. van Ess, "The Logical Structure of Islamic Theology," in von Grunebaum [184], 21–50; and B. Weiss, "Ilm al-Wad.': An Introductory Account of a Later Muslim Philological Science," *Arabica* 34 (1987), 339–56.

(2) The whole of the *Shamsiyya* is available in translation, though a new translation is overdue. See A. Sprenger (ed. and trans.), *Bibliotheca Indica: A Collection of Oriental Works,* no. 88: *First Appendix to the Dictionary of Technical Terms used in the Sciences of the Mussulmans, containing the Logic of the Arabians* (Calcutta: 1854); this partial translation is completed in Rescher [178], 39–45. Rescher added to his translation a somewhat faulty analysis of the logic; he corrected it later in his study with A. vander Nat [180].

References

von Grunebaum, G. E. (ed.) [184] *Logic in Classical Islamic Culture* (Wiesbaden: 1970).

Rescher, N. [178] *Temporal Modalities in Arabic Logic* (Dordrecht: 1967).

Rescher, N. and vander Nat, A. [180] "The Theory of Modal Syllogistic in Medieval Arabic Philosophy," in N. Rescher et al. (eds.), *Studies in Modality* (Oxford: 1974), 17–56.

4. ———. 2005. "Faḫraddìn ar-Ràzì's Critique of Avicennan Logic." In *Logik und Theologie. Das Organon im arabischen und im lateinischen Mittelalte*, edited by Perler, Dominik and Rudolph, Ulrich, 99–116. Leiden: Brill.

"This study is a preliminary exploration of certain changes introduced into the modal syllogistic over the two and a half

centuries following Avicenna's death.

(...)

Unsurprisingly – given the title of this paper – the scholar advancing the argument is Faḫraddīn ar-Rāzī (d. 1210). The specific change I focus on here is one which is apparent on comparing the system put forward in the works of Avicenna(2) (d. 1037) with the one put forward in the much-studied *Logic for Śamsaddīn*(3) written by Nag-maddīn al-Kātībī (d. 1276). There are actually a number of differences between the system of Kàtībī and that of Avicenna, but here I concentrate on one relating to syllogisms with *dātī* premises (*dātī* is explained below) and whether or not they are productive with possible minors. This difference creates only a few further differences between the two systems. But Kātībī's decision to differ from Avicenna seems to me to mark deeper changes relative to the perceived role and function of the syllogistic, the cultural significance of Aristotle, and the importance of the theological concerns of the day for logic.

And one argument for the moves Kātībī makes is given by Rāzī.

In the following, I make a few general comments about how we have to go about the study of Rāzī's logic, and then sketch relevant aspects of Avicenna's and Kātībī's systems. I go on to state the argument advanced by Rāzī, and to note some of the differences among the three logicians. I conclude with some points relative to the development of post-Avicennan logic and the possible importance of theological concerns for that development." (pp. 99-100)

"The *dātī* reading is concerned with the things picked out at least once by the subject term as long as they exist as a substance (*mā dāma mawgūda d-dāt*), and by the predicate according to the proposition's modality or temporality.

This is probably best explained by way of example. All sitting may be standing is true as a *dātī* reading; each person who sits can at a later time stand, all other things being equal." (p. 102)

(2) For an outline of the system, with an exposition of all technical terms, assumptions and proofs, see Street (2002).

(3)Kātībī, *Śamsìya*.

5. ———. 2008. "Rescher on Arabic Logic." In *Rescher Studies: A Collection of Essays on the Philosophical Work of Nicholas Rescher*, edited by Almeder, Robert, 309–324. Frankfurt: Ontos Verlag.

"The study of Arabic philosophy has come on by leaps and bounds in recent years, as is clear from a bibliography of the field compiled in 1999 by Hans Daiber.(1) Of course, the work going on at the moment depends in large measure on the great pioneering studies of years ago. Those studies are dutifully and compendiously listed by Daiber, and among them are thirty-five publications by Nicholas Rescher, mainly on Arabic logic. (2)

I do not intend in this paper to go through more than a few of these contributions; indeed, I limit myself to Rescher's overview history of Arabic logic, the D*evelopment of Arabic Logic,* and his series of studies on Arabic modal syllogistic as laid out by Nağmaddīn al-Qazwīnī al-Kātibī (d. 1276; henceforth Kātibī) and Muhammad ibn Faydallāh aš-Širwānī (d. 1707).(3)

In what follows, I direct a number of critical remarks to aspects of these contributions, and it will be helpful if I make clear at the outset the nature of the debt that students of Arabic logic owe to Rescher. None of the current work on Arabic syllogistic would be possible without Rescher's studies.

And even today, no one dares write about Arabic logicians, particularly those after Avicenna, without citing *Development*. With Rescher's work on Arabic logic, in short, we are confronted by one of those rare cases in scholarship where a scholar has single-handedly opened up a field." (p. 309)

(1) Daiber [1999].

(2) Daiber [1999] 1: 776-771.

(3) Khaled El-Rouayheb has shown, in a study yet to be published, that the logical text in British Library codex Or. 12405 is in fact written by an Ottoman scholar Muhammad Sādiq ibn Faydallāh ibn Muhammad Amin ibn Sadraddīn aš-Šīrwānī, 1630-1707, a number of centuries after the time Rescher thought he lived. This means that the text analysed by Rescher in his later studies of Arabic modal logic was written at pretty much the same time as the Port-Royal Logic.

References

Daiber, H., *Bibliography of Islamic Philosophy,* 2 vols. (Leiden: Brill, 1999).

6. ———. 2008. "Suhrawardī on Modal Syllogisms." In *Islamic Thought in the Middle Ages: Studies in Text, Transmission and Translation, in Honour of Hans Daiber*, edited by Akasoy, Anna and Raven, Wim, 163–178. Leiden: Brill.

   "On first encounter, Suhrawardī's modal syllogistic in the *Philosophy of Illumination* looks to be quite different from Avicenna's. Closer inspection, however, reveals that Suhrawardī's system is deeply Avicennan, more so than, for example, the system in Najm al-Dīn al-Kātibī's *Shamsiyya*. In this paper I examine what Suhrawardī achieves by reading all modal propositions as embedded in the phrase 'by necessity' (*bi'l-ḍarūra*), what help it can offer the historian of Arabic logic, and what it means for assessing Suhrawardī's larger philosophical project." (p. 163)

7. ———. 2014. "Afḍal al-Dīn al-Khunājī (d. 1248) on the conversion of modal propositions." *Oriens* no. 42:454–513.

   Abstract: "Afḍal al-Dīn al-Khūnajī (d. 1248) was an Arabic logician working in thirteenth-century Cairo. Responding to the logical writings of both Avicenna and Fakhr al-Dīn al-Rāzī, he produced highly innovative work that set the agenda for the subsequent logical tradition.

   In this study, the chapter on conversion from Khūnajī's magnum opus, *Kashf al-Asrār ʿan Ghawāmiḍ al-Afkār* (*The Disclosure of Secrets as to the Obscurities of Thoughts*), is

translated and provided with a commentary. The chapter serves to highlight, among other things, the way Khūnajī understood a proposition in the essentialist (*ḥaqīqī*) reading."

8. ———. 2016. "Al-ʿAllāma al-Ḥillī (d. 1325) and the Early Reception of Kātibī's *Shamsīya*: Notes towards a Study of the Dynamics of Post-Avicennan Logical Commentary." *Oriens* no. 44:267–300.

   Abstract: "*Al-Risāla al-Shamsīya fī l-qawāʿid al-manṭiqīya* by Najm al-Dīn al-Kātibī (d. 1277) is one of the most widely-read textbooks on logic ever written. Its first readers, however, were less enthusiastic about it than later generations proved to be. In the earliest commentary written on the *Shamsīya*, al-ʿAllāma al-Ḥillī (d. 1325) expressed serious reservations about a number of Kātibī's decisions, decisions which developed ideas first put forward by Fakhr al-Dīn al-Rāzī (d. 1210). In the following article, I examine how the commentary Ḥillī wrote on the *Shamsīya*, *al-Qawāʿid al-jalīya fī sharḥ al-Risāla al-Shamsīya*, fits in with his other works on logic, and how it responds to Kātibī's logical program in general and to the syllogistic in particular. When set against the preceding two centuries of commentary on Avicenna's *Kitāb al-Ishārāt wa-ltanbīhāt*, Ḥillī's response to the *Shamsīya*—and indeed Kātibī's writing of the *Shamsīya* itself—can be seen as seamlessly carrying forward a commentary tradition in which Rāzī and Naṣīr al-Dīn al-Ṭūsī (d. 1274) figure prominently. The first appendix to the article examines the transformation of a lemma in the *Ishārāt* into the corresponding lemma in the *Shamsīya* through 150 years of commentatorial debate; the second appendix presents translations of a number of texts on syllogistic from *al-Qawāʿid aljalīya*."

9. ———. 2017. "Kātibī (d. 1277), Taḥtānī (d. 1365), and the *Shamsiyya*." In *The Oxford Handbook of Islamic Philosophy*, edited by El-Rouahyeb, Khaled and Schmidtke, Sabine, 348–374. New York: Oxford University Press.

   "The *Epistle for Shams al-Dīn on the Rules of Logic*— for short, the *Shamsiyya*— is a remarkable book.(1) It is one of the most

widely read logic texts of all time. Written sometime after 1262 by Najm al-Dīn al-Kātibī (d. 675/ 1277), it attained immediate celebrity that it continues to enjoy down to today. It has been widely taught in madrasas, especially in the arc of Muslim countries running from Egypt through to India. So popular did it become, it effectively replaced the volume on logic in Avicenna's *Pointers and Reminders* (*al-Ishārāt wa-l-tanbīhāt*) (normally read with Naṣīr al-Dīn al-Ṭūsī's *Solution to the Problems of Pointers*);(2) most manuscripts of *Pointers and Solution* copied after 1400 no longer contain the logic section. Ultimately, as we shall see, even specialists in logic began to look on *Shamsiyya* logic as Avicenna's logic." (p. 348)

(...)

"The commentary with which it was most commonly read was written by Quṭb al-Dīn al- Rāzī al-Taḥtānī (d. 766/1365) in 1329, the Redaction of the *Rules of Logic in Commentary on the Epistle for Shams al-Dīn*. The *Redaction* is a classic in itself; indeed, the supercommentaries on it outnumber the commentaries on the *Shamsiyya* (Wisnovsky 2004, 163– 65)." (p. 348)

(...)

"In what follows, I say a few words about Kātibī and his working circumstances; I say even fewer about Taḥtānī. I go on to reflect on the *Shamsiyya*, its structure, contents, and the broader project it forms part of. In the third section I consider two of Kātibī's logical proofs. I then concentrate on a short but significant section of the text (3 of the text's 120 lemmata) to show how immediately preceding discussions led Kātibī to write what we find in the *Shamsiyya*. Throughout, I draw on material from Taḥtānī's commentary to illustrate the nature of that work. In conclusion, I glance at the career of the *Shamsiyya* and its logical doctrine in the centuries after Kātibī's death.

The chapter has two appendices. One is a table of the *Shamsiyya*'s contents. The second is a concordance (table 16.1) to help navigate between the Arabic of the *Shamsiyya*, its

English translation, and my numbering of the lemmata." (p. 349)

(1) Taḥtānī, *Taḥrīr* (1948) contains the text of the *Shamsiyya* I have used; it also contains Taḥtānī's *Redaction*.

(2) Ṭūsī, *Ḥall*; I check this version against MS British Library Or. 10901.

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Street Tony (ed.), *Najm al-Dīn al-Kātibī's al-Risālah al-Shamsiyyah*. An Edition and Translation with Commentary, New Yorkç New York University Press 2024.

Taḥtānī, Muḥammad ibn Muḥammad Quṭb al-Dīn. 1948. *Taḥrīr al-qawā ʿid al-manṭiqīyah fī sharḥ al-risālah al-shamsīyah*. Cairo: Ḥalabī and Sons.

Ṭūsī, Naṣīr al-Dīn. (*Ḥall*) 1971. *Ḥall mushkilāt al-Ishārā*t. Ed. S. Dunya. Cairo: Dār al-Maʿārif.

Wisnovsky, Robert. 2004. The Nature and Scope of Arabic Philosophical Commentary in Postclassical (ca. 1100– 1900 AD) Islamic Intellectual History: Some Preliminary Observations. In *Philosophy, Science and Exegesis in Greek, Arabic and Latin Commentaries*, vol. 2, ed. H. Baltussen, M. W. F. Stone, and P. Adamson. London: Institute of Classical Studies, 149– 91.

10. ———. 2021. "The Reception of *Pointers 1.6* in Thirteenth-Century Logic: On the Expression's Signification of Meaning." In *Philosophy and Language in the Islamic World*, edited by Germann, Nadja and Najafi, Mostafa, 101–128. Berlin: de Gruyter.

"This volume is loosely limited to the period from 800 to 1200.1 I am grateful for the latitude the editors have given me in writing the following paper; many of the texts I consult and quote come from the late thirteenth century. They are, however, all directed to a body of doctrine that was first formulated by Avicenna in the first half of the eleventh century. The thirteenth-century treatment of that doctrine was shaped

by two books written by Fakhr al-Dīn al-Rāzī (d. 1210) in the late twelfth century, books written to question the rigour of many of Avicenna's formulations. The thirteenth-century texts quoted here are, in short, part of a process of reception of a doctrine developed and then challenged through the last two centuries of the period on which the volume focuses. Specifically, the texts are devoted to an account of a fundamental aspect of the philosophy of language, namely, the relation of signification (*dalāla*) between an expression (*lafẓ*) and the meaning (*maʿnan*) or – nearly always – meanings (*maʿānin*) it signifies." (p. 101, a note omitted)

11. ———. 2021. "Abū l-Barakāt al-Baġdādī and the Traditions of Arabic Logic." *Studia graeco-arabica* no. 11:41–66.

    Abstract: "In the anonymous *al-Nukat wa-l-fawāʾid,* a summa of Avicennan philosophy written around 1200, a partisan of Avicenna accuses Faḫr al-Dīn al-Rāzī (d. 1210) of having come under the influence of the reprehensible Leader of the Jews, Abū l-Barakāt al-Baġdādī (d. c. 1165). The reasons for the anonymous author's antipathy toward Abū l-Barakāt relate to the way Avicenna's contribution to logic is both pillaged and pilloried in stretches of *al-Kitāb al-muʿtabar*. The claim that Abū l-Barakāt exercised direct influence over Faḫr al-Dīn is, at least in logic, unlikely to be true. Nonetheless, Abū l-Barakāt's presentation and methods highlight significant changes in the methods of the later traditions of Arabic logic."

12. ———. 2025. "A Thirteenth-Century Debate About Avicenna's Definitions of Differentia." *The Monist* no. 108:306–317.

    Abstract: "Avicenna (d. 1037) gave two different definitions of *differentia*, the first, in the Introduction of the *Cure*, the second, in *Pointers and Reminders*. In the 1230s, Afḍal al-Dīn al-Khūnajī (d. 1248) was spurred to consider the relative superiority of the two definitions by a question posed fifty years earlier by Fakhr al-Dīn al-Rāzī (d. 1210). Khūnajī argued that the *Pointers* definition was superior to that in the *Cure*; his argument turns on criteria used to assess a deduction of the predicables. Toward the end of the thirteenth century, Shams al-Dīn al-Samarqandī (d. 1322) came to the defence of the *Cure*

definition. In his argument against Khūnajī, Samarqandī seems to have relied on claims made in demonstration theory about, first, the hierarchy of the sciences, and second, scientific questions.

I conclude by considering whether Rāzī's theological commitments influence how he approached these logical problems. The material presented in this paper represents a fraction of the contributions made to defining *differentia* and, in consequence, an even smaller fraction of the discussions of universals in thirteenth-century Arabic logic."

13. Strobino, Riccardo, and Thom, Paul. 2016. "The Logic of Modalities." In *The Cambridge Companion to Medieval Logic*, edited by Novaes, Catarina Dutilh and Read, Stephen, 342–369. Cambridge: Cambridge University Press.

    The Arabic Tradition, pp. 343-359.

    "Avicenna (d. 1037) is the most influential logician in the Arabic tradition. His late work *al-Ishārāt wa-t-tanbīhāt (Pointers and Reminders*) became for subsequent generations the canonical text to discuss and refer to, replacing Aristotle both as a textual source and in terms of doctrine, until it was itself supplanted by Kātibī's (d. 1276) *al-Risāla al-Shamsiyya* (*Epistle for Shams al-Dīn*). Many of Avicenna's innovative contributions to the history of logic are related to modalities.

    Even though modal notions are central to other areas of his philosophy, especially metaphysics, we will focus here only on the logic." (p. 343)

    (...)

    "Post- Avicennan Arabic modal logic is still to a large extent uncharted territory: recent groundbreaking work has only started to reveal the enormous wealth of interesting and sophisticated materials it offers, and foundations are in the process of being laid in the form of critical editions, translations and studies.(1) Post-Avicennan logicians depend primarily on Avicenna's exposition of his modal logic in *al-Ishārāt* and focus on problems that are characteristic of it. Among them, the interpretation of the subject term and the

evaluation of syllogisms with possibility minors are the object of special controversy." (p. 348)

14. Stroumsa, Sarah. 2020. "Logic as Interconfessional Weapon in the Early Islamicate World: *Manṭiq, Qiyās, Kalām*." *Journal of Eastern Christian Studies* no. 72:181–201.

    Abstract: "The present paper focuses on the use of logic (including Aristotelian logic) by Arabic-speaking theologians in the formative period of theology in Arabic, especially in polemical settings. It attempts to draw on the evidence regarding a somewhat neglected edge of the monotheistic triangle, namely the Arabic-speaking Jewish theologians in the third/ninth and fourth/tenth century."

    "In studying the logic of *kalām*, van Ess has pointed to its peculiarities, andto the fact that they reflect a non-Aristotelian logical system. For instance, *kalām* texts do not use syllogistic proofs but rather resort to inference from ‘an indicative sign’ (*dalīl*, pl. dalāʾil), which, according to van Ess, translates the Stoic *sēmeion*. At times, the word *burhān*, the Arabic Aristotelian term for apodictic proof, would also be used, with the same non-syllogistic meaning.

    Thus, the presence of smoke is an indicative sign for the existence of fire; the presence of a finely written book is an indicative sign for the existence of a competent scribe. In this and other matters, van Ess pointed to the Stoics as one possible source of inspiration for the logical structure of *kalām*, but we have no idea how the early mutakallimūn could come by this Stoic logic.(22) (p. 188)

    (22) J- Van Ess, ‘The Logical Structure of Islamic Theology’, in *Logic in Classical Islamic Culture*, ed. G. E. von Grunebaum (Wiesbaden, 1970), pp. 21-77, pp. 31-32; See also F. Jadaane, *L’influence du stoïcisme sur la pensée musulmane* (Beirut, 1968), p. 97 and pp. 113-115; G. Freudenthal, ‘Stoic Physics in the Writings of R. Saadya Ga’on Al-Fayyumi and Its Aftermath in Medieval Jewish Mysticism’, *Arabic Sciences and Philosophy*, 6 (1996), pp. 113-136.

15. Taç, Afife Şeyma 2019. "How to Define Definition: An Analysis on the Dispute about the Relation between the *Definiens* and the *Definiendum* in the Post-Avicennan Arabic Logic." *Entelekya Logico-Metaphysical Review* no. 3:5–19.

    Abstract: "As standing at the very heart of the conception (*taṣawwur*), definition is not only the ultimate purpose of conception but also paves the way for the assent (*taṣdīq*). Therefore, it would merely be surprising to find definition sections at right after the principles of conception, namely five universals, and before the first part of assent, viz. the proposition, in the books compiled through the tradition of post-Avicennan Arabic logic. Having begun with identifying what definition is, definition sections proceed with its conditions, types, and the things that violate an ideal definition. This paper focuses on the absolute definition itself by considering it as a *definiendum* and its definition as its *definiens* to analyse whether this definiens satisfies one particular condition set in definition theory, namely the condition that a *definiens* must not be applied to anything other than the *definiendum*. In terms of this specific rule, we encounter with two opposing views on the convenience of the terms implying “necessity” *(istilzām*) utilized when formulating the *definiens* of absolute definition."

16. Tahir, Umar Sheikh Tahir. 2018. "Arabic Grammar and Logic Debates at Medieval ages: a Quest for Muslim Contributions to Philosophical Development." *Al-Habir. Journal of Islamic Studies* no. 2:158–178.

    Abstract: "This paper focuses on historiography of relationship between Logic and Arabic grammar in the Muslim Medieval Ages (a period between 750 and 1100/ 150 and 500 Ah) This sensation appears in the famous debate among many others between grammarians represent by abū Sa'id al-Sairafī and logicians represent by abū Bishr Mattā on Logic and its validity. This incident took place in Baghdad around 932 AD. However, this study singlehandedly samples these debates as the base for the contributions of Islamic philosophers to philosophy of language as well as Epistemology. The question that shapes this

research is: What is the intellectual development for Muslim thinkers to philosophy of language in regards to this debate? The current research addresses the Arabic grammar and logical debates by conducting historiography to emphasize on Islamic philosophers' concerns about this issue. Consequently, this debate generates philosophical phenomena and resolutions in deep-thinking using philosophical mode. In addition, these dialogues create a language impression for Philosophy in Islamic world from the period under study. Thereupon, Islamic philosophers' discourse on this phenomenon serves as contribution to the Philosophy of Language."

17. Talmon, Rafael. 2005. "Ġāya, ṣifa and al-kalām al-wāṣif in Ibn Muqaffaʿ's manual of logic: new considerations about the beginning of Arabic grammar." *Jerusalem Studies in Arabic and Islam* no. 30:506–520.

18. Tekin, Ali. 2018. "On Arabic-Islamic Logic and Philosophy: Some Notes and Interview with Charles E. Butterworth." *Beytulhikme: An International Journal of Philosophy* no. 8:871–884.

    "Prof. Charles E. Butterworth and his predecessors have made important contributions to the classical philosophy with the editions, translations and studies of that philosophical text from a philosophical perspective and commented on them in this purpose. To understand the world and the life philosophically and the history of philosophy we need to study on those classical texts forever. Although we have many important studies in Arabic and Islamic philosophy there are many works that still waiting to be unearthed. Prof. Charles E. Butterworth has many editions and translations as we said above. He has been editing and translating Alfārābī's the *Book of Letters* and Ibn Rushd's all of *Short Commentaries on Logic* and we wait for those studies to read and comment. To learn about him and his experiences and studies we talked with Prof. Charles E. Butterworth about his academic journey and Arabic-Islamic logic and philosophy.

    The interview was done on July 27, 2018, at Georgetown University Lauinger Library, Washington, D. C. We hope this

interview is going to be useful and helpful for those who study on Arabic logic and philosophy." (p. 874)

19. ———. 2024. "Commentary Styles of Peripatetic Islamic Logicians on Aristotle's Definition of Syllogism." *Entelekya Logico-Metaphysical Review* no. 8:27–45.

    Abstract: "Aristotle (d. 322 BC) was the first philosopher in the history of thought to examine all modes and types of belief acquisition such as knowledge, supposition, error and indirectly imagination. In his *Prior Analytics*, which he wrote primarily to clarify his theory of demonstration, Aristotle examined in detail the syllogism, which he saw as the most important form of reasoning, and his analysis was subject to interpretation by different traditions of thought for centuries. Aristotle's *Prior Analytics* was translated into Arabic in the classical period and later interpreted by many Islamic logicians. This article aims to show how Aristotle's definition of the syllogism in the *Prior Analytics* was taken up and interpreted in the Peripatetic Islamic logical tradition. These interpretations of the definition of the syllogism will provide us with an idea about the unique features of the commentaries on the *Prior Analytics* in the Islamic world.

    Here, introductory information about the translation of the *Prior Analytics* into Arabic and its commentators in Arabic will be given, Aristotle's definition of the syllogism and its versions in Peripatetic Islamic logicians will be indicated, and the interpretation of the basic terms in the definition by Peripatetic Islamic logicians will be revealed."

20. Thom, Paul. 2003. *Medieval Modal Systems: Problems and Concepts*. Aldershot: Ashgate.

    Reprint New York: Routledge 2017. Chapter 4: *Avicenna*, 65-80; Chapter 5: *Averröes*, 81-91.

    Chaper 5:

    "Summary.

    Averroes's late investigations into modal syllogistic do not propound an unambiguous theory. Nonetheless, two features of

his thought appear to emerge. First there is his explicit deployment of essentialist notions in an attempt to clarify Aristotle's logic. He distinguishes a *per se* from a *per accidens* sense of modal propositions, making use of the *per se* sense when dealing with the LLL moods. This idea will find a following in thirteenth-century Latin writers, led by Robert Kilwardby. The *per se* in any domain is determined not just by the way things are, but by the way they are described (for example, to deny that the Chancellor *per se* is a member of the Board of Governors is to speak not simply of the human being who is Chancellor but rather of that person under the description 'Chancellor'). A *per se* necessity would therefore be one that depended not just on how things are but on how they are described. Averröes' s use of the notion of *per se* necessity thus stands (along with Avicenna's ampliationist analysis) as an alternative to the Abélardian *de rebus* analysis of modals. It is more successful than the ampliationist approach in that it secures all the Aristotelian modal conversion-principles, not just those for Le- and Mi-propositions.

By virtue of those principles, the pure necessity-moods in Figures 2 and 3, other than Baroco and Bocardo, reduce to the first figure, thus permitting a base consisting of the first-figure LLL moods along with

Baroco and Bocardo LLL.

Second, Averrões thinks that in mixed syllogisms the conclusion expresses a different, and derivative, kind of necessity than does the modal premise. In other words, he sees the syllogism as marking a transition from a central strong sense of necessity to a derivative sense, rather than simply as a logical link between two necessity-propositions mediated by an assertoric. This way of seeing mixed necessity-syllogisms will be taken up in the twentieth century by Ulrich Nortmann, who proposes a 'rule of thumb' according to which, when an equivocal expression occurs in a premise as well as in the conclusion of a syllogism, it should be interpreted in its strong sense in the premise and in its weak sense in the conclusion. (20)" (pp. 90-91)

(20) Nortmann, U. (1996), *Modale Syllogismen, mogliche Welten, Essentialismus: eine Analyse der aristotelischen Modallogik*, Walter de Gruyter, Berlin. p. 126.

21. ———. 2010. "Abharī on the Logic of Conjunctive Terms." *Arabic Sciences and Philosophy* no. 20:105–117.

    Abstract: "The Persian philosopher Aṭīr al-Dīn al-Abharī (d. 1265), in his *Revealing Thoughts*, sketches out several different logics of propositions containing complex terms such as 'writing man'. I will outline his results and the criticisms of them made by Naṣīr al-Dīn al-Tūsī (d. 1274) in his *Setting the Scale* for an Evaluation of "Revealing Thoug*hts",* and I will compare Abharī's various logics of complex terms with modern treatments."

22. ———. 2016. "The Syllogism and Its Transformations." In *The Cambridge Companion to Medieval Logic*, edited by Novaes, Catarina Dutilh and Stephen, Read, 290–315. Cambridge: Cambridge University Press.

    "Every medieval logic compendium, and every medieval commentary on Aristotle's *Analytics*, has something to say about the syllogism.

    While there is a core of standard logical syllogistic theory that is unchanging across the Middle Ages, there are also significant theoretical differences from one author to another. Some of these concern the very definition of the syllogism. Aristotle had crafted the classic definition; but at different times during the Middle Ages, and in different traditions, opinions differed on how much of the Aristotelian definition should be retained, and how the retained clauses should be interpreted. In this chapter, we examine some of the more interesting transformations that the definition of the syllogism underwent in the Arabic and Latin Middle Ages." (p. 290)

    (...)

    "Summary

    The Aristotelian definition of the syllogism, as it was transmitted in Arabic, underwent a number of simplifications

in the later writings of Avicenna, simplifications that were widely, though not universally, adopted in the Arabic tradition. In the Latin tradition, things started a little differently, with a focus on dialectical syllogisms; and the Latins took an interest in redundancy that does not seem to have been prominent among the Arabs. A tendency towards simplification is evident in both traditions. Some of these simplifications had the effect of broadening the class of syllogisms, some providing it with a more elegant definition. In both traditions, interest came to focus on syllogistic theory itself, at the expense of its application to everyday argumentation.

Both traditions were exercised about the question whether *per impossibile* reasoning could be analysed into some combination of ostensive syllogisms. Avicenna's view, highly original though it was, was not universally taken up by later logicians; many preferred to stay closer to what Aristotle had said on the matter.

Both traditions reflected on the question whether there are syllogisms from impossible premises. These reflections led a few logicians in both traditions to semantic insights that to some extent anticipate Smiley's work on the syllogism." (p. 315)

References

Smiley, T. J. 1973. 'What Is a Syllogism?' *Journal of Philosophical Logic* 2: 136– 154.

23. ———. 2016. "Necessity in Avicenna and the Arabic Tradition." In *Logical Modalities from Aristotle to Carnap: The Story of Necessity*, edited by Cresswell, Max, Mares, Edwin and Rini, Adriane, 91–112. Cambridge: Cambridge University Press.

"Introduction

The expression 'Arabic logic' is used by scholars to cover a tradition of writing over a period stretching from the eighth century to the present day. The treatises and handbooks that belong to this tradition were written in various languages, including Arabic, Persian, Turkish, Hebrew, and Urdu. The central figures are Alfarabi (d. 950), Avicenna (d. 1037) and Averroes (d. 1198) (Street 2013a , introduction). Because of

limitations of space, this chapter will omit Alfarabi, discussing only Avicenna and some of the more significant thinkers (including Averroes) whose work is based on, or reacts against, the latter's logical theories." (p. 91)

(...)

"Summary

The Arabic logicians analysed necessity-propositions by considering various sorts of things to which the necessity which these propositions express is relative. The two most important relativities are to the subject-term's underlying essence, and to the description explicitly given by the subject-term.

The post- Avicennian logicians also distinguished those necessity-propositions whose subject is picked out purely extensionally from those where the subject is identified intensionally. Some of the thirteenth-century logicians extended the application of intensional propositions to those having impossible subjects. The distinction between extensional and intensional necessities can be combined with the essential / descriptional distinction.

There is no concept of purely logical necessity among the Arabic logicians surveyed. The necessity of the Necessary Being's existence is ontological. The necessity of essentially necessary propositions like Man is an animal depends on a metaphysical concept of essence. Even the necessity of a descriptionally necessary proposition like 'Whatever walks moves' derives its necessity from the essential necessity 'Walking is a species of movement'." (pp. 110-111)

24. ———. 2016. "On Logics of *genus* and *differentia* in the Aristotelian Tradition." *Documenti e Studi sulla Tradizione Filosofica Medievale* no. 27:131–162.

25. ———. 2019. "Averroes' Logic." In *Interpreting Averroes: Critical Essays*, edited by Adamson, Peter and Di Giovanni, Matteo, 81–95. Cambridge: Cambridge University Press.

"Conclusions

(...)

As an original logician, his account of necessity, while not itself a “statistical” one, nevertheless contains elements that when detached can serve as the foundation of a “statistical” interpretation of the modalities.

His work on the character of the terms in modal predications constitutes an important step in the history of essentialist construals of modality and anticipates the work of Marko Malink.(37) His confrontation with Avicenna on the nature of simple and compound predicates is driven by a refusal to restrict logical theory to the investigation of terms having fixed meanings.

He does not think this is the way Aristotle did logic, and he does not think it is the way logic should be done: in his view, the proper discussion of simple and compound predicates requires a sensitivity to the variability of meanings in different contexts. His critique of Avicenna on necessity raises fundamental questions about the way necessary propositions should be understood. And his view that certain types of proposition have a double aspect, as either necessary or assertoric, exhibits his subtlety as a logician." (p. 95)

(37) See Malink, M. 2013. *Aristotle’s Modal Syllogistic*. Cambridge, MA.

26. ———. 2025. "Al-Kātibī’s Deduction of the Predicables." In *Logic, Soul, and World: Essays in Arabic Philosophy in Honor of Tony Street*, edited by Ahmed, Asad Q., Zarepour, Mohammad Saleh and Strobino, Riccardo, 186–207. Leiden: Brill.

"Introduction

Porphyry’s *Eisagoge* distinguishes five types of concept: genera, species, differentiae, propria and accidents. Scholars have wondered whether this list rests on a rational principle, so that it had to have exactly five members, and those members had to be just as Porphyry describes them. Among the attempts to articulate such a rational basis for the list, the account given by Najm ad-Dīn al-Kātibī is specially interesting." (p. 186)

(…)

"Al-Kātibī's results can be summarized as follows. A multiple-species genus such as body is a quiddity of all its particulars, is a part of a quiddity of all its particulars (e.g., is a part of *animal*), and has particulars belonging to several quiddities (e.g., *human* and *horse*). A single-species genus is distinguished by not belonging to several quiddities. A higher species like *animal* is distinguished from a lowest species by belonging to several quiddities. A higher differentia like *sensate* is distinguished from a lowest differentia by belonging to several quiddities.")p. 203)

27. Thomann, Johannes. 2022. "Logic: Didactics and visual representations." In *Routledge Handbook on the Sciences in Islamicate Societies*, edited by Brentjes, Sonja, Barker, Peter and Brentjes, Rana, 419–435. New York: Routledge.

    "This chapter does not contain a general history of logical literature in the Islamicate world. Excellent surveys of Arabic texts on logic exist (Endreß 1992, 47–57; el-Rouayheb 2011, 2019; Street 2016; Rudolph et al. 2016). Instead, following the aim of this volume, practical aspects of logic are addressed. Some of these aspects have not been studied well or at all. The topics chosen are learning logic, controversies on logic and integration of logic into other scientific disciplines. This chapter consists therefore of a set of examples and unavoidably lacks historical continuity." (p. 419)

    (1) The spelling of this name in German publications is Endreß, in English publications Endress.

    References

    Endreß, G. 1992. “Die wissenschaftliche Literatur,”in Fischer, W., ed. *Grundriß der Arabischen Philologie*, Bd. III: Supplement. Wiesbaden: Reichert Verlag, 3–152.

    el-Rouayheb, K. 2011. “Logic in the Arabic and Islamic World,” in Lagerlund, H., ed. *Encyclopedia of Medieval Philosophy*. Dodrecht: Springer, 686–92.

    el-Rouayheb, K. 2019. *The development of Arabic logic (1200–1800)* (Medieval and Early Modern Philosophy 2). Basel: Schwabe.

el-Rouayheb, K. and Schmidtke, S., eds. 2016. *The Oxford Handbook of Islamic Philosophy*. Oxford: University Press.

Street, T. 2016. “Kātibī (d. 1277), Taḥtānı (d. 1365), and the Shamsiyya,” in el-Rouayheb and Schmidtke, eds., 348–74.

28. Towpek, Yaman, and Salleh, Kamarudin. 2016. "The Objectives and References of *Mi'yar al-'Ilm fi Fann al-Mantiq*." *International Journal of Islamic Thought* no. 9:72–86.

    Abstract: "*Mi'yar al-'Ilm fi Fann al-Mantiq* of al-Ghazali is the first book written specifically on Muslim logic. But the comprehensive and exclusive study on the essence of its scientific contents of the book and its significance in developing scientific thinking has never been done. Thus this study investigates the objectives and referral sources of *Mi'yar* writing. This qualitative study uses content analysis method. The data which were collected using the documentation has been analyzed using the inductive, deductive, and comparative methods. The process of analysis of logic in *Mi'yar* be done using textual analysis or textual content analysis and constant comparison method. It is because of this study is a textual study. This study found that *Mi'yar* written by two objectives. Firstly; to provide an understanding on the methodologies of thinking and researching, and explain the rules of constructing syllogisms and analogies. Secondly; to review the matters which have been written in *Tahafut*. The study also found that al-Ghazali wrote *Mi'yar* based on three books, a book of his own, namely *Maqasid*, and two books of Ibn Sina, namely *al-Isharat* and *al-Risalah fi al-Hudud*. Therefore *Mi'yar* should be a fundamental source of learning logic and methods of thinking of Muslims either at high school or university. Hence the constant and deep study on the content of *Mi'yar* is very significant and has high impact. But the dissemination of the findings of this study is the next action that should be realized."

29. Towpek, Yaman, and Sallen, Kamarudin. 2017. "Analysis on logic in Miʿyār al-ʿIlm fī Fann al-Manṭiq." *Jurnal Hadhari* no. 9:177–191.

Abstract: "*Miʿyār al-ʿIlm fī Fann al-Manṭiq* of al-Ghazālī is the first book on Islamic logic.

But a specific, comprehensive and exclusive study on its essence of the scientific contents and its importance in developing scientific thinking has never been done yet. Therefore, this study investigated qualitatively the background of *Miʿyār* and its contents using content analysis. In this study, the data which were collected using documentation method has been analyzed using the inductive, deductive and comparative methods. The process of analysis on logic in *Miʿyār* also been done using textual analysis method or textual content analysis method. This is because it is textual study. This study found that the theories, methods and thoughts on logic in *Miʿyār* have several similarities and differences with the logic of Aristotle. This study also found that many reforms, improvements, purifications and reconciliations have been made in *Miʿyār* which uplifted the theories on logic in *Miʿyār* as the theories of Islamic logic. In addition, this study found that the examples of logic application in *Miʿyār* are highly relevant to the life of a Muslim. *Miʿyār* should be a basic source of learning on logic and thinking methods of Muslims either in secondary schools or universities. Hence the constant and deep study on the content of *Miʿyār* is very significant and has high impact. But the dissemination of the output of this study is the next action that should be realized."

30. ———. 2017. "The Writing Methodology of Miʿyār al-ʿIlm fī Fann al-Manṭiq." *Journal of Usuluddin* no. 45:123–154.

Abstract: "*Miʿyār al-ʿIlm fī Fann al-Manṭiq* of al-Ghazālī is the first book on Islamic logic. But the specific, comprehensive and exclusive study on the essence of its scientific contents and its significance in developing scientific thinking has never been done. Thus this study investigates the methodology of *Miʿyār* writing. This qualitative study uses content analysis method. The data which were collected using the documentation has been analyzed using the inductive, deductive, and comparative methods. The process of analysis of logic in *Miʿyār* be done using methods of textual analysis or textual content analysis

and constant comparison. It is because of this study is a textual study. This study found that *Miʿyār* written by two objectives. Firstly; to provide an understanding on the methodologies of thinking and researching, and explain the rules of constructing syllogisms and analogies. Secondly; to review the matters which have been written in *Tahāfut*. The study also found that al-Ghazālī wrote *Miʿyār* using at least 18 methodologies of writing. Therefore *Miʿyār* should be a fundamental source of learning logic and methods of thinking of Muslims either at high school or university. Hence the constant, thorough and deep study on the content of *Miʿyār* is very significant and has high impact. But the dissemination of the findings of this study is the next action that should be realized."

31. Troupeau, Géerard. 2007. "The logic of Ibn al-Muqaffaʿ and the origins of Arabic grammar." In *The Early Islamic Grammatical Tradition*, edited by Baalbaki, Ramzi, 27–35. Aldeshot: Ashgate.

    "These observations lead us to assert, once again,13 that there exists no conformity between primitive Arabic grammatical terminology and the terminology of Greek logic; and that, in particular, the division of the discourse into three parts, established by the first Arab grammarians, owes nothing to Aristotelian logic. And, in order to give an idea of the importance of the logic of Ibn al-Muqaffa' for the history of grammatical and philosophical notions, it has been reckoned appropriate to supply non-Arabists with a translation of the first six chapters of his epitome of the *Hermeneutics*." (p. 31)

    (13) Cf. G. Troupeau, *L'origine de la grammaire arabe a la lumière du Kitab de Sibawayhi,* in *Journal of the Jordan Academy of Arabic*, I (1978), p. 125-38 (in Arabic).

32. Türker, Sadık. 2010. "The Probability of Truth of Propositions in the Arabic Logic: Introducing to the Belief Conception of Truth and the Arabic Formalism in Logic." *Elmi Eserler: The Institute of Philosophy, Sociology and Law of Azerbaijan National Academy of Sciences* no. 2:126–141.

Abstract; "This paper examines al-Fārābī's logical thought within its Arabico-Islamic historical background, and attempts at conceptualizing what this background contributes to his logic. After a brief exposition of al-Fārābī's main problems and goals, I shall attempt at reformulating the formal structure of Arabic linguistics (AL) within ontological and formal characteristics where the Arabic logic is built upon. Having discussing the competence of al-Fārābī in the history of the AL, I will propose further three interrelated theses about al-Fārābī's logic those are *logico-linguistic* conception, the *project of logicization*, and *nuclear logic* whereby I will attempt to redefine his logic. The final question that will arise is how Aristotle's logic could be built upon the AL which has a contrary nature to logic. The present paper also contributes examining our traditional research habits in the Arabic studies."

33. Vagelpohl, Uwe. 2010. "The Prior Analytics in the Syriac and Arabic tradition." *Vivarium* no. 48:134–158.

    Abstract: "The reception history of Aristotle's *Prior Analytics* in the Islamic world began even before its ninth-century translation into Arabic. Three generations earlier, Arabic authors already absorbed echoes of the varied and extensive logical teaching tradition of Greek- and Syriac-speaking religious communities in the new Islamic state. Once translated into Arabic, the *Prior Analytics* inspired a rich tradition of logical studies, culminating in the creation of an independent Islamic logical tradition by Ibn Sīnā (d. 1037), Ibn Rušd (d. 1098) and others. This article traces the translation and commentary tradition of the *Prior Analytics* in Syriac and Arabic in the sixth to ninth centuries and sketches its appropriation, revision and, ultimately, transformation by Islamic philosophers between the ninth and eleventh centuries."

34. van Ditmarsch, Hans P. 2008. "Logical Fragments in Ibn Khaldūn's *Muqaddimah*." In *The Unity of Science in the Arabic Tradition: Science, Logic, Epistemology and their Interactions*, edited by Rahman, Shahid, Street, Tony and Tahiri, Hassan, 281–294. Dordrecht: Springer.

Abstract: "In this short contribution we briefly present life and times of Ibn Khaldūn, his magistral accomplishment in the *Muqaddimah*, and present *Muqaddimah* fragments related to logic and epistemology from the perspective of modern modal logic."

35. Versteegh, Cornelis H. M. 1977. *Greek Elements in Arabic Linguistic Thinking*. Leiden: Brill.

    Table of Contents: Preface VII-XI; I. The first contact with Greek grammar 1; II. Articulated sound and its meaning 19; III. The theory of grammatical categories 38; IV. The *usul an-nahw* and Greek empiricist medicine 90; V. The period of the two schools 107; VI. The influence of Greek logic 113; VII. The use of logic in grammar 128; VIII. The Mu'tazila 149; IX. The origin of speech 162; X. The Stoic component in the theory of meaning 178; Diagram of the most important Arabic grammarians 192; List of abbreviated titles 196; Arabic, Greek, Hebrew, Latin authors quoted 205; Originals of the Arabic and Greek texts quoted in English translation 209; Indexes: Personal names 230; Arabic terms 234; Greek terms 238; Latin terms 242; Hebrew and Syriac terms 243.

    "The influence of pure, mostly Peripatetic, Greek logic remained preponderant in the logical works of Arabic philosophers. Many of the ideas and terms of the Aristotelian tradition are found for instance in Gazzāli's works, such as the *Kitāb al-maqṣad al-asnā fī asmā' Allāh al-husnā*, the *Kitāb al-mustasfā*, the *Miyār al-ilm*, and the *Kitāb al-ma'ārif al-aqliyya*. We may also refer to Ibn Hazm's *Kitāb at-taqrib li-ḥadd al-manṭiq* and to the section about logic in Ḥwarizmi's *Mafātiḥ al-'ulūm*. But the most important contribution to our knowledge of Aristotelian logic in the Arabic world comes from Ibn SInā's commentaries and from the works of Fārābī: notably his commentary on the *De Interpretatione,* and the section about logic in his *Iḥṣā al-ulūm*. From these writings Aristotelian logic found its way to grammar, though it never succeeded in replacing completely the earlier influence of the direct contact with Greek grammar.

It should be noted that with the introduction of Greek logic other elements besides the Peripatetic theory were brought to the Arabic world, among them Stoic elements. This applies for instance to Stoic materialism, which had a strong influence on the Mu'tazilite philosopher Nazzam (d. 845/231) and which is also discernible in the theories about the nature of sound. The theory of meaning and the Stoic traces found in it will be discussed below, as well as those Stoic elements which are present in Arabic grammatical theories." (pp. 126-127, notes omitted)

36. Versteegh, Kees. 2000. "Grammar and Logic in the Arabic Grammatical Tradition." In *History of the Language Sciences: An International Handbook on the Evolution of the Study of Language from the Beginnings to the Present. Vol. I*, edited by Auroux, Sylvain, Koerner, E.F.K., Niederehe, Hans-Josef and Versteegh, Kees, 300–306. Berlin: Walter de Gruyter.

    "The [Arab] grammarians were, of course, aware of the fact that there were other languages.

    The point is that they did not regard these languages as worthy of linguistic study. The first Arab grammarian who wrote a complete analysis of the language, Sībawayhi (d. 177/793?), was a Persian, but nowhere in his *Kitāb* does he make any effort to compare the Arabic and the Persian language, and there is no indication at all that he was interested in the analysis of languages other than Arabic.

    At a later period the grammarian Ibn Ginnī (d. 392/1002) mentions in his *Ḥaṣa iṣ* (I, 243) that he asked his teacher al-Fārisī (d. 377/987) and other scholars whose mother tongue was Persian, what they thought about the Persian language: they were unanimous in upholding the superiority of the Arabic language (*lutf al-'arabiyya*).

    This general disinterest in languages other than Arabic remained an essential trait of the entire Arabic grammatical tradition. It was at least partly responsible for the fact that the relationship between speaking and thinking, between language and thought, fell outside the frame of reference of the grammarians.

In the 9th century CE, however, the introduction of Greek logical and philosophical ideas forced them to consider the issue of the relationship between language and thought. During this period logicians, who were influenced by Greek thought, claimed that thought processes were universal, but that the linguistic expression of these processes was accidental.

This claim forced the grammarians to deal with problems they had until then ignored." (p. 300)

37. Vural, Mehmet 2010. "Classic Logic of Al-Ghazali Methodology." *Journal of Islamic Research* no. 3:143–148.

"In the Islamic thought, it was al-Ghazalī who for the first time tried to reconcile the logic of Aristotle with the religious sciences. He demonstrated his understanding of logic especially in his works *Maqasid al-falaslfa* (*The Aims of Philosophers*), *Miyar al-ilm* (*Criterion of Knowledge*) and *Mihak al-nazar* (*Touchstone of Reasoning*) as well in *al-Qistas al-mustaqim* (*The Correct Balance*), which he wrote during his solitary life. Later on, following this period of solitary life, besides focusing on Sufi experience, he did not ignore the science of logic. The importance he stressed on logic is quite obvious in his work *al-Mustasfa min 'ilm al-usu!* (*The Clarified in Legal Theory*), so that it was al-GhazalI, who in the Islamic thought for the first time had suggested Aristotelian logic as a method for religious sciences beyond philosophical sciences, e.g. for Kalam, Fiqh or even Sufism.(3)" (pp 143-144)

(3) Ibn Taymiyyah, *Radd 'ala al-Mantiqiyyeen* (*a Refutation of the Philosopher*), Lahore: 1976, p. 14.

38. Walbridge, John. 2000. "Logic in the Islamic Intellectual Tradition: The Recent Centuries." *Islamic Studies* no. 39:55–75.

"In what follows I will be attempting a preliminary exploration of this tradition of logic, which I will call the "school logic". I suspect that my treatment will appear to some readers as encyclopaedic, but I hasten to assure them that there is virtually no scholarly study of this period of Islamic logic. Histories of philosophy or logic oriented towards the European

tradition - Kneale and Kneale or Dumitriu, for example - have nothing to say about later Islamic logic because they are working mainly from the Latin sources, and no Arabic logical works after Averroes were translated into Latin in the Middle Ages.(3) The historians of Islamic logic, repelled by the mass of unreadable commentaries and supercommentaries, dismiss the period - the last half to two-thirds of the history of Islamic logic! - as a period of stagnation.(4)

That judgment is probably warranted in part, although no one has yet seen fit to demonstrate it, but it misses two points: first, the sociological question of why this kind of logic was taught for so long, and the intellectual question of where we should draw the boundary lines of Islamic logic." (p. 57)

(3) W. C. & M. Kneale. The Development of Logic (Oxford: Oxford University Press, 1962), 189, 229; Anton Dumitriu, *History of Logic* {New Delhi: Heritage Publishers, 1991), 2: 19-36.

(4) This is the view of Nicholas Rescher, *The Development of Arabic Logic* (Pittsburgh: University of Pittsburgh Press, 1964), 73-75, 80-82, whose account of Islamic logic stops with the fifteenth century; of R. Arnaldez, *The Encyclopaedia of Islam*, 2nd. ed.; s. v. "Mantiq", whose account goes up to al-Ghazali (d. 505/1111), and Shams lnati, "Logic", in Seyyed Hossein Nasr and Oliver Leaman, eds., *History of Islamic Philosophy* (Routledge History of World Philosophies I: l; London: Routledge, 1996), 2: 802-23, whose account stops with Avicenna, 950 years ago.

Rescher's work is mainly a catalogue of the major Islamic logicians through about 1500 but is nonetheless the only attempt to write a book-length history of Islamic logic. I wish I could say that it was outdated, but I do not know of any work that attpts to supercede it. Rescher also wrote or co-authored a number of other articles and monographs of various aspects of Islamic logic, especially modal logic. Most recent research on Islamic logic has been devoted either to editions, translations, or explications of particular texts, almost all earlier than the period I discuss here, or to the discussion of particular

problems. In Arabic there are two works worth of notice. 'Alī Sāmi al-Nashshār, *Manāhij al-Bahth 'inda Mufakkirī al-Islam wa Iktishāf al-Minhāl al- 'Ilo fl 'l-'Alam al-Islami* [*Research methods of the thinkers of Islam and an investigation of a scientific method in the Islamic world*], 2nd ed. (Cairo Dar al-Ma'arif, 1965), discusses the whole question of research methodology in the mature Islamic sciences, dealing with both logic proper and the applied logic of such disciplines of law, theology, and rhetoric. 'Alī Kāshif al-Ghiṭā, *Naqd al-Arā' al-Manṭiqiyyah wa Hall Mushkilātihā* [*Critique of logical opinions and resolution of their difficulties*) {Najaf: al-Nu'man, several printings) is a survey of the disputed points in the school logic, an essential reference for anyone studying the subject, and is a sort of complement to Muḥammad-Ridā al-Muzaffar, *al-Manṭiq* (Baghdad: al-Tafayyuḍ, 1367 /1948, and several times reprinted in Najaf, Qom, and Beirut), which has been for some decades the standard textbook for students studying logic in the Shi'ite seminaries in Iraq and which is apparently also used in Iran.

39. ———. 2003. "A Nineteenth-Century Indo-Islamic Logic Textbook." *Islamic Studies* no. 42:687–693.

"Among the lesser treasures of the Punjab University Library in Lahore, Pakistan, is a book with the unassuming title *Majmū'ah-yi Manṭiq*, "anthology on logic", a lithograph published in Ramaḍān 1293/October 1876 at the printing house of the distinguished Hindu publisher Munshi Naval Kishore in Lucknow, then in British India. It is not a very big book - iv+ 142 pp., 6 x 9.5 inches - but its title page lists thirteen logical texts.(2) The absence of dots on the final *h* of *majmu 'ah* in the title tells us that the title is Persian, even though most of the texts are in Arabic. Such a document raises a number of questions. Who compiled it and why? What are the texts of which it is composed? How are they interrelated? Why were they selected in place of other texts? Who were the readers, and what did they use this book for? One might further ask: what is the place of the teachings of these texts in the history of the development of Islamic logic, but neither I - nor, I think, anyone else at present - knows enough about the development

of Islamic logic in the later period to comment intelligently on the doctrinal significance of these texts." (p. 687, a note omitted)

(2) The book is to be found in the University Library under the call number Ar. h. II 69 .

40. ———. 2011. *God and Logic in Islam: The Caliphate of Reason*. Cambridge: Cambridge University Press.

Chapter 6: *Where Is Islamic Logic? The Triumph of Scholastic Rationalism in Islamic Education* 107; Chapter 7: *The Long Afternoon of Islamic Logic* 121; Chapter 8: *The Institutionalization of Disagreement* 142-153.

Abstract: "This book investigates the central role of reason in Islamic intellectual life.

Despite widespread characterization of Islam as a system of belief based onlyon revelation, John Walbridge argues that rational methods, not fundamentalism, have characterized Islamic law, philosophy, theology, and education since the medieval period. His research demonstrates that this medieval Islamic rational tradition was opposed by both modernists and fundamentalists, resulting in a general collapse of traditional Islamic intellectual life and its replacement by more modern but far shallower forms of thought.

The resources of this Islamic scholarly current, however, remain an integral part of the Islamic intellectual tradition and will prove vital to its revival. The future of Islam, Walbridge argues, will be marked by a return to rationalism."

"So perhaps *manṭiq* is not the whole of Islamic logic but rather the name of a particular tradition of Islamic logic, and the indigenous traditions of Islamic thought might supply other logics. Where, then, would we find these other logics? I think that there are four plausible major candidates:

1) Arabic grammar;

2) Arabic rhetoric;

3) *Uṣūl al-fiqh*, the science of the principles of the deduction of Islamic law; and

4) *Kalām*, Islamic dogmatic theology.

That these traditions might be linked, especially in the postclassical period, is shown by the fact that the authors of the standard texts in each of these fields usually also wrote on the others. For example, the great writer of textbooks al-Sharīf al-Jurjānī (1339–1413), who would be classed as a *faqīh,* a scholar of religious law, wrote original works, glosses, or commentaries on popular works of Qurān commentary, hadith, Arabic grammar and rhetoric, logic, philosophy, Kalām theology, Islamic law, disputation theory, and astronomy, among other subjects. Two of his elementary textbooks on logic in Persian were still in use in India in the nineteenth century. There were many others like him, and in later centuries it would be unusual for a major religious scholar not to have also written on the rational sciences." (p. 110)

41. Whittingham, Martin. 2015. "Al-Ghazālī on Syllogistic Logic as a Source of Certainty about the Qurʾān." In *900 Jahre al-Gazālī im Spiegel der islamischen Wissenschaften*, edited by Ucar, Bülent and Griffel, Frank, 127–138. Osnabrück: V&R unipress.

"This study explores a question of key concern to all reflective Muslims – and indeed to reflective believers of any faith. How can a believer be sure about the basis of their faith? Al-Ghazālī is well known for his account of doubt and certainty in his spiritual autobiography, *Al-Munqidh min al-ḍalāl*,(1) but this focuses on the subjective and experiential certainty which al-Ghazālī contends is available to the believer. The aim here is somewhat different, namely to explore al-Ghazālī's views on three ways in which the Qurʾān itself yields certainty.

Al-Ghazālī addresses the issue of the Qurʾān and certainty in a number of ways which draw on the use of syllogistic logic. In *Prior Analytics,* Aristotle defines the syllogism as "a discourse in which, certain things being stated, something other than what is stated follows of necessity from their being so."(2)

Rather than offer a full technical exposition of the syllogism, it is sufficient for this enquiry to note that the syllogism contains three propositions, the third of which should follow as a conclusion if the first two are true. For example, All scholars are intelligent / Professor X is a scholar / Therefore Professor X is intelligent." (p. 127)

(1) Al-Ghazālī, *Al-Munqidh min al-ḍalāl*, ed. Farid Jabre, Beirut 1959; English translation in Richard J. McCarthy, *Freedom and Fulfillment*, Boston 1980, pp. 61–114.

(2) Aristotle, *Prior Analytics*, in: *The Complete Works of Aristotle: The Revised Oxford Translation*, ed. Jonathan Barnes, Princeton 1984, p. 40 (24b 18–20)

42. Widigdo, Mohammad Syifa Amin. 2018. "Aristotelian Dialectic, Medieval *Jadal*, and Medieval Scholastic Disputation." *The American Journal of Islamic Social Sciences* no. 35:1–24.

Abstract: "This article argues that medieval Christian and Muslim scholarship employed Greek dialectic to differing purposes. Greek dialectic aims to defeat an opponent by exposing logical contradictions; Christian scholarship claims to use the dialectic to search for the truth in a pedagogical setting; and Muslim scholarship employs it to arrive at the truth with a degree of certainty. As a result, this article further argues, Greek dialectic in Christian and Muslim contexts undergoes some modifications. In the Christian context, dialectic serves a didactical purpose, which is to find the truth that resides in the mind of the teacher. In the Islamic context, Greek dialectic is employed to find epistemological (qaṭ͑ī) or psychological (ghalabat al-ẓann) certainty in religious knowledge."

43. Wisnovsky, Robert. 2009. "Arabic Logicians on Perfect and Imperfect Syllogisms: A Supplement to Patzig's 'Historical Excursus." In *Avicenna and His Legacy: A Golden Age of Science and Philosophy*, edited by Langermann, Y. Tzvi, 257–273. Turnhout: Brepols.

"In his influential monograph *Die aristotelische Syllogistik*, Günther Patzig claimed that 'up to now' — that is, in the over two thousand years between Aristotle and Patzig — the nature

of Aristotle's distinction between perfect and imperfect syllogisms 'has not been properly understood'.(1) In one powerfully argued chapter of the book, Patzig introduced Aristotle's distinction as well as the problems that arose from it; surveyed and picked apart previous explanations of the distinction — from the ancient and late antique Greek and medieval Latin commentators, as well as from nineteenth-century European historians of logic — and also proposed his own alternative explanation; and finally concluded that Aristotle's distinction, when understood along the lines that Patzig proposed, turns out in the end to be logically unjustifiable. My aim in this paper is to supplement Patzig's survey of previous interpretations of how perfect and imperfect syllogisms differed one from the other, by taking into account how a representative sample of Arabic thinkers dealt with the distinction. I shall begin, like Patzig, by summarizing what Aristotle has to say about it. I shall then turn to three confusions that arise from the distinction, and survey the reactions and attempted solutions of subsequent thinkers from the late antique Greek exegetical tradition, as well as from the Arabic philosophical tradition that was its direct heir. Finally, I shall return to Aristotle and suggest that there is a potentially crucial element in this discussion that might have informed the commentators' views and which modern scholars, including Patzig, seem to have ignored: Aristotle's discussion of *to teleion* (the perfect or complete) in *Metaphysics,* V.16." (pp. 257-258)

(1) Günther Patzig, *Die aristotelische Syllogistik* (Göttingen, 1959; repr. 1963). Here I am quoting from Jonathan Barnes's translation, *Aristotle's Theory of the Syllogism: A Logico-Philological Study of Book 'A' of the 'Prior Analytics'* (Dordrecht, 1968), p. 43. All translations are my own unless otherwise noted.

44. Young, Walter Edward. 2016. "*Mulāzama* in Action in the Early *Ādāb al-Baḥth*." *Oriens* no. 44:332–385.

Abstract: "By presenting and analyzing an early *ādāb al-baḥth* commentary's illustrative dialectical sequences, the current study: (1) reveals a set of distinct strategies employed in *mulāzam*a justification; (2) sheds light on a number of

additional argument types in regular use; and (3) provides a scripted impression of how a disputation governed by the *ādāb al-baḥth* would, in practice, have sounded. These general patterns, impressions, and particular argument identifications, together with those of future microstudies, may, it is hoped, inform the analytical foundation for both exploring the *ādāb al-baḥth*'s argumentative genealogy, and assessing its formative influence in "postclassical" Islamic rational disciplines."

45. ———. 2017. *The Dialectical Forge: Juridical Disputation and the Evolution of Islamic Law*. Chm (witzerland): Springer.

"The primary title of this monograph is "The Dialectical Forge," and its individual terms provide a suitable launching point for discussing the current project as a whole. As for the first, the most common Arabic terms for "dialectic" are *jadal* and *munāẓara*, both denoting formal disputation between scholars in a given domain, with regard to a specific thesis. When one encounters the term "dialectical" in the present work, one should think foremost of procedure-guided debate and the logic inherent to this species of discourse. A dialectical confrontation occurs between two scholars, in question and answer format, with the ultimate aims of either proving a thesis, or destroying it and supplanting it with another. A proponent-respondent introduces and attempts to defend a thesis; a questioner-objector seeks (destructively) to test and undermine that thesis, and (constructively) to supplant it with a counter-thesis. Through progressive rounds of question and response the questioner endeavours to gain concession to premises which invalidate the proponent's thesis, justify its dismantling, and provide the logical basis from which a counter-thesis necessarily flows.

(...)

Thus, "the dialectical forge" aims to convey the intellectually-formative dynamic of dialectical debate, and, with specific regard to the current project: debate within the Islamic juridical domain. My argument throughout this monograph is that dialectical disputation was a vital dynamic in the evolution of Islamic law—not only with respect to doctrinal bodies of

substantive rulings, but to Islamic legal theories, and to a continually-evolving set of dialectical theories as well. The exigencies of dialectical debate provided key motives and forged key structures, elements, principles, and concepts for what became known as the sciences (*ʿulūm*) of derived substantive law (*fiqh*), legal theory (*uṣūl al-fiqh*), and juridical dialectic (*jadal* or *munāẓara*), not to mention certain sub-genres of the juristic sciences—e.g., the arts of discovering *qiyās* -invalidating inter-case distinctions (*furūq*) and weaker and stronger analogues (*ashbāh wa naẓā'ir*)." (pp. 1-2)

46. ———. 2022. "On the Logical Machinery of Post-Classical Dialectic: The *Kitāb ʿAyn al-Naẓar* of Shams al-Dīn al-Samarqandī (d. 722/1322)." *Methodos. Savoirs et textes* no. 22:1–46.

    Abstract: "The post-classical (or post-Avicennan, post-Rāzian) genre of the “protocols for dialectical inquiry and disputation” (*ādāb al-baḥth wa-l-munāẓara*) has its more proximate origins in the famed *Risāla* of Shams al-Dīn al-Samarqandī (d. 722/1322). The greater part of his conceptions and methodology, however, consists in a streamlining and universalizing of the more strictly juristic dialectic (*jadal / khilāf*) of his teacher Burhān al-Dīn al-Nasafī (d. 687/1288); and this in turn draws on the highly logicized dialectic of Rukn al-Dīn al-ʿAmīdī (d. 615/1218) and his teacher Raḍī al-Dīn al-Nīsābūrī (d. 617/1220). At the heart of methods in this lineage, and carried forward by al-Samarqandī into the universal *ādāb al-baḥth*, are three truth-preserving logical relationships critical to the truth-seeking enterprise of dialectic: entailment (*talāzum / mulāzama*), mutual negation or exclusion *(tanāfin / munāfā*), and causal concomitance (*dawarān*). The practical elaboration of these relations reveals a logic in action—a premodern dialogical logic for living disputation praxis. In fact, so critical were these to the dialectical enterprise that al-Samarqandī devoted a specialized treatise entirely to summarizing their defining features and rules, aptly naming it the ʿAyn al-Naẓar, or “Wellspring of Rational Investigation.” In this article, and drawing upon a recently published digital

critical edition, I will present an analytical outline of these core logical relations as presented in the ʿAyn al-Naẓar. Then I will address a number of points of interest in this text, grouped under six themes: the potential for cross-disciplinary advancement; notions in discursive development; significant or uniquely contributive formulations; peculiarities of content; signs of an evolving, universalist agenda; and evidence that the ʿAyn al-Naẓar was designed as an *aide-mémoire* for the active disputant."

47. ———. 2022. "The Formal Evolution of Islamic Juridical Dialectic: A Brief Glimpse." In *New Developments in Legal Reasoning and Logic: From Ancient Law to Modern Legal Systems*, edited by Rahman, Shahid, Armgardt, Matthias and Kvernenes, Hans Christian Nordtveit, 83–113. Cham (Switzerland): Springer.

    Abstract: "The development of Islamicate dialectical theory (*jadal / munāzara / ādāb al-baḥth*) is both pluralistic and nonlinear, even when restricted to the juridical domain. Deeper trends are nevertheless apparent; the most important may be the infusion of post-Avicennan syllogistic commonly understood to have begun in the eleventh century CE. This trend towards logical formalism found its greatest expression in a rigorously syllogistic twelfth and thirteenth century Eastern juristic dialectic which in turn informed a new, universal dialectical method: the *ādāb al-baḥth wa'l-munāz ara*, or "protocols for dialectical inquiry and disputation."

    Equally applicable in theology, philosophy, and law, this streamlined system quickly grew into a core discipline in the Islamic sciences, generating a massive commentary tradition. This article presents three vignettes of dialectical argument in action—snapshots from various moments in variant streams of Islamic juridical dialectic—marking certain key features at each stage. Critical roles are highlighted for the dialectical objections of intra-doctrinal inconsistency (*naqḍ*) and counterindication (*muāraḍa*), and special focus is maintained on the formative dynamic of dialectical disputation in shaping both legal theory and dialectical theory itself."

48. ———. 2025. "Four Moves to Rule Them All: Qiyās-Dialectic Metatheories and the Ascendancy of Master-Category Objections in Post-Classical Islamic Dialectics." In *Logic, Soul, and World: Essays in Arabic Philosophy in Honor of Tony Street*, edited by Ahmed, Asad Q., Zarepour, Mohammad Saleh and Strobino, Riccardo, 366–426. Leiden: Brill.

"In this study I will introduce the four directly relevant categories of metatheory, illustrating them with examples predating Molla Fenârî's early Ottoman formulations. In so doing, I believe a general picture will emerge of how and why the master-category objections became the singular focus of post-classical dialectical theory. Before proceeding, however, a quick disclaimer. In short, this study should not be considered the final say in the matter. To date, I have surveyed the qiyās-oriented dialectic of only eighteen works belonging to fourteen authors.(7) There are, of course, several dozen more works which may contain material of interest, and further surveys are bound to uncover additional, hypothesis-refining details. However, I believe that the general picture emerging at this stage is sufficient to answer the objection-reduction question, and, in so doing, yield a model dynamic that sheds light on other transformative processes essential to the streamlining of juristic dialectics and subsequent birth of a universalist *ādāb al-baḥth wa-l-munāẓara*." (pp.368-369)

(7) They are, in rough chronological order (works marked by an asterisk did not contain a significant amount of qiyās-dialectic metatheory): the *Taqwīm al-Adilla* of Abū Zayd ad-Dabūsī (Ḥanafī, d. 430/ 1039); the *Sharḥ al-Lumaʿ** and *al-Mulakhkhaṣ fī l-Jadal** of Abū Isḥāq ash-Shīrāzī (Shāfiʿī, d. 476/1083); the *Iḥkām al-Fuṣūl fī Aḥkām al-Uṣūl** and *Kitāb al-Minhāj fī Tartīb al-Ḥijāj* of Abū l-Walīd al-Bājī (Mālikī, d. 474/1081); the *Kanz al-Wuṣūl ilā Maʿrifat al-Uṣūl* of Fakhr al-Islām Abū l-Ḥasan al-Bazdawī (Ḥanafī, d. 482/1089); the *Mustaṣfā** of Abū Ḥāmid al-Ghazālī (Shāfiʿī, d. 505/1111); the *Maḥṣūl** and *Maʿālim** of Fakhr ad-Dīn ar-Rāzī (Shāfiʿī, d. 606/1209); the *Mughnī* * of Jalāl ad-Dīn al-Khabbāzī (Ḥanafī, d. 691/1292); the *Iḥkām fī Uṣūl al-Aḥkām* of Sayf ad-Dīn al-

Āmidī (Shāfiʿī, d. 631/1233); the *Muntahā* and *Mukhtaṣar al-Muntahā* of Jamāl ad-Dīn Ibn al-Ḥājib (Mālikī, d. 646/1249); the *Sharḥ al-Fuṣūl fī l-jadal* of Burhān ad-Dīn al-Nasafī (Ḥanafī, d. 687/1289); the *Risāla fī Ādāb al-Baḥth* of Shams ad-Dīn as-Samarqandī (independent [?], d. 722/1322); the *Sharḥ Mukhtaṣar Ibn al-Ḥājib* of ʿAḍud ad-Dīn al-Ījī (Shāfiʿī, d. 756/1355); the *Baḥr al-Muḥīṭ* of Badr ad-Dīn az-Zarkashī (Shāfiʿī, d. 794/1392); and the *Fuṣūl al-Badāʾiʿ fī Uṣūl al-Sharāʾiʿ* of Molla Fenârî (Ḥanafī, d. 834/1431)

49. Zarepour, Mohammad Saleh. 2021. "Abharī's Solution to the Liar Paradox: A Logical Analysis." *History and Philosophy of Logic* no. 42:1–16.

    Abstract: "The medieval Islamic solutions to the liar paradox can be categorized into three different families. According to the solutions of the first family, the liar sentences are not well-formed truth-apt sentences. The solutions of the second family are based on a violation of the classical principles of logic (e.g. the principle of non-contradiction).

    Finally, the solutions of the third family render the liar sentences as simply false without any contradiction. In the Islamic tradition, almost all the well-known solutions of the third family are inspired by the solution proposed by Atīr al-Dīn al-Abharī (d. 1265). Providing a logical analysis of his discussion of the liar paradox, I show that his solution is based on a conception of truth according to which every sentence signifies, usually among other things, its own truth. This makes Abharī's solution of the same spirit as certain solutions that were later developed in the Latin tradition, in particular by John Buridan (d. 1358) and Albert of Saxony (d. 1390)."

50. ———. 2024. "Dashtakī's Solution to the Liar Paradox: A Synthesis of the Earlier Solutions Proposed by Ṭūsī and Samarqandī." *History and Philosophy of Logic* no. 45:219–245.

    Abstract: "Ṣadr al-Dīn al-Dashtakī (d. 1498) has proposed a solution to the liar paradox according to which the liar sentence is a self-referential sentence in which the predicate 'false' is

iterated. Discussing the conditions for the truth-aptness of the sentences with nested and iterated instances of the predicates ‘true’ and/or ‘false’, Dashtakī argued that the liar sentence is not truth-apt at all. In the tradition of Arabic logic, the central elements of Dashtakī’s solution—the self-referentiality of the liar sentence and the implicit iteration of the predicate ‘false’—were initially highlighted in two earlier solutions proposed by Naṣīr al-Dīn al-Īusī (d. 1274) and Shams al-Dīn al-Samarqandī (d. 1322), respectively. Here I investigate all three solutions and show that Dashtakī’s solution can be taken as a synthesis of the other two. None of these solutions seems to be convincing at the end of the day. Nevertheless, all of them include significant logical and philosophical insights. In particular, although Dashtakī’s solution is not itself compelling, it is only a few steps away from a promising solution. The appendix to this paper includes translations of the relevant passages."

51. Zeraatpisheh, Mahmood. 2023. "Note on the Negative Approach of al-Shahīd al-Thānī Towards Logic in *al-Iqtiṣād wa al-Irshād*." *History and Philosophy of Logic* no. 44:247–254.

    Abstract: "Aversion towards logic is a characteristic feature of the Islamic traditionalists.

    There is in fact a history of opposition to logic in Islam. As any other areas of history, here also the correct picture will not be achieved unless all of the pieces are put together. In what follows, I am going to shed light on a chapter written by Zayn al-Dīn al-–' Āmilī (d. 966/1558), the Twelver Shī'ī Scholar better known as al-Shahīd al-Thānī. The chapter not only shows al-Shahīd al-Thānī’s negative stance towards logic, but also is important because it is a part of less studied Shī'īte traditionalists’ tendencies towards logic; those who are considered as the most influential figures in Iranian seminaries from the Safavid period up until today."

52. ———. 2024. "The Development of the Concept of Predication in Arabic Philosophy." *History and Philosophy of Logic*:1–15.

    Abstract: "Predication is a central theme in Arabic logic that has undergone significant semantic transformation throughout history. This article explores the evolution of predication’s

scope and meaning across four successive stages. Rather than pinpointing specific historical moments—given that these transitions lack clearly defined beginnings or endings—the focus is on key propositions that enrich our understanding of predication, drawing on the classifications of thinkers such as Abū Naṣr al-Fārābī (d. 950), Athīr al-Dīn al-Abharī (d. 1262-65), Mullā Ṣadrā (d. 1635), and Muhammad Ḥusayn Ṭabātabāī (d. 1981). The transition from the first to the second stage is characterized by the acceptance of natural propositions (*ṭabīʿīya*), while subsequent stages involve essential primary (*dhātī awwalī*) and stronger/weaker (*ḥaqīqa-raqīqa*) propositions. This progression illustrates a shift from expressing the properties of external objects to articulating the properties of concepts, ultimately culminating in the expression of identity between concepts and external entities.

The four stages can be summarized as follows: (1) First-order predication; (2) Second-order predication; (3) Second-order identity; (4) First-order identity."

53. Zonta, Mauro. 2013. "Three New Fragments of a Paraphrase of Aristotle's *Topics* ascribed to Themistius in Hebrew Quotations of al-Fârâbî's ‚Long Coimmentary' on the *Topics,* Book VIII,"." In *Ad notitiam ignoti. L' Organon dans la translatio studiorum à l'epoque d'Albert le Grand*, edited by Brumberg-Chaumont, Julie, 217–224. Turnhout: Brepols.

"According to a recent study by Ahmad Hasnawi(1), the well-known Greek philosopher and commentator of Aristotelian works, Themistius (317-388), probably wrote two different treatises specifically devoted to the contents of Aristotle's *Topics* : a Paraphrase of the *Topics*, and a shorter work on T*he Examination of the (Logical) Places*. The Greek text of both is missing ; however, some direct references to their contents, as well as quotations of specific passages of them, can be found in four Medieval philosophical works : *De Topicis Differentiis* by the 6th-century Latin philosopher Boethius (d. 525), *The Reflective Book* by the 12th-century Judeo-Arabic philosopher Abū l-Barakāt al-Ba˙gdādī (d. 1167), and the *Middle Commentary* on Aristotle's *Topics* and *The Meanings of the*

Discourse On the Whole by the 12th-century Arab-Islamic philosopher Averroes (1126-1198)." (p. 217)

(...)

"The case studied here is partially different. The three passages which seem to be ascribed to Themistius were apparently not taken from a direct reading of the Greek text in Arabic translation ; probably, they were found in al-Fārābī's lost work on book eight of Aristotle's *Topics*, which Todros [ben Meshullam ben David Todrosi] employed as one of the main sources for his anthology, as found on folios 67v-75r and 85v-93v of the London manuscript. As a matter of fact, the name of their author was apparently altered."(p. 219)

(1) A. Hasnawi, « Boèce, Averroès et Abū al-Barakāt al-Bagdādī, témoins des écrits de Thémistius sur les *Topiques* d'Aristote », in Arabic Sciences and Philosophy, 17, 2007, (p. 203-265), on p. 204-209 in particular.

54. ———. 2015. "Shakhṣ "person, individual" in Arabic logic. A comparative history of the term and its meanings found in other languages of culture in the Near, Middle and Far East." *Studi Magrebini* no. 12-13:549–560.

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History of Logic

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History of Logic

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Writings of E. Jennifer Ashworth on the History of Logic. First Part

Introduction

Earline Jennifer Ashworth (born 1939) studied at Cambridge University and at Bryn Mawr College, where she was awarded a Ph.D. in 1964 (*The Logica Hamburgensis of Joachim Jungius*); she is Distinguished Professor Emerita at the University of Waterloo, Ontario (retired July, 1st 2005) and her main interests are Late Mediaeval and Renaissance logic and philosophy of language; she is Renaissance subject Editor for the *Routledge Encyclopedia of Philosophy*.

I wish to thank Professor Ashworth for helping me to complete this bibliography.

Books authored

1. Ashworth, Earline Jennifer. 1974. *Language and Logic in the Post-Medieval Period*. Dordrecht: Reidel.

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Between Propositions 189; 1. The Quality and Quantity of Propositions 189; 2. Opposition 192; 3. Equipollence 194; 4. Simple and Accidental Conversion 195; 5. Conversion by Contraposition 199; II. Supposition Theory and Quantification 207; 1. The Divisions of Personal Supposition 207; 2. Descent and Ascent 213; III. Categorical Syllogisms 223; 1. Figures and Modes 224; 2. How to Test the Validity of a Syllogism 230; 3. Proof by Reduction 239; 4. Syllogisms with Singular Terms 247; APPENDIX / LATIN TEXTS 253; BIBLIOGRAPHY 282; 1. Primary Sources 282; 2. Secondary Sources on the History of Logic 1400-1650 291; INDEX OF NAMES 297-304.

"Keckermann remarked of the sixteenth century, "never from the beginning of the world was there a period so keen on logic, or in which more books on logic were produced and studies of logic flourished more abundantly than the period-in which we live." (1) But despite the great profusion of books to which he refers, and despite the dominant position occupied by logic in the educational system of the fifteenth, sixteenth and seventeenth centuries, very little work has been done on the logic of the postmedieval period. The only complete study is that of Risse [a], whose account, while historically exhaustive, pays little attention to the actual logical doctrines discussed. (2) Otherwise, one can tum to Vasoli [b] for a study of humanism, to Muñoz Delgado [c] for scholastic logic in Spain, and to Gilbert [d] and Randall [e] for scientific method, but this still leaves vast areas untouched. In this book I cannot hope to remedy all the deficiencies of previous studies, for to survey the literature alone would take a life-time.

As a result I have limited myself in various ways. In the first place, I concentrate only on those matters which are of particular interest to me, namely theories of meaning and reference, and formal logic. For discussions of such matters as demonstration, the logic of scientific method, the categories, the topics, informal fallacies, humanist logic, Ramist logic, and the whole range of commentaries on Aristotle, the reader will have to look elsewhere. However, in my first chapter, which I must confess to be based largely on secondary sources, I attempt to give an overall picture of the period, so that the

reader can assess the place of the people and the theories I discuss in a wider context.

In the second place, although I make extensive references to one or two medieval logicians, particularly Peter of Ailly, whose work was still widely read and discussed in the post-medieval period, I have made no attempt to fill in the medieval background, or to trace the historical antecedents of every doctrine I mention. There are two reasons for this deficiency. One lies in my original purpose, which was simply to describe just what logic a well-read man of the sixteenth or seventeenth century would have been acquainted with. The other, and most important, reason lies in the monumental nature of such a task. An adequate treatment of the historical antecedents would not only double the size of my book, but would quadruple the number of footnotes, as well as taking many years to accomplish. Fortunately medieval logic has been by no means as thoroughly neglected as post-medieval logic, and a very good idea of its scope and achievements can be obtained from the following works, which themselves contain extensive bibliographies:

Nuchelmans, G., *Theories of the Proposition. Ancient and Medieval Conceptions of the Bearers of Truth and Falsity*, Amsterdam, 1973.

Pinborg, J., *Logik und Semantik im Mittelalter. Ein Uberblick*, Stuttgart-Bad Cannstatt, 1972.

Rijk, L. M. de, *Logica Modernorum, Vol. I, On the Twelfth Century Theories of Fallacy*, Assen, 1962.

Rijk, L. M. de, *Logica Modernorum, Vol. II, The Origin and Early Development of the Theory of Supposition*, Assen, 1967. This volume is in two parts, the second of which contains texts and indices.

In the third place, I have found myself unable to shed very much light on the historical relations between many of the authors whom I discuss.

So far as those from whom I most frequently quote are concerned, there is little problem. The bulk of my references are to Caubraith, Celaya, Clichtoveus, Enzinas, Pardo, de Soto and Tartaretus, all of whom studied and/or taught at the University of Paris in the first years of the sixteenth century, or earlier in the case of Tartaretus. Needless to say, these men were acquainted with each other's works. Many other references are to Hieronymus of St. Mark of whom I know only that he studied at Oxford and that he frequently quotes from the work of Pardo; and to the Germans, Trutvetter, Gebwiler and Eckius, who are of the same period and who obviously knew the works of the Parisian logicians as well as the works of Ockham, Buridan, Marsilius of Inghen and Albert of Saxony.

The only later sixteenth century author of whom I make much use is Fonseca, and the only seventeenth century author of whom I make much use is John of St. Thomas. The influences on these men have been comprehensively described in the works of Munoz Delgado, and they stem back to early sixteenth century Paris. However, once one strays outside Spain and the Paris of the early sixteenth century, a number of obstacles to historical understanding immediately appear. Despite Risse's efforts, we still do not know exactly how many logic texts were published, where they were written, or when their first edition appeared. The books themselves usually contain neither biographical nor bibliographical information. Authors not only used each other's work without acknowledgement, but they also criticized each other's work without giving more specific references than "a certain doctor said". Little is known about the curricula of most sixteenth and seventeenth century universities.

Moreover, there is a tremendous amount of sameness about the contents of logical textbooks, particularly in the later period. They can be roughly categorized as Philippist, Ramist, Philippo-Ramist, Aristotelian, or eclectic, but finer distinctions are hard to draw. Even when an author cites his sources, this may be of little help. For instance, we know that Joachim Jungius told Rhenius that he based his logic text upon the works of Dietericus and Johann Kirchmann, (3) but his work

bears little obvious relation to that of Dietericus, and I have been unable to see a copy of Kirchmann. In any case, the first edition of Kirchmann listed by Risse appeared in 1638, the very year of the *Logica Hamburgensis*.

On the whole, I think that I will be content to leave the task of unraveling all the relationships between logicians of the later period to the intellectual historian. It is true that a number of medieval doctrines were preserved into the seventeenth century, much later than such authors as Boehner had supposed, and it is true that some new work was done, particularly with respect to the fourth figure of the syllogism, but generally speaking, nothing of interest to the logician was said after 1550 at the very latest. Indeed, now that I have written this book, I have compiled a large list of logic texts from the period 1550-1650 which I shall be happy never to open again. On the other hand, an enormous amount of interesting work remains to be done for the period 1450-1550, and I very much hope that my own research will provide a useful starting point for research by others." (*Preface*, X-XI)

(1) Keckermann, P*raecognitorum Logicorum Tractatus III*, Hanoviae 1606, 109f.

(2) For titles, see the bibliography.

(3) Jungius, *Logica Hamburgensis*, edited and translated into German by R. W. Meyer, Hamburg 1957, editor's introduction, xx.

Notes added:

[a] *Die Logik der Neuzeit. Band l. 1500-1640*, Stuttgart-Bad Cannstatt 1964.

[b] *La dialettica e la retorica dell'umanesimo: 'Invenzione' e 'Metodo' nella cultura del XVe XVI seeolo*, Milano 1968.

[c] *Logica Hispano-Portuguesa hasta 1600*, Salamanca 1972.

[d] *Renaissance Concepts of Method*, New York 1960.

[e] *The School of Padua and the Emergence of Modern Science,* Padua 1961

2. ———. 1978. *The Tradition of Medieval Logic and Speculative Grammar from Anselm to the End of the Seventeenth Century: A Bibliography from 1836 Onwards*. Toronto: Pontifical Institute of Mediaeval Studies.

   Contents: Preface VII; Part One. Anselm to Paul of Venice (items 1-632) 1; Part Two. After Paul of Venice (items 633-879) 73; Index of Names 101; Index of Texts 105; Index of Translations 107; Index of Subjects 109.

   "My main interest in drawing up this bibliography was to list all the books and articles which have to do with formal logic and semantics from the time of Anselm to the end of the seventeenth century. I see this area as including such topics as consequences, syllogistic, supposition theory, and speculative grammar, but as excluding such topics as the categories, the struggle between nominalism and realism, and pure grammar. It is not, of course, always easy to draw a line between works which are concerned with formal logic and semantics and works which are not so concerned, and inevitably my choice of borderline cases will seem too restrictive to some and too liberal to others. However, my hope is that I have not excluded any book or article which obviously falls into the area I have delimited.

   I have used the phrase "the tradition of medieval logic" in the title in order to indicate that although I include the seventeenth century, I am not concerned with the contributions of modern philosophy. The work of men such as Pascal, Descartes, Arnauld, Leibniz and Locke carries us far indeed from medieval discussions of logic and semantics. Moreover, there is already such an extensive literature on these figures that to include them in my bibliography would completely change its character. On the other hand, I do include humanist logic and renaissance Aristotelianism, since they involve a reaction to the medieval tradition which can only properly be understood in the light of that tradition.

   This is a bibliography of secondary works and of modern editions of early texts. Accordingly I have excluded those nineteenth century reprints of earlier works such as Aldrich's

Artis Logicae Compendium which were produced merely as text books, and I have also excluded modern facsimile editions of early printed texts unless they are accompanied by substantial editorial material. In addition, I have omitted a list of the various editions of Milton's *Artis Logicae Plenior Institutio*, since printings of his complete works are both numerous and easily found. The earliest book I list is Victor Cousin's 1836 edition of Abelard, since this can properly be viewed as the starting point of modern scholarly work on medieval logicians.

I do not refer to short edited or translated passages in books of readings. I have included only the more lengthy book reviews, and only a few unpublished dissertations. I have not included biographical and general historical works unless they have some specific contribution to make to the history of logic. I have tried to include all relevant material published before 1977, but the listing of 1976 publications is inevitably incomplete, given the delays which so often occur in the printing of books and journals.

I have endeavoured to look at each item personally, and to include as much information as possible. In those cases where I have failed to locate an item, or have located it in a place where I could not conveniently see it, I have made a note of my failure. The reader should bear in mind that these entries may be quite inaccurate. Where I have only been able to see a copy of an article, I have added the note: "Journal not seen."

Works which deal with the period as a whole will be found in Part One.

Where an author has more than one book or article, the items are arranged chronologically.

Below each item I list the headings under which it is indexed and, where relevant, cross-references to reviews, discussions, translations and reprints. The ordering of the headings corresponds to the four indexes I have provided: (1) an index of names; (2) an index of texts; (3) an index of translations; (4) an index of subjects. Only substantial texts and translations are

indexed. In the few cases where a book review is not cross-referenced, the reason is that only the review contains material relevant to my purposes. It is my hope that these indexes, which are based on my knowledge of a work's contents rather than its title alone, will prove one of the most valuable aspects of my bibliography.

Readers who wish to find articles dealing with related fields or published after 1976 are recommended to consult two bibliographical sources in particular. They are:

1. *Repertoire Bibliographique de la Philosophie*. Publié par l'Institut supérieur de philosophic de l'Université catholique de Louvain.

2. *The Philosopher's Index*. An International Index to Philosophical Periodicals.

Readers who wish to remedy the omissions I describe in my first three paragraphs are also recommended to consult the following:

Risse, Wilhelm. *Bibliographia Logica*. Band II. 1801-1969. Hildesheim-New York: Georg Olms Verlag, 1973.

Risse's work is far more comprehensive than my own, since he includes not only formal logic, but what might be described as the logic of ideas.

On the other hand, his bibliography is arranged chronologically rather than alphabetically; and inevitably, given the scope of his work, he does not give full publication details and his indexes are minimal. Volume II contains only books, and it is to be hoped that the volume listing journal articles will appear before too long. (*)

I owe a great debt of gratitude to those people who went through an earlier version of this bibliography and provided me with a large number of extra references. In particular I would like to thank William McMahon, Jan Pinborg, Charles Schmitt, and Paul Vincent Spade. I would also like to thank the editorial staff of the Pontifical Institute of Mediaeval Studies for their helpful advice on organization and presentation, the staff of

Inter-Library Loan at the University of Waterloo for their unfailing help, and the Canada Council for various grants which have enabled me to work in British libraries. Finally, I should like to thank the Humanities Research Council of Canada for aiding the publication of this book." (*Preface*, pp. VII-IX)

(*) [Bibliographia logica. III. *Verzeichnis der Zeitschriftenartikel zur Logik*. Hildesheim-New York: Georg Olms Verlag, 1979].

There is a continuation volume: Fabienne Pironet, *The Tradition of Medieval Logic and Speculative Grammar*. *A Bibliography (1977-1994*), Turnhout: Brepols 1997.

3. ———. 1985. *Studies in Post-Medieval Semantics*. London: Variorum Reprints.

Reprint of 12 essays already published.

CONTENTS: Preface IX-X;

REFERENCE IN INTENSIONAL CONTEXTS

I 'For Riding is Required a Horse": A Problem of Meaning and Reference in Late fifteenth and Early sixteenth Century Logic - Vivarium XII. 1974; II I Promise you a Horse": A Second Problem of Meaning and Reference in Late fifteenth and Early sixteenth Century Logic (Parts 1 & 2) - Vivarium XIV. 1976; III Chimeras and Imaginary Objects: A Study in the Post-Medieval Theory of Signification - Vivarium XV. 1977;

PROPOSITIONS AND MENTAL LANGUAGE

IV Theories of the Proposition: Some Early sixteenth Century Discussions - Franciscan Studies 38. 1978 (1981); V The Structure of Mental Language: Some Problems Discussed by Early Sixteenth Century Logicians - Vivarium XX. 1982; VI Mental Language and the Unity of Propositions: A Semantic Problem Discussed by Early Sixteenth Century Logicians - Franciscan Studies 41. 1981 (1984);

SCHOLASTIC INFLUENCES ON JOHN LOCKE

VII "Do Words Signify Ideas or Things?" The Scholastic Sources of Locke's Theory of Language - Journal of the History

of Philosophy XIX. 1981; VIII Locke on Language - Canadian Journal of Philosophy XIV/1. 1984;

LOGICAL ANALYSIS

IX The Doctrine of Exponibilia in the Fifteenth and Sixteenth Centuries - Vivarium XI. 1973; X Multiple Quantification and the Use of Special Quantifiers in Early Sixteenth Century Logic - Notre Dame Journal of Formal Logic XIX. 1978;

SEMANTIC PARADOXES

XI Thomas Bricot (d. 1516) and the Liar Paradox - Journal of the History of Philosophy XV. 1977; XII Will Socrates Cross the Bridge? A Problem in Medieval Logic - Franciscan Studies 46. 1976 (1977);

Addenda et Corrigenda; Index.

"With one exception (IX) the papers in this volume were written after my first book, *Language and Logic in the Post-Medieval Period* (Synthèse Historical Library 12, Dordrecht: Reidel 1974), and they are devoted to a single theme, the philosophy of language in the period from the late fifteenth to the late seventeenth century. The first group of papers (I, II, III) deals with problems of reference in intensional contexts, and the second (IV, V, VI) with problems concerning the nature of propositions and mental language. The last three groups of papers take up more specialized problems. VII and VIII deal with scholastic influences on John Locke's philosophy of language; IX and X discuss two areas of technical logical analysis which had a close bearing on semantic issues; and XI and XII discuss two types of paradox, one of which is clearly semantic, and one of which should perhaps be classified as pragmatic. Many of the issues had been touched on in my book, but here they are presented in much greater depth, on the basis of a closer analysis of the relevant sources. The papers also represent my growing awareness both of the importance of the medieval background to post-medieval philosophy, and of the diversity of intellectual currents which characterized the post-medieval period. For a summing-up of these matters, which will place the logicians discussed here in their proper historical

context, I refer the reader to my chapter on logic and language in the *Cambridge History of Renaissance Philosophy*, edited by Charles B. Schmitt (Cambridge: Cambridge University Press, [1988]).

On re-reading the papers collected here, I found that in general I still agree with what I wrote. Nonetheless there are some things that I would now do differently. In particular, I would edit the Latin texts, rather than presenting them in their raw form. I would also try to standardize my use of language. For instance, the verb 'supponere' is variously translated here as 'suppose' and 'supposit'. In this reprint the opportunity has been taken to correct misprints and simple mistakes in the texts themselves; more complicated mistakes are discussed in the *Addenda et Corrigenda*. Where there is, inevitably, an overlap of material I have sometimes used the *Addenda* to indicate where my most up-to-date treatment of the subject is found. I have also brought bibliographical references up to date, and I have added details of recent editions of Latin texts." (from the *Preface*)

4. ———. 2008. *Les Théories De L'analogie Du Xiie Au Xvie Siècle*. Paris: Vrin.

   Conférences Pierre Abélard, Université de Paris-IV Sorbonne (2004).

   Table des matières: Avant-propos par Irène Rosier-Catach 7; Préface de l'auteur 11; Chapitre premier: Les problèmes: logique, métaphysique, théologie 13; Chapitre II: Thomas d'Aquin: interprétations et malentendus 33; Chapitre III: L'analogie et les concepts: le virage vers l'intérieur 55; Chapitre IV: Autour de l'analogie: ambiguïté et métaphore 79; Bibliographie 105; Index nominum des auteurs avant 1650 119; Index nominum des auteurs modernes 121.

   "Afin de donner au lecteur une idée plus précise du plan de mon exposé, je dirai que dans les trois premiers chapitres, j'essaierai d'expliquer le trajet qui mène des Catégories et des Réfutations sophistiques d'Aristote à la tripartition de l'analogie telle que Burley la présente. Dans le premier chapitre, je donnerai un bref historique de la réception des textes et de I

'apparition de l'analogie d'attribution au mn e siècle. Je parlerai aussi des antécédents de la notion dans les textes des théologiens de la fin du XII e siècle et du début du XIII e siècle. Dans le chapitre il, je commençerai par un bref aperçu de la pensée de Thomas d'Aquin au sujet de l'analogie en général, avant d'examiner l'analogie de proportionnalité plus en détail. Dans le chapitre in, nous serons de nouveau avec Gauthier Burley et sa doctrine des concepts analogiques. Pour terminer, je consacrerai le dernier chapitre à deux problèmes concernant le langage parlé ou écrit: quand faut- il désambiguïser les propositions en faisant des distinctions, et quel est le rôle de la métaphore dans les discussions des théologiens et logiciens du Moyen Âge?

Prenons comme point de départ la question de savoir pourquoi les auteurs du Moyen Âge ont cru nécessaire de développer une théorie de l'analogie sémantique. Afin de trouver une réponse, nous devrons répondre à trois questions préliminaires: 1) Quelles sont les théories métaphysiques et théologiques qui ont produit l'analogie métaphysique? 2) Quelle est la théorie du langage qui prédominait? (3) Quels sont les textes canoniques qui donnaient les instruments que l'on pouvait utiliser pour résoudre le problème des rapports entre réalité et langage? Dans ce qui suit, j'esquisserai une réponse aux trois questions, avant de parler plus en détail des textes logiques. Ensuite je retournerai aux théologiens afin de parler d'une solution au problème des noms divins qui semble contenir les racines d'une théorie de l'analogie. Pour terminer ce chapitre, j'expliquerai comment l'arrivée des nouvelles traductions d' Aristote et des écrits arabes a mené à la théorie de l'analogie telle qu'on la retrouve chez Thomas d'Aquin. Évidemment je ne serai pas en mesure de donner les réponses avec toute la complexité qui s'impose, surtout à la première question, mais ces quelques remarques, même superficielles, pourront déjà nous indiquer la direction à suivre." (pp. 15-16)

Books edited

1. Sanderson, Robert. 1985. *Logicae artis compendium*. Bologna: Editrice CLUEB

Reprint of the second edition (1618, first anonymous edition 1615), edited with an introduction by E. J. Ashworth.

Contents: Editor's Introduction IX-LV; I. Robert Sanderson: Life and works XI; II. The history of logic in the Sixteenth century XVI; III. Logic in England XXIII; IV. The Oxford curriculum XXXII; V. An analysis of the *Logicae Artis Compendium* XXXV-LV.

Logicae artis compendium. Pars prima 11; Pars secunda 81; Pars tertia 129; Appendix prima 243; Appendix posterior 331; Indices; Index of pre-twentieth century authors and works 371; Index of twentieth-century authors 375; Index of names used in examples 377; Index of Latin terms 379-382.

"V. An Analysis of the *Logicae Artis Compendium*.

In this section I intend to relate Sanderson to his background by focussing on four specific aspects of the *Logicae artis compendium*. I shall discuss (i) the nature of logic; (ii) the medieval heritage; (iii) changes in syllogistic; (iv) method and the art of discourse.

(i) The Nature of Logic

I shall begin by analyzing Sanderson's first chapter, which in a brief compass touches on a range of classificatory issues that were the subject of lively debate during the sixteenth century. The first of these issues concerns the very use of the word 'logica' as opposed to 'dialectica'. It was a medieval commonplace that the word 'dialectica' could be used in two senses, a broad sense which equated dialectic with logic, and a narrow sense, whereby dialectic was that kind of probable argumentation discussed in the *Topics*. (94) Which word was used for the study of all kinds of argumentation was a matter of taste. Peter of Spain had used 'dialectica'; John Buridan and others preferred logica'. However, in the sixteenth century greater doctrinal significance became attached to the word 'dialectica'. Ramus argued at some length that Aristotle's 'Organon' did not as was commonly thought discuss three special kinds of logic, i.e. apodictic or demonstrative, dealing with necessary material; dialectic, dealing with probable

material; and sophistic, dealing with fallacious material. Instead, there was one general doctrine, which included a general doctrine of invention. (95) Hence, there was no specialized use of the term 'dialectic' and it both could and should properly be applied to logic as a whole. In response Zabarella, for instance, argued that 'dialectic' did name a distinct part of logic, and should be used as the name of that part only. (96) Sanderson allows the wider use; but his remark that logica' is `Synecdochiche Dialectica' is significant, given that synecdoche is the figure of speech whereby a part is put for the whole.

Sanderson next classifies logic as an 'ars instrumentalis'. Once more, his choice of words has to be understood in the light of sixteenth century polemic. There were four ways in which logic could be classified. (97) Peter of Spain had called it both an art and a science; scholastics tended to call it a science; humanists tended to call it an art;" and Zabarella called it neither an art nor a science but an instrumental habit. Giulio Pace in turn argued that an instrumental habit was in fact an art;" and it seems to be this usage that Sanderson has adopted. Moreover, Sanderson was fully conscious of the implications of his choice, for in Appendix 1, chapter 2, pp. 31-37, he gives a sample speech on the genus of logic. He cites Zabarella (as well as Keckermann) and he concludes that logic is properly speaking an art. In this he is departing from some of his English predecessors, especially Seton, who had classified logic as a science. (100)

The final part of Sanderson's initial characterization of logic is the phrase "dirigens mentem nostram in cognitionem omnium intelligibilium." This definition is very similar to one found in Keckermann, who may well have influenced Sanderson here. Keckermann wrote "[Logica] Est ars humani intellectus operationes sive Hominis cogitationes ordinandi & dirigendi in rerum cognitione." (101) According to the Conimbricenses, the view that logic directed the operations of the mind was found in Fonseca and Suarez, and it is not found explicitly in the *antiquiores*. (102) In order to understand the full significance of Sanderson's definition, it is necessary to relate his remark

about directing the mind to his subsequent discussion of the divisions of logic, and it is also necessary to explore his reference to the knowledge of intelligible things in relation to his subsequent classification of the objects and subjects of logic." (pp. XXXV-XXXVIII)

(...)

"Conclusion.

Tolstoi's view of history as an inevitable process, which the actions of Napoleon affect no more and no less than those of the meanest soldier, is an overstatement. Yet it is true that the textbook-writers and schoolteachers of a period may be as important as the leading intellectuals, for it is by these minor figures that all innovations are accepted, altered, and made into the new commonplace. To concentrate solely upon the great thinkers is to obscure the reality of university and school, of the main stream of orthodoxy which lies behind these thinkers and which feeds them. To judge the true stature of such men as Locke it is helpful to know both what they were taught and how their teaching affected others; but to judge the intellectual quality of the seventeenth century as a whole, such a wider knowledge is essential. Great men stand to some extent outside their period, and it is only the minor thinkers who can provide a safe basis for generalization about that period. This fact alone would be a sufficient basis for the investigation of Sanderson's *Logicae artis compendium*. One cannot claim that it shows new insights into formal logic or the philosophy of language, but it is clearly written and well organized; and, given its success as a logic textbook, it is a valuable historical document. A study of this book will throw ihuch light upon the training and the preoccupations of those who used it; and it will help us to understand not only the development of logic textbooks in seventeenth century England, but also the type of education offered at Oxford and Cambridge." (pp. LIV-LV)

(94) See, e.g., the commentary by John Dorp in *Perutile compendium totius logice Joannes Buridani* (Venice 1499, facsimile edition Frankfurt am Main, 1965), sig.a 2ra. For discussion see Pierre Michaud-Quantin, "L'emploi des termes

logica et dialectica au moyen age" in *Arts libéraux et philosophie au moyen age* (Montreal, Institut d'études médiévales, Paris, J. Vrin, 1965), pp. 855-862. See also *Commentarii Collegii Conimbricensis in universam dialecticam Aristotelis* (Cologne, 1607: facsimile edition Hildesheim, New York, 1976) col. 25.

(95) Petrus Ramus, *Scholarum dialecticarum seu animadversionum in Organum Aristotelis*, in *Scholae in tres primas liberales antes* (Francofurti 1581, facsimile edition, Frankfurt am Main 1965), pp. 40-43. He suggested (p. 40) that sophistic was not properly a part of the art of logic, just as 'barbarismorum doctrina' is not properly a part of the art of grammar. Virtue is homogeneous but vices are heterogeneous, he remarked.

(96) Jacobus Zabarella, *De natura logicae* in *Opera Logica* (Cologne 1597, facsimile edition Hildesheim 1966), col. 20. Cf. the discussion by Pedro da Fonseca, *Instituiçoes Dialécticas / Institutionum dialecticarum libri octo*, edited by J. Ferreira Gomes (Universidade de Coimbra, 1964), p. 22. Fonseca remarked that the definition of dialectic as dealing with the probable could not apply to dialectic in the wide sense.

(97) For discussions of these alternatives (and a fifth alternative, that logic is a faculty) see Conimbricensis, cols. 33-37; Zabarella, *De natura logicae*, cols. 5-24.

(98) One favourite phrase of those in the humanist tradition was "ars disserendi". Agricola wrote, for instance, "Erit ergo nobis hoc pacto definita dialectice, ars probabiliter de qualibet re proposita disserendi": Rodolphus Agricola, *De inventione dialectica* (Cologne 1523, facsimile edition Frankfurt am Main, 1967), p. 193. For discussion and further references see Ong, *Ramus, Method and the Decay of Dialogue*, pp. 178-179; and Conimbricensis, cols. 25-27.

(99) Julius Pacius, *In Porphyrii Isagogen et Aristotelis Organum Commentarius Analyticus* (Frankfurt 1597, facsimile edition, Hildesheim 1966), p. 2a: "Ergo logica est habitus instrumentalis, id est ars."

(100) Seton (sig. A 59 wrote: "Dialectica est scientia, probabiliter de quovis themate disserendi." Cf. John Sanderson, Institutionum dialecticarum (Oxoniae 1602) p. 3 and Samuel Smith, *Aditus ad logicam* (Oxonii, 1684, editio nona) p. I, for similar definitions.

(101) Bartholomaeus Keckermann, *Praecognitorum logicorum tractatus tres* in *Operum omnium quae extant tomus Primus* (Genevae, 1614), col. 90-91.

(102) Conimbricensis, col. 42.

2. Bricot, Thomas. 1986. *Tractatus Insolubilium*. Nijmegen: Ingenium Publishers

Artistarium Vol. 6. Critical edition of the treatise by Thomas Bricot with an introduction, notes, appendices and indices by E. J. Ashworth.

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"1. *Thomas Bricot: Life and Works*

Thomas Bricot was one of the men who laid the foundations for the last flowering of medieval logical doctrines which took place at the University of Paris in the first two decades of the sixteenth century. (1) Little seems to be known about his early life except that he came from Amiens. (2) He took his BA at Paris in 1478, his MA in 1479, and his doctorate of theology in March 1490. Diring the 1480s he taught philosophy at the Collège de Sainte-Barbe, but when he took his licence of theology in January 1490 he was a *bursarius* of the Collège des Cholets. After 1490 he held a variety of ecclesiastical and academic posts. He spent some time in Amiens; but by 1502 he

was back in Paris. Between 1506 and 1516 he often served as dean of the faculty of theology; and he was both canon and penitentiary of Notre Dame. He died in Paris on April 10, 1516. His philosophical work belongs entirely to his early years in Paris.

Much of his activity was directed toward editing the works of others, including a 1487 edition of John Buridan's *Tractatus Summularum*. (3) He produced abbreviated versions of Aristotle's *Organon* and of his natural philosophy; (4) he wrote a series of questions on the *Analytica Posteriora;* (5) but most notably he edited and added questions to the commentaries on Aristotle and on Peter of Spain which had been written by the Paris master, George of Brussels. (6) Bricot's only original works seem to have been the *Tractatus Insolubilium* and the *Tractatus Obligationum* which were always published together and which received at least nine editions between 1489 and 1511. (7) The *Tractatus Obligationum* is largely based on the *De Obligationibus* of Marsilius of Inghen; (8) the *Tractatus Insolubilium* will be discussed below.

Bricot's works enjoyed considerable success in Paris in the last two decades of the fifteenth century as one can see from the number of editions printed there, as well as in other French centres. He was also known outside France. His abbreviation of the *Organon* was printed in Basel in 1492 and in Salamanca, ca.1496. It was printed together with a work by George of Brussels in Venice in 1506. (9) Bricot was prescribed to be read at the University of Vienna in 1499; (10) and some of his works were sold by the Oxford bookseller,

John Dorne, in 1520 . (11) Indeed, as late as 1535 the University of Cambridge found it necessary to forbid the reading of Bricot. (12) However, I judge that his success was largely due to the usefulness of his texts as teaching manuals rather than to any great originality. The only doctrine of his which I know to have been discussed by other logicians was his solution to the problem of semantic paradoxes found in the *Tractatus Insolubilium*, to which I shall now turn.

2. The '*Tractatus Insolubilium*'

In the *Tractatus Insolubilium* Bricot discusses three approaches to the problem of semantic paradoxes. (13) In the second question he takes up the solution attributed to Ockham, (14) whereby the part of a proposition cannot supposit for the whole. Bricot did not favour this solution. In the third question he discusses two versions of a solution stemming from Peter of Ailly but reworked by George of Brussels. In the first question he presents his own view. This owes much to Roger Swyneshed, but avoids some of the more paradoxical consequences of Swyneshed's view. Bricot allows self-reference to be legitimate; and he treats simple insolubles as being straightforward categorical propositions. However, he revises the conditions under which a proposition is said to be true. An affirmative proposition is true if and only if (I) it signifies that things are as they are and (II) it does not signify itself to be false. On the other hand, a negative proposition needs to meet only one condition. Either (I) it signifies that things are not as they are not or (II) its contradictory signifies itself to be false. It is here that Bricot differs from Swyneshed, who had treated affirmative and negative propositions alike.

Among the authors who were to discuss Bricot's solution are found Pierre Tartaret; (15) David Cranston; (16) John Mair; (17) and Domingo de Soto. (18) In the version of his *De Insolubilibus* published in 1516, John Mair said explicitly that *opinio magistri nostri thome Briquot ... nunc est communis*. (19)

The *Tractatus Insolubilium* is noteworthy for its treatment of two other issues. First, there is a short discussion of non-semantic paradoxes. (20) Second, there is a very long discussion of the issue of *complexe significabilia* or the significates of propositions, when the latter are viewed as occurrent entities. (21) As with semantic paradoxes, I have discussed Bricot's treatment of these issues at length in other places, and will not dwell on them here.

As an appendix to my edition of the *Tractatus Insolubilium* I have included two short texts in which Bricot takes up the issue

of semantic paradoxes once more, and a third text in which he discusses *complexe significabilia*." (pp. XIII-XIV)

3. Pauli, Veneti. 1988. *Logica Magna. Secunda pars. Tractatus de Obligationibus*. Oxford: Oxford University Press

   Classical and Medieval Logic Texts V. Edited with an English Translation and Notes by E. Jennifer Ashworth.

   Contents; Introduction VII-XVI; Part One. 3; Part Two: Concerning *positio*; Chapter One: Against the Rules 101; Chapter Two: On Conjunctions 327; Chapter Three: On Disjunctions 335; Chapter Four: On Similars and Dissimilars 345; Parth Three: Concerning *depositio*; Chapter One: Rules 369; Chapter Two: Theses 379; Chapter Three: Sophisms 379; Bibliography: I. Oblications Treatises 393; II. Other Sources 394; Indexes: Index of sophisms 398; Index of names 401; Index of doctrines 404-409.

   "*The Purpose of Obligations Treatises*

   A contentious and as yet unresolved issue has to do with the purpose of lllillgations treatises. The treatises themselves do not offer much discussion of this point, being content to remark that the opponent in a disputation is to try to push the respondent into accepting a contradiction, whereas the respondent has to resist this, even when faced with the curious consequences Ilf grunting such a propositum as 'You do not exist.'(23) In the process both participants would have their knowledge of valid inferences thoroughly tested, for each proposition put forward would be such that it followed from preceding steps, or such that its negation followed, or such that neither it nor Its negation followed. In this third case either it or its negation would enter the sequence as an extra premiss for further conclusions or non-conclusions. It should also be emphasized that the bulk of almost all treatises on obligations consisted of a series of sophisms which, as Edith Sylla has argued Ilf the 'physical' sophisms, formed an integral part of logic teaching, at least in fourteenth century Oxford, and were designed to develop a student's subtlety and skill in handling logical rules.(24) These remarks suggest that obligational disputations (if such were ever in fact held) had the primary

function of providing oral exercise in formal logic, and hence were of mainly pedagogical significance.

This solution has been adopted by a number of authors; but reflection on the complex and sophisticated nature of the controversy between Swyneshed and others has led P.V. Spade to suggest that obligations treatises offer us an account of counterfactual reasoning.(25) This theory in turn has been criticized by E. Stump, who points out that the treatises reflect a number of diverse concerns, including 'epistemic logic, indexicals, propositional attitudes, and other issues in the philosophy of language.'(26) She also points out that in Burley at least there was 'a concern with special sorts of difficulties in evaluating consequences or inferences as a result of the disputational context in which the inferences occur.'(27)

My own view is that there is probably something to be said for all these accounts. Insofar as the treatises described a routine to be followed in class-room disputations, the purpose could only have been that of testing a student's skill in formal logic, since truth was explicitly not an issue;(28) but the authors and readers of such treatises obviously welcomed the opportunity to discuss other matters in some depth. Paul himself was particularly concerned with the difference between use and mention, as will be seen from many of his sophisms. One must also bear in mind the often-noted link between treatises on obligations and treatises on insolubles. They go together not only in Paul, but in Swyneshed, Albert of Saxony and Strode, to mention but three names. This suggests a general interest in discussing all kinds of paradoxes, both semantic and non-semantic. Whatever the final answer is, reading Paul of Venice should help us to arrive at it, since his Tractatus de Obligationibus is a compendium of all the main views current in the second half of the fourteenth century."

(23) For detailed references, see Part 1, section 2, note 3.

(24) Edith Dudley Sylla, 'The Oxford calculators' in CH, 540-563.

(25) See Spade, ‘Some theories’, pp. 1-2, for an account of the literature, and throughout for a defence of his thesis about counterfactual reasoning.

(26) See Stump, ‘Roger Swyneshed’, pp. 169-174: ‘The purpose and function of obligations’, p. 171 n. 45 is particularly important for her discussion of Spade’s thesis.

(27) Stump in CH, p. 328.

(28) For an account of the distinction between doctrinal disputations, which were designed to arrive at the truth of some claim, and obligational disputations, see E.J. Ashworth, ‘Renaissance man as logician: Josse Clichtove (1472-1543) on disputations’, *History and Philosophy of Logic*, 7 (1986), 15-29.

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CH = Nortman Kretzmann, Anthony P. Kenny, Jan Pinborg (eds.), *The Cambridge History of Later Medieval philosophy: From the Rediscovery of Aristotle to the Disintegration of Scholasticism, 1100-1600,* Cambridge: Cambridge University Press 1982.

Paul Vincent Spade, "Three theories of obligationes: Burley, Kilvington and Swyneshed on Counterfactual Reasoning", *History and Philosophy of Logic* 3 (1):1-32 (1982)

Eleonore Stump, "Roger Swyneshed's Theory of Obligations", *Medioevo* 7:135-174 (1981)

Eleonore Stump, "Obligations. A. From the beginning to the early fourteenth century", in CH, pp. 315-334.

4. Sophista, Richard. 2016. *Master Richard Sophista: Abstractiones*. New York: Oxford University Press

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5. Donati, Silvia, Trifogli, Cecilia, and Ashworth, Earline Jennifer, eds. 2017. *Geoffrey of Aspall: Questions on Aristotle's Physics*. Oxford: Oxford University Press

   Auctores Britannici medii aevi, voll. 26-27.

Edited by Silvia Donati and Cecilia Trifogli; English translation by E. Jennifer Ashworth and Cecilia Trifogli.

Articles 1967-1972

1. Ashworth, Earline Jennifer. 1967. "Joachim Jungius (1587-1657) and the Logic of Relations." *Archiv für Geschichte der Philosophie* no. 49:72-85.

   "In histories of logic, the sixteenth and seventeenth centuries, at least until Leibniz began his work, are either ignored or are referred to with the utmost brevity as being hardly worthy of attention (1).

   (...)

   However, there is one name which appears with fair regularity in the literature, and that is the name of Joachim Jungius, whose *Logica Hamburgensis* is often contrasted favorably with the Port Royal Logic. Both Bochenski and the Kneales allow this book, published in 1638 for the use of the Classical Schools at Hamburg, to be one of the better textbooks of the period (2); while Heinrich Scholz in his influential *Geschichte der Logik*, not only praises it highly, but discusses Jungius's contributions to logic at some length (3). More impressive yet are the varied tributes paid to Jungius by Leibniz, who called him "one of the most able men that Germany has ever had" (4); compared him with Galileo and Descartes (5); and said that "he surpassed all others in the knowledge of true logic, not even excepting the author of the *Artis Cogitandi* [Arnauld]" (6). Of course, much of Leibniz's praise arose from his admiration of Jungius's varied activities, his career as a medical doctor, his contributions to physics, botany, mineralogy, theology, educational theory, and his foundation of the first-learned society in Germany (7). More specifically, however, Leibniz admired Jungius for his demonstration that not all inferences could be reduced to syllogistic form, and he praised his logical acuteness in this respect on a number of occasions (8). The purpose of this paper is to shed some light on a much neglected area of the history of logic by inquiring whether Jungius's treatment of non-syllogistic or, in this context, relational

inferences, is commensurate with the logical distinction which has been claimed for him; and, more briefly, to see whether there are any further factors which set Jungius above other logicians of the same period." (pp. 72-73)

(...)

"In conclusion one may say that although the *Logica Hamburgensis* shares in all the faults of its age, the superficiality, the lack of metalogical perceptiveness, it also has merits which are peculiarly its own. The body of truth-functional logic contained in it would alone be sufficient to distinguish Jungius from his contemporaries, and still more impressive, given the background, is his use of relational inferences. It is true that the argument *a divisis ad composita* is both unoriginal and unremarkable, despite Scholz's praise; it is true that the inversion of relations is found in other contemporary logicians; while discussion of the oblique syllogism was quite usual; but the argument *a rectis ad obliqua* was both original and clearly presented. Moreover, Jungius seems to have been fully conscious that relational inferences were inferences in their own right, to be treated as such and not to be hidden away among the categories. Without this realization, any amount of originality in the discovery of actual inferences could have gone for nought. Hence, while the verdict of Heinrich Scholz needs modification, his praise of Jungius is basically justified, for it was he who brought the logic of relations to the attention of his successors, especially Leibniz." (p. 85)

(1) In this context, it must be acknowledged that historians of thought have been kinder than those devoted strictly to formal logic. For instance, Peter Petersen's seminal work, *Geschichte der aristotelischen Philosophie im protestantischen Deutschland*, Leipzig 1921. contains much material of interest to the historian of logic. The publication in 1964 of Dr. Wilhelm Risse's work, *Die Logik der Neuzeit. 1. Band. 1500—1640*, Stuttgart-Bad Cannstatt 1964, marks a great step forward in the study of the field.

(2) I. Bochenski, *History of Formal Logic*, translated and edited by Ivo Thomas, Notre Dame, Indiana, 1961, p. 257, W. & M. Kneale, *The Development of Logic*, Oxford 1962, p. 313.

(3) H. Scholz, *Geschichte der Logik*, Berlin 1931, pp. 41—2.

(4) "Letter to Christian Habbeus, Jan. 1676", *Samtliche Schriften und Briefe*, edited by the Prussian Academy of Sciences (1923) 1st Series, Vol. I, p. 443.

(5) *Opuscules et fragments inédits de Leibniz*, edited by L. Couturat, Paris 1903, p. 345.

(6) "Letter to Koch, 1708", quoted by Couturat in *La logique de Leibniz*, Paris 1901, note 4, p. 74.

(7) *The Societas Ereunetica*, founded in Rostock in 1622. Unhappily, it lasted at most only two years. For further information on Jungius's life, see the following works:

G. Guhrauer, *Joachim Jungius und sein Zeitalter*, Stuttgart und Tübingen 1850; *Beiträge zur Jungius-Forschung. Prolegomena zu der von der Hamburgischen Universität beschlossenen Ausgabe der Werke von Joachim Jungius* (1587—1657), edited by A. Meyer, Hamburg 1929; Joachim Jungius-Gesellschaft der Wissenschaften: *Die Entfaltung der Wissenschaft. Zum Gedenken an Joachim Jungius*, Hamburg 1957. The second work mentioned contains an extensive bibliography.

(8) *Opuscules et fragments inédits*, p. 287, p. 330, p. 406.

2. ———. 1968. "Propositional Logic in the Sixteenth and Early Seventeenth Centuries." *Notre Dame Journal of Formal Logic* no. 9:179-192.

"Until recently, historians of logic have regarded the early modern period with unremitting gloom. Father Boehner, for instance, claimed that at the end of the fifteenth century logic entered upon a period of unchecked regression, during which it became an insignificant preparatory study, diluted with extra-logical elements, and the insights of men like Burleigh into the crucial importance of propositional logic as a foundation for logic as a whole were lost.(1) Nor is this attitude entirely

unwarranted, for the new humanism in all its aspects was hostile to such medieval developments as the logic of terms and the logic of consequences. Those who were devoted to a classical style condemned medieval works as unpolished and arid, and tended to subordinate logic to rhetoric; while those who advocated a return to the original works of Aristotle, freed from medieval accretions, naturally discounted any additions to the subject matter of the *Organon*.

But it would be a mistake to dismiss the logical work of the period too readily. In the first place, the writings of the medieval logicians were frequently published and widely read. To cite only a few cases, the *Summulae Logicales* of Petrus Hispanus received no fewer than 166 printed editions;(2) Ockham's *Summa Totius Logicae* was well known; the 1639 edition of Duns Scotus included both the *Grammaticae Speculativae* attributed to Thomas of Erfurt and the very interesting *In Universam Logicam Quaestiones of Pseudo-Scotus*; (3) the *Logica* of Paulus Venetus was very popular; and a number of tracts by lesser known men like Magister Martinus and Paulus Pergulensis were printed. Moreover, since logic still played such a preeminent role in education, contemporary scholars were not backward in producing their own textbooks; and numerous rival schools of logic flourished.(4) The purpose of this paper is to make a preliminary survey of some of the wealth of material available from the sixteenth and first half of the seventeenth centuries, in order to ascertain how much of the medieval propositional logic had in fact been retained.(5) It will become clear that the situation was better than has been thought." (p. 179)

(1) See P. Boehner, "Bemerkungen zur Geschichte der De Morgannsche Gesetze in der Scholastik," *Archivâr Philosophie,* 4 (1951), p. 145.

(2) See J. P. Mullally, *The Summulae Logicales of Peter of Spain* (Notre Dame, Indiana, 1945), p. LXXVIII.

(3) In Joannes Duns Scotus, *Opera Omnia,* edited by L. Wadding (Lugduni, 1639), Vol. I.

(4) For a comprehensive account of the various schools of logic, see Dr. Wilhelm Risse, *Die Logik der Neuzeit. I. Band 1500-1640,* (Stuttgart-Bad Cannstatt, 1964).

(5) I have limited myself to material in the British Museum and the Cambridge University Library for the purposes of this introductory survey.

3. ———. 1968. "Petrus Fonseca and Material Implication." *Notre Dame Journal of Formal Logic* no. 9:227-228.

   "Little attention has been paid to the question of whether material implication was recognized in the sixteenth and seventeenth centuries, although it has been argued that John of St. Thomas was aware of the equivalence '(p ⊃ q) ≡ (~p v q)'.(1) The other usual test-case for a knowledge of material implication is '(p ⊃ q) ≡ ~(p . ~q) and I intend to show that the sixteenth century Jesuit, Petrus Fonseca, whose *Institutionum Dialecticarum libri octo* was one of the most popular textbooks of the period, (2) was well acquainted with this second equivalence." (p. 227)

   (...)

   "One must conclude that Fonseca was aware both of strict and of material implication." (p. 228)

   (1) See Ivo Thomas, "Material Implication in John of St. Thomas", *Dominican Studies* 3 (1950), p. 180; and John J. Doyle, "John of St. Thomas and Mathematical Logic", *The New Scholasticism* 27 (1953), pp. 3-38.

   (2) First published in 1564, it went into at least 44 editions. See Wilhelm Risse, *Die Logik der Neuzeit*, Band I. 1500-1640 (Stuttgart-Bad Cannstatt, 1964), p. 362, n. 395.

4. ———. 1969. "The Doctrine of Supposition in the Sixteenth and Seventeenth Centuries." *Archiv für Geschichte der Philosophie* no. 51:260-285.

   "The purpose of this paper is to make a preliminary survey of some of the wealth of material available from the sixteenth and first half of the seventeenth centuries, in order to ascertain how

much of the medieval propositional logic had in fact been retained.(5) It will become clear that the situation was better than has been thought.

The vocabulary and organization of the textbooks under consideration were fairly standard. The discussion of the proposition [*Enuntiatio, Propositio*, or, in Ramist texts, *Axioma*] followed sections on the predicaments and predicables or the Ramist equivalent, on arguments. Medieval logicians had called the compound proposition 'hypothetical', but sixteenth and seventeenth century writers more usually referred to *enuntiatio conĭuncta* or *composita*, sometimes with a note to the effect that it is vulgarly or improperly called 'hypothetical'.(6) Melancthon retained the name 'hypothetical', as did one or two others.(7) The Spanish scholastic, Petrus Fonseca, discussed the whole question in some detail, saying that the name 'hypothetical' most properly applies to conditional propositions, but can also be used of disjunctions, because they imply a conditional.(8) A compound proposition was generally said to consist of two (or more) categorical propositions, joined by one (or more) of a list of propositional connectives. The assumption that the truth of these propositions depended upon the truth of the parts, the kind of connective employed, and in certain cases the relationship between the parts usually remained implicit, but the seventeenth century German logician, Joachim Jungius, said explicitly that truth or falsity depended on "the kind of composition involved";(9) while Alsted had written previously that truth or falsity depended "on the disposition of parts". (10)

There was much agreement as to the kinds of compound proposition to be considered. Conditional, conjunctive, and disjunctive propositions were always mentioned. Those logicians in the scholastic tradition, like Campanella, Cardillus, Fonseca, Hunnaeus and John of St. Thomas, included causal and rational propositions, as did some outside the tradition like Cornelius Martini and Jungius, who discussed the causal proposition at length. Only a few, including Fonseca and C. Martini, mentioned the temporal and local propositions which had been discussed by such medieval logicians as Ockham and

Burleigh; but both Ramus and Burgersdijck spoke of 'related' propositions which exhibit 'when' and 'where' among other connectives.(11)

Ramus and those influenced by him added a new kind of compound proposition, the discretive.

Although compound propositions were rarely called 'hypothetical', the traditional title of 'hypothetical syllogism' was usually retained for the discussion of propositional inference forms. Only a few spoke of *syllogismus compositus* or *coniunctus*. (12) In all cases the categorical syllogism was discussed before the hypothetical, and usually such matters as sorites, example, enthymeme and induction also came first. A few books had, in addition, a section on the rules for valid inference or *bona consequeentia*.

Melancthon in his *Erotemata Dialectices* included a chapter entitled *De Regulis Consequentiarum* after his discussion of sorites and before his discussion of the hypothetical syllogism. Alsted placed his canons of material consequence in the same position; while the remarks of Caesarius come after his section on the hypothetical syllogism. On the other hand, the three scholastics, Campanella, Fonseca, and Hunnaeus introduced their rules for good consequence before they discussed the syllogism, thus approaching most closely to the later medieval order of priorities." (pp. 179-180)

(...)

"It is indeed true that the logicians of the sixteenth and early seventeenth centuries failed to appreciate the fundamental importance which the logicians of the later middle ages had attributed to propositional logic; and a number of the texts I have been concerned with even give instructions for the reduction of hypothetical syllogisms to categorical syllogisms. (88) On the other hand, the amount of propositional logic retained was by no means negligible, and some authors, such as Fonseca and Jungius, included a great deal. No startling advances were made, but there were innovations in detail, like

Jungius's discussion of the posterior subdisjunctiva, or the linking of the conditional with a negated conjunction.

One may therefore conclude that, while the period is not one of great excitement for the historian of logic, it merits considerably more attention than it has been granted in the past." (p. 188)

(5) I have limited myself to material in the British Museum and the Cambridge University Library for the purposes of this introductory survey.

(6) Cf. Thomas Campanella, *Philosophiae Rationalis Partes quinque. 2. Dialectica* (Parisiis, 1638), p. 334; Augustinus Hunnaeus, *Dialectica seu generalia logices praecepta omnia* (Antverpiae, 1585), p. 147; and Amandus Polanus, *Logicae libri duo* (Basileae, 1599), p. 147.

(7) Philippus Melancthon, *Erotemata Dialectices*, (---, 1540?), p. 96. Cf. Johannes Caesarius, *Dialectica* (Coloniae, 1559), Tract. IV [No pagination]; and Cornelius Martini, *Commentatiomm logicorum adversus Ramistas* (Helmstadii, 1623), p. 204.

(8) Petrus Fonseca, Institutionum Dialecticarum libri octo (Conimbricae, 1590), Vol. I, p. 173. Cf. Abelard's discussion of the same point in his Dialectica, edited by de Rijk (Assen, 1956), p. 488.

(9) Joachim Jungius, *Logica Hamburgensis*, edited by R. W. Meyer (Hamburg, 1957), p. 98. '([Enuntiatio conjuncta] . . . secundum illam compositionis speciem, veritatis et falsitatis est particeps".

(10) J. H. Alsted, *Logicae Systema Harmonium* (Herbonae Nassoviorum, 1614), p. 321. "Compositi axiomatis veritas & necessitas pendet specialiter ex partium dispositione".

(11) Petrus Ramus, *Dialecticae libri duo* (Parisiis, 1560), p. 126; and Franco Burgersdijck, *Institutionum Logicarum libri duo*, (Lugduni Batavorum, 1634), pp. 166-167.

(12) E.g., Fonseca, op. cit., vol. II, p. 100, refers to "syllogismus coniunctus"; and Polanus, op. cit., p. 165, refers to "syllogismus compositus".

(88) E.g., Conrad Dietericus, *Institutiones Dialecticae* (Giessae Hassorum, 1655), p. 312; Fortunatus Crellius, *Isagoge Logica* (Neustadii, 1590),pp. 243-246; and Jungius, *op. cit.*, *passim*.

5. ———. 1970. "Some Notes on Syllogistic in the Sixteenth and Seventeenth Centuries." *Notre Dame Journal of Formal Logic* no. 11:17-33.

"Although a number of different schools of logic flourished in the sixteenth and seventeenth centuries (2), they seem to have shared a lack of interest in formal logic which expressed itself in a greater concern for the soundness than for the validity of arguments. An example of this tendency is the emphasis placed upon the Topics, or the ways of dealing with and classifying precisely those arguments which were not thought to be susceptible of formal treatment, since they depended for their effectiveness upon the meaning of the terms involved.(3) It is true, of course, that the Humanists and, later, the Ramists, devoted considerably more space to the Topics and to the "invention" of arguments than did the scholastics, the Aristotelians, the Philippists or followers of Melancthon, or even the eclectics; but this was balanced by the greater devotion of the other schools to the categories, the predicables, the pre-, post-, and even extra-predicaments.(4) However, there was one subject which was both formal in inspiration and common to all text-books, namely, the syllogism; and as a result it provides a very good test of how much interest and competence in purely formal matters was retained during these centuries of logical decline." (p. 17)

(...)

"In the light of this discussion, I find myself driven to the reluctant conclusion that genuine competence in formal logic was not often to be found in this period, at least where syllogistic was concerned. One distressing feature is the lack of discussion of issues like the definition of the major and minor terms or the status of singular propositions. Frequently one is

left to guess differences in meta-theory from differences in usage.

And even where there is discussion, it is not always adequate. For instance, a doctrine of the relationship between terms was used to exclude the fourth figure without any realization that this doctrine could not properly be applied to the first, second or third figures. Another characteristic of logicians of this period was a random introduction of new modes. What reason could be given for listing only two indirect modes of the second figure, or for allowing singular terms to appear only in third figure syllogisms? Finally, many logicians introduced frankly extra-logical considerations into their discussions. What was natural, what was fitting, what people tended to say, were all thought to be relevant issues. Only Arnauld and Alsted and, to a lesser extent, Campanella, present the right doctrines for the right reasons, unencumbered by extraneous material." (pp. 27-28)

(1) This study is based on an examination of printed texts in the British Museum, the Cambridge University Library, and the Bodleian. I do not mention Leibniz because he was not a writer of logical textbooks.

(2) For a comprehensive account of the various schools, see Wilhelm Risse, *Die Logik der Neuzeit. I Band. 1500-1640* (Stuttgart-Bad Cannstatt, 1964).

(3) The situation is rather different today. For instance, much of the material discussed under the Topic of *genus* and *species* could be dealt with by set theory, and much of that discussed under the Topic of part and whole could be formalized by the methods of S. Lesniewski. The *Topics*, as treated by Boethius, Abelard, and Peter of Spain, are discussed by Otto Bird, in his article "The Formalizing of the Topics in Mediaeval Logic," *Notre Dame Journal of Formal Logic*, vol. 1 (1960), pp. 138-149.

(4) For a typical account of these matters see Joachim Jungius, *Logica Hamburgensis*, edited by R. W. Meyer (Hamburg, 1957), Book I.

6. ———. 1972. "The Treatment of Semantic Paradoxes from 1400 to 1700." *Notre Dame Journal of Formal Logic* no. 13:34-52.

   "During the middle ages, semantic paradoxes, particularly in the form of "Socrates speaks falsely", where this is taken to be his sole utterance, were discussed extensively under the heading of *insolubilia*. Some attention has been paid to the solutions offered by Ockham, Buridan, and Paul of Venice, but otherwise little work seems to have been done in this area.

   My own particular interest is with the generally neglected period of logic between the death of Paul of Venice in 1429 and the end of the seventeenth century; and the purpose of this paper is to last some light both upon the new writings on paradoxes and upon the marked change in emphasis which took place during the sixteenth century. Although the traditional writings on *insolubilia* were available throughout the period, the detailed discussions of the fifteenth and early sixteenth centuries were soon entirely replaced by briefer comments whose inspiration seems wholly classical. Even the mediaeval word *insolubile* was replaced by the Ciceronian *inexplicabile*. In this area at least there is strong evidence for the usual claim that the insights of scholastic logic were swamped by the new interests and studies of Renaissance humanism." (p. 34)

   (...)

   "Whether any of these solutions is likely to bear fruit today is for the reader to decide. It is, however, clear that the writers of the fifteenth and early sixteenth century were inspired by a genuine interest in problems of logic and language, and that they handled them with the finest tools available. That their discussions should have been so completely ignored by subsequent logicians, some of whom were doubtless their pupils, is surprising, given both the availability of their books and the persistence of other traditional doctrines like supposition. (81)" (p. 45)

   (81) See my article, "The Doctrine of Supposition in the Sixteenth and Seventeenth Centuries", *Archiv fur Geschichte*

der Philosophie vol. 51 (1969), pp. 260-285.

7. ———. 1972. "Strict and Material Implication in the Early Sixteenth Century." *Notre Dame Journal of Formal Logic* no. 13:556-560.

   "One of the favorite games played by historians of logic is that of searching their sources for signs of the Lewis-Langford distinction between strict and material implication. There are three ways of going about this, but the first two are often reminiscent of the conjurer searching for his rabbit, and only the third has real merit, for it alone involves the study of what was said about the conditional as such. I shall look at each way in turn, in relation to writers of the early sixteenth century." (p. 556)

   (...)

   "I think it is fair to conclude by saying that some early sixteenth century logicians were beyond doubt aware of the distinction between strict and material implication; and that no special pleading is necessary to establish this." (p. 560)

8. ———. 1972. "Descartes' Theory of Clear and Distinct Ideas." In *Cartesian Studies*, edited by Butler, Ronald Joseph, 89-105. Oxford: Basil Blackwell.

   "It is widely agreed that Descartes took ideas to be the objects of knowledge and that his theory of clear and distinct ideas arose from his attempt to find a way of picking out those ideas whose truth was so certain and self-evident that the thinker could be said to know them with certainty. To say of an idea that it is clear and distinct was, he believed, to say of it both that it was certainly true and that any claim to know it was justified. No other criterion need be appealed to. It is at this point, however, that most of those who set out to expound Descartes' theory of knowledge are brought to a standstill. The part played by clear ideas is obvious enough, but what did Descartes mean by `clear and distinct'? This paper is an attempt, not to make an original contribution to the study of Descartes, but to elucidate his terms and evaluate his criterion in the light of what both he and others have written." (p. 89)

(...)

"The fact that Descartes adopted the word ‘idea’ is itself significant. When scholastic philosophers discussed human cognition, they spoke of the mind as containing concepts (*species, intentiones*). They claimed that these concepts originated through our sense perceptions, and hence that they stood in some relation to external objects. The term ‘concept’ was contrasted with the term ‘idea’. Ideas were the eternal essences or archetypes contemplated by God, and the question of their external reference did not arise. They were an integral part of God’s mind. God could create instances of one of his ideas, but his idea was in no way dependent upon the existence of such instances. Descartes took the word ‘idea’ and applied it to the contents of the human mind because he wanted to escape the suggestion that these contents must be in some sense dependent on the external world as a causal agent. (9) He wished to establish the logical possibility that a mind and the ideas contained within it are unrelated to other existents, and can be discussed in isolation from them.

Descartes saw the term ‘idea’ as having a very wide extension.

He said “ . . . I take the term idea to stand for whatever the mind directly perceives,”(10) where the verb ‘perceive’ refers to any possible cognitive activity, including sensing, imagining and conceiving.(11) Thus a sense datum, a memory, an image, and a concept can all be called ideas. This, of course, leads to the blurring of distinctions. For Descartes, “I have an idea of red” may mean that I am now sensing something red, or that I have a concept of the colour red, even if I am not now picking out an instance of that concept. Moreover, when Descartes speaks of an idea, he may be taking it as representative of some object or quality in the physical world, as when he says “I have an idea of the sky and stars,” or he may be referring to the meaning he assigns to a word, as when he says “I have an idea of substance.” Nor does he make any distinction between “having an idea” and “entertaining a proposition.” Such statements as “Nothing comes from nothing” and “The three angles of a triangle are equal to two right angles” are

categorized as ‘common notions’,(12) and are included among the contents of the mind. Descartes does remark that in some cases an idea may be expressed by a name, in other cases by a proposition,(13) but he does not bother to pursue this line of inquiry.

One of the characteristics of an idea is 'objective reality’, a scholastic phrase which Descartes adopted, but used in a new way. In scholastic writings the terms ‘subjective’ and ‘objective’ have meanings which are the reverse of the modem meanings. An object like a table exists subjectively or as a subject if it has spatio-temporal existence, if it is real or actual. In contrast, the concept of a table can be looked at as having two kinds of existence. The concept *qua* concept has formal existence, but the concept as having some specifiable content is said to have objective existence, or existence as an object of thought. The concepts of a table and of a chair are formally similar but objectively different. So far as subjective realities were concerned, the scholastics assigned them different grades of reality according to their perfection and causal power. For instance, a substance is more perfect and causally more efficacious than an accident, hence a man has a higher grade of reality than the colour red.

It was also held that every effect had a cause with either an equal or a higher grade of reality. These doctrines were not seen as having any relevance to concepts. As formally existent, a concept has of course to have some cause, but the content of the concept was not seen as having any independent reality. Descartes, however, felt that the objective reality could be considered independently of its formal reality, and that it must be graded just as subjective reality was graded. The idea of a man, he felt, has more objective reality than the idea of a colour. Moreover, the cause of the idea containing a certain degree of objective reality must have an equal or greater degree of subjective reality. For instance, the idea of God has so high a degree of objective reality that only God himself is perfect enough to be the cause of such an idea.(14)" (pp. 91-93)

(...)

"Although Descartes struggled to defend his criterion, his struggles ended in an impasse. He had made the mistake of trying to prove too much. He had wanted to develop an introspective technique by which he could be sure of recognizing those ideas which were objects of certain knowledge; but such an enterprise was doomed from the start. He could only escape from the objection that nothing about an idea can justify us in making judgment about its external reference by entering into an uneasy and unjustifiable alliance with God; and by such an alliance he negated his claim that a single criterion for true and knowable ideas could be found." (p. 105)

(9) E. S. Haldane, G. R. T. Ross (eds.) , *The Philosophical Works of Descartes*, (Cambridge, 1911) [cited as 'HR'] vol. II, 68.

(10) HR II, 67-8.

(11) HR I, 232.

(12) HR I, 239.

(13) C. Adam P. Tannery, *Oeuvres de Descartes* (Paris 1897-1913) [cited as 'AT'] AT III, 395.

(14) HR I, 161-170.

Digital Quadrivium Project



History of Logic

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Writings of E. J. Ashworth on the History of Logic. Second Part: Articles from 1973 to 1979

Articles 1973-1979

1. Ashworth, Earline Jennifer. 1973. "Are There Really Two Logics?" *Dialogue. Canadian Philosophical Review* no. 12:100-109.

   "As a historian of logic, I am frequently puzzled by the things which people have to say about the relationship between mathematical logic and some other kind of logic which is variously described as ‘intentional’ and ‘traditional.’ Part of my puzzlement arises from my failure to understand precisely what kind of system is being offered under the guise of intentional logic. I have always taken it that logic is concerned with valid inferences, with showing us how we may legitimately derive a conclusion from a set of premisses; yet the validation of inferences seems to be the least of the concerns of the intentional logician. He says that it can be done, but he does not bother to show us how. My purpose in this paper is to list some of the sources of my puzzlement in the hope that an exponent of intentional logic will show me how they can be resolved, and how their resolution will contribute to the building of a system (however informal) in which different types of argument can be validated."

2. ———. 1973. "Existential Assumptions in Late Medieval Logic." *American Philosophical Quarterly* no. 10:141-147.

"There are three types of existential assumption that are commonly made by logicians: (1) that subject terms refer to non-empty classes; (2) that proper names have referents; and (3) that formulas are to be interpreted only within non-empty domains. In the standard first-order quantificational calculus with constants, the second and third of these assumptions are retained, but the first, which is attributed to traditional syllogistic, has been abandoned.

Subject terms may refer to empty classes, and a distinction can be drawn within the system between those inferences which are valid only for non-empty classes and those which are valid for both empty and non-empty alike. For instance, given the assumption that universally quantified propositions whose subject terms refer to empty classes are true, but that existentially quantified propositions whose subject terms refer to empty classes are false, it turns out that the inference from "All *A*s are *B*" to "Some *A*s are *B*" only holds with the addition of the premiss, "There is at least one *A*." More recently, systems have been constructed in which the other two assumptions have also been discarded. Their valid formulas are valid in both empty and non-empty domains, and non-denoting constants are admitted. Any inference whose validity depends on the assumption that the domain of interpretation is non-empty, or that a constant denotes, is distinguished from the others by the presence of an extra premiss.(1) Thus, what was an assumption implicitly applied to all cases, is now made explicit and is shown to apply only to a subset of formulas within the system.

It is frequently assumed that medieval logic operated with a group of implicit existential assumptions similar to those I have mentioned, but this view is erroneous. Late medieval logicians were just as concerned as contemporary logicians to deal with non-denoting terms within their systems, and to draw explicit distinctions between those inferences whose validity involves existential assumptions and those whose validity does not involve existential assumptions. It is inappropriate to ask whether they took their formulas to be valid within the empty domain or not, both because they worked with ordinary language rather than with formal systems, and because they did

not use the notion of interpretation within a domain. When they interpreted a sentence such as "All men are animals," they did not speak of a domain of individuals some of whom were men and some of whom were animals, but only of those individuals who were either men or animals.

However, they explicitly concerned themselves with the other two existential assumptions, and they admitted both non-denoting constants and terms referring to empty classes to their system. In this paper I intend to examine how some logicians of the late 15th and early 16th centuries interpreted sentences containing non-denoting terms, how they assigned truth values to them, and how they dealt with those inferences which needed an existential premiss to ensure validity." (p. 141)

(...)

"My discussion has been necessarily somewhat sketchy, and I have not examined all the contexts in which *constantia* was used,(28) but it should have become clear by now not only that late medieval logicians had clear views about the existential import of various types of sentences, but that they used their initial decisions about the truth and falsity of sentences containing non-denoting terms to build a consistent system. It is to be regretted that the vast majority of logicians after the third decade of the 16th century ceased to discuss these matters, with the result that modern readers tend to think of traditional logic as lacking a sophistication which it did indeed possess." (p. 147)

(1) See, for example, W. V. O. Quine, "Quantification and the Empty Domain" in *Selected Logic Papers* (New York, 1966), pp. 220-223; Hugues Leblanc and Theodore Hailperin, "Non-Designating Singular Terms," *The Philosophical Review*, vol. 68 (1959), pp. 239-243; B. C. van Fraassen, "Singular Terms, Truth Value Gaps and Free Logic," *The Journal of Philosophy*, vol. 63 (1966), p. 481-495. There is a large and growing body of literature on the topic of logics which are free from existential suppositions.

(29)

3. ———. 1973. "Andreas Kesler and the Later Theory of Consequence." *Notre Dame Journal of Formal Logic* no. 14:205-214.

   "In another paper I examined the theory of consequence presented by a number of later fifteenth and early sixteenth century writers, ending with Javellus, an Italian who died in 1538. (1) For this earlier period, there was an abundance of material, containing much sophisticated discussion of semantical issues; but the next hundred years do not offer more than a few sources, and these are of limited value. The only really outstanding figure, so far as I can see, is that of Andreas Kesler. He was a Protestant theologian who was born at Coburg in 1595, educated at Jena and Wittenberg, and died in 1643 after a long career in education. In 1623 he published a book entitled *De Consequentia Tractatus Logicae* which is unique, both for its own time, and as compared to the products of this earlier period, in that it explicitly subsumes the whole of formal logic under the theory of consequence. The laws of opposition and conversion, the categorical and hypothetical syllogism, were all seen as different types of consequence. Moreover, no extraneous material was included. Instead of starting with the categories, like the Aristotelians, or with the invention of arguments, like the Ramists, he devoted his first chapter to the definition of consequence. Topics, informal fallacies and other such subjects found no place, whereas some rarely discussed matters like exclusive and reduplicative propositions and the modal syllogism did appear. Thus he stands out for his contents as well as for his organization." (p. 205)

   (...)

   "After this brief survey one can only conclude that the theory of consequence suffered an abrupt decline after the first part of the sixteenth century. The one outstanding writer on the subject was Andreas Kesler, but he stands out for a single insight, rather than for any awareness of the ramifications of the theory. Unlike his sources, he saw that all of formal logic could be subsumed under the basic notion of consequence, and he was able to exclude extraneous material, but that was as far

as he went. About the definition and division of consequence, and about consequential rules, he had nothing to say but what had been said before him by Fonseca and Regius. Nor did he betray any knowledge of earlier writers, although some at least must have been available to him in Wittenberg. For once those who deplore the loss of mediaeval insights during the sixteenth century seem to be justified." (p. 210)

(1) See my paper "The Theory of Consequence in the Late Fifteenth and Early Sixteenth Centuries,", to appear in *Notre Dame Journal of Formal Logic*, vol. XIV (1973), No. 3, pp. 289-315.

4. ———. 1973. "The Theory of Consequences in the Late Fifteenth and Early Sixteenth Centuries." *Notre Dame Journal of Formal Logic* no. 14:289-315.

"In this paper I intend to examine the treatment accorded to consequences by a group of writers from the late fifteenth and early sixteenth centuries, although I shall make some reference to earlier periods. The subject of consequences (or valid inference) is of central importance to the historian of logic because those who discussed it covered such a wide range of logical issues, including criteria for validity, problems of self-reference, the status of the so-called paradoxes of strict implication, and the systematization of valid inference forms. Indeed, a large part of semantics and the whole of formal logic could be subsumed under this general heading. Whether the authors themselves fully appreciated that this was so is unfortunately not such an easy question to answer, for those I am concerned with frequently leave the reader in doubt as to their view of the relation of consequences to the rest of logic. So far as they discussed the matter, syllogistic was seen to be consequential in nature,(1) but they certainly did not make the subordinate position of the syllogism as clear as Burleigh had in the fourteenth century, or indeed as Andreas Kesler was to do in the seventeenth century.(2) A good guide to the way they viewed the problem is to see where consequences were discussed.

A very few authors, including J. Major, A. Coronel and J. Almain, devoted a whole treatise to them, but generally speaking they came in on the coat-tails of other topics so far as separate treatises were concerned.

They appear at the beginning of Dolz's treatise on the syllogism, at the end of Celaya's treatise on supposition and under 'hypothetical propositions' in the treatises on opposition written by R. Caubraith and F. Enzinas. The best places to look for a discussion of consequence turn out to be commentaries on Peter of Spain, where they appear either as an appendage to the *Parva Logicalia* or under the heading of 'hypothetical propositions', and, of course, general textbooks of logic. In these, a separate tract was sometimes devoted to consequences, as it was by C. Javellus, but more usually they were associated with the syllogism, whether as an introduction to it or, sometimes, as an appendix to it. Savonarola, for instance, said all he had to say of consequences in a section on the powers of the syllogism.

The bibliography at the end of this paper should give a fairly clear picture of the situation; though it must be noted that the majority of commentaries and textbooks belonging to the sixteenth century did not mention consequences at all." (pp. 289-290)

(1) Enzinas, *Tractatus Syllogismorum*, fo.I vo, said "syllogismus est consequentia bona et formalis . . . omnis consequentia formalis que non tenet gratia alicuius regule logicalis tenebit syllogistice." Cf. Heirich Greve, *Parva Logicalia nuper disputata*, Leipzig (149-).fo. lxxi.

(2) Andreas Kesler, *De Consequentia Tractatus Logicus* (Wittenberg, 1623). See my paper, '*Andreas Kesler and the later theory of consequence," *Notre Dame Journal of Formal Logic*, vol. XIV (1973), pp. 205-214.

5. ———. 1973. "The Doctrine of *Exponibilia* in the Fifteenth and Sixteenth Centuries." *Vivarium* no. 11:137-167.

   Reprinted as essay IX in: *Studies in Post-Medieval Semantics*.

"One of the most neglected parts of late medieval logical theory is that devoted to *exponibilia*, or those propositions which need further analysis in order to lay bare their underlying logical form and to make clear under what conditions they can be said to be true or false. My main intention in this paper is to examine the rich array of printed sources which are available to us from the later fifteenth and early sixteenth centuries, but I will consider some texts written before the invention of printing, and I will also give some account of what happened to the theory in the late sixteenth and seventeenth centuries. The sources fall into three main groups. There are separate treatises on exponibles, especially those written by Peter of Ailly(*) and later Parisian logicians; there are commentaries on the treatise on exponibles attributed to Peter of Spain; and there are those parts of longer works which were devoted to 'Proofs of Terms', as in Paul of Venice and his followers. These groupings are not, of course, exhaustive. For instance, Marsilius of Inghen and George of Brussels discussed exponibles in the second part of a treatise on consequences, and Albert of Saxony included exponibles in the part of *Perutilis Logica* devoted to different kinds of proposition. As might be expected, the authors of the separate treatises on exponibles were considerably more detailed and careful in their analysis than were those authors who treated exponibles as a subsidiary matter. In my view, the two most outstanding treatises are those written by Peter of Ailly (d. 1420) and by Domingo de Soto (d. 1560). The latter is not original, but it is a very acute and thorough survey of the doctrines which were current in late fifteenth and early sixteenth century Paris, where de Soto had studied under and with such logicians as Major, Celaya and Lax, whose names will frequently occur in my text. Outside treatises devoted to exponibles, good brief treatments are to be found in the anonymous commentator on Marsilius of Inghen, and in George of Brussels, (both of the later fifteenth century) and in Hieronymus of St. Mark (of the early sixteenth century). The earlier writers are often disappointing.

For instance, although Paul of Venice's *Logica Magna* is sometimes described as an encyclopedia of medieval logic, the

section on exponibles lacks the precise analysis of types and sub-types of exponible propositions found in other authors, and the examples are frequently confusing.

Similarly, the treatise wrongly attributed to Peter of Spain lacks detail, and derives most of its value from the remarks of commentators." (pp. 137-138)

(...)

"To conclude, one can say that the history of exponible propositions mirrors the history of medieval logical doctrines in general. At the end of the fifteenth and beginning of the sixteenth centuries there was a sudden surge of activity, during which such topics as *exponibilia, insolubilia* and *suppositiones* were analyzed, clarified and elaborated in works which are highly respectable from the logician's point of view, even if they contain little that is original. This period of activity was followed by a period of decline, in which medieval doctrines continued to receive some attention, especially in Spain, but they are clearly subordinated to the main business of expounding Aristotelian logic. By the end of the seventeenth century they cease ever to be mentioned." (p. 165)

[* Peter of Ailly, *Tractatus Exponibilium*, Paris c. 1495?]

[** Domingo de Soto, *Opusculus Exponibilium*, in *Introductiones dialectice*, Burgis 1529]

6. ———. 1973. "Priority of Analysis and Merely Confused Supposition." *Franciscan Studies* no. 33:38-41.

"In a recent article John J. Swiniarski discusses William of Ockham's use of merely confused supposition.(1) He claims that, in the case of universal affirmative propositions, Ockham's method of attributing merely confused supposition to the predicate accomplishes much the same result as Peter Thomas Geach's method of attributing determinate supposition to the predicate and using a priority of analysis rule, whereby the subject is always analysed first. However, he notes, Ockham's analytical procedures when applied to particular negative propositions can lead to erroneous results,which are only avoided by the adoption of a priority of analysis rule. Since such

a rule renders merely confused supposition unnecessary, he concludes that Geach was right and that Ockham ought to have employed only distributive and determinate supposition to get her with a priority of analysis rule in his treatment of standard categorical propositions. I do not wish to criticize what Swiniarski has to say about the interpretation of Ockham. Instead, I wish to make a few remarks about the use of merely confused supposition by sixteenth century logicians in order to show that it is not in general so easily dispensed with. (2)" (p. 38)

(...)

"In the light of these two examples, I conclude that there was good reason for sixteenth century logicians to retain merely confused supposition, and to use Domingo de Soto's priority of analysis rule rather than Geach's." (p. 41)

(1) Swiniarski, John J., "A New Presentation of Ockham's Theory of Supposition with an Evaluation of Some Contemporary Criticisms," *Franciscan Studies*, 30 (1970), 209-217. Those readers who are not familiar with supposition theory should be reminded that merely confused supposition involves an analysis into a disjunctive subject or predicate, whereas distributive supposition involves an analysis into a conjunction of propositions and determinate supposition involves an analysis into a disjunction of propositions.

(2) For further details about supposition theory in the sixteenth century, see my paper: " The Doctrine of Supposition in the Sixteenth and Seventeenth Centuries, " *Archiv für Geschichte der Philosophie*, 51 (1969), 260-285.

7. ———. 1974. "Some Additions to Risse's *Bibliographia Logica*." *Journal of the History of Philosophy* no. 12:361-365.

"One of the greatest contributions to the history of logic in recent years was the publication in 1965 of Wilhelm Risse's *Bibliographia Logica*, Vol. I, which covers the years from 1472 to 1800. However, despite the fact that Risse's monumental work lists an estimated 8,000 logical works, it is still far from comprehensive, as Mr. Hickman pointed out in an earlier

article in this journal. Why this should be the ease immediately becomes apparent when one starts to work in a library such as the Bodleian at Oxford with its handwritten catalogue of books printed before 1920 and its lack of any specialized bibliographies such as the British Museum has provided for early printed books. Even in well catalogued libraries such as the University Library at Cambridge it can be difficult to locate texts, and one often stumbles across a new logical work through the accident of its being bound in the same volume as better known works. As a result of my researches over the last few years, I have put together a list of works which do not appear in Risse in the hope that other historians of logic may benefit from my discoveries. I cannot, however, claim that I have exhausted the resources of the libraries which I have visited. Doubtless there are still not only new editions but new authors left to be discovered." (p. 361)

"This paper concerns logic texts published between 1472 and 1800. I list 20 items whose authors do not appear in Risse, 12 items whose authors appear in Risse in connection with another title or other titles, and 58 items which appear in Risse in another edition or in other editions. I indicate the libraries in which all these items are to be found, and I also list some useful bibliographical works."

8. ———. 1974. "Classification Schemes and the History of Logic." In *Conceptual Basis of the Classification of Knowledge / Les fondements de la classification des savoirs*, edited by Wojciechowski, Jerzy A., 275-283. New York - München - Paris: K. G. Saur.

   Proceedings of the Ottawa Conference on the Conceptual Basis of the Classification of Knowledge, October 1st to 5th, 1971.

   "Logic is one of the most important means of classification we have, for it enables us to appraise our reasoning by drawing the distinction between valid and invalid inferences. Its aim is a simple one, and easily stated, but when we get down to the task of specifying under precisely what conditions a true premiss set will entail a true conclusion, it seems that a whole range of different types of classification is necessary.

Logicians commonly start by drawing the distinction between informal or natural languages and formal or artificial languages. Even at this point, divergent interpretations are possible. One can argue with the early Wittgenstein that natural language has a hidden ideal structure, which it is the task of the logician to uncover; or one can argue with the later Wittgenstein that natural language involves a series of games with different structures, any one of which the logician can choose to present as a formal language. Given both the complexities of natural languages and the variety of formal languages which have been developed, the latter interpretation is by far the most pausible. Once the notion of a formal language has been isolated, one can go on to draw the distinction between syntax, or the study of the relations of signs among themselves, and semantics, or the study of signs as interpreted, as having meaning and as being true or false. In turn we can obtain the notion of different types of logical calculi. For instance, a propositional calculus has one set of signs with certain limited transformations of these signs, and it is interpreted by the assignment of truth values to its constituent parts; whereas a quantificational calculus has a more elaborate set of signs with transformations to match, and it is normally interpreted by means of the assignment of members or sets of members of domains to its constituent parts.

The teacher of logic is often tempted to claim that these types of classification are integral to the study of logic. This is true when logic is seen as the foundation of mathematics, but to say that only, through these distinctions can one sensibly talk about valid and invalid inferences is a much larger claim, and a more dubious one. I intend to look at selected aspects of the history of logic in order to throw some light on the problem of just what kinds of classification are necessary to the isolation of valid inferences, which I take to be the true task of logic. In particular, I shall look at the definitions of valid inference offered by the Scholastic logicians of the late fifteenth and early sixteenth centuries, since this is the historical period with which I am best acquainted. (1)" (p. 275)

(...)

"Are we now to conclude that elaborate classification schemes are irrelevant to the pursuit of logic, so long as we have an adequate definition of a valid inference? The answer to this question will depend in part on how much one wants out of logic.

If one wishes to study the metalogical properties of formal systems, to obtain a complete set of rules, or to relate logic to mathematics, scholastic logic is necessarily inadequate. However, if one wishes to classify those inferences which are used in ordinary language, then one can argue that an elaborate classificatory apparatus combined with the development of formal systems will be a hindrance rather than a help. Even the simplest sentence contains subtleties which will be lost in symbolization. Moreover, there is the grave problem of which system to choose when one is symbolizing and assessing an inference. This problem has two facets. First, one may pick a system which is inadequate to one's purposes. If one attempts to show that a relational inference is valid in terms of the standard monadic predicate calculus, one will fail. Yet one has not proved that the inference in question is not valid. Second, one may pick a system whose standard interpretation is alien to one's purposes. A logician who wishes to show that '—P', therefore 'P' holds would be ill advised to choose the intuitionist propositional calculus. Similarly a logician who wishes to show that " 'Fa' therefore '(Ex)Fx' " should not choose a version of the quantificational calculus which admits non-denoting constants.

The more systematic one's approach to formal logic, the more arbitrary the choise of system seems to be, and hence the less relevant to the normal day to day task of assessing arguments. Scholastic logic, on the other hand, seems perfectly adapted to normal requirements. It is both unpretentious and powerful; it does not violate normal intuitions; and it is non-arbitrary. Or so one might think.

However, let us look a little more closely. What are we to make of the following claims? "An impossible proposition implies any

other proposition." "A necessary proposition follows from any other proposition." "If you come to me I will turn you into an ass" is true provided that you do not come to me." "All chimeras are chimeras" is false because there are no chimeras, but "No chimeras are chimeras" is true for the same reason." The first two examples, the paradoxes of strict implication, follow straight from the definition of a valid inference. The third example is a consequence of the truth-functional interpretation given to promissory conditionals. The last examples are a consequence of the arbitrary decision to save the square of opposition by counting all affirmative propositions with non-referring subjects as false. Yet none of the examples corresponded to the normal intuitions of the sixteenth century. They all gave rise to acrimonious debate, and were accepted only because of the exigencies of the desired system of rules and the desired interpretation of that system. Thus even the scholastics, operating within the framework of ordinary language, were forced to make some of the arbitrary decisions which people tend to blame modern logic for. One may still prefer scholastic logic to modern logic for various reasons, but that it enshrines a true and completely non-arbitrary system of picking out valid inferences cannot be one of them.

In the last resort, the presence or absence of modern classification schemes logic does not make so much difference as one would like to think." (pp. 282-283)

(1) I intend to use the term 'scholastic logician' more narrowly than is proper, to refer to those men whom 1 am concerned with.

9. ———. 1974. "*For Riding is Required a Horse*: A Problem of Meaning and Reference in Late Fifteenth and Early Sixteenth Century Logic." *Vivarium* no. 12:146-172.

Reprinted as essay I in: *Studies in Post-Medieval Semantics*.

"One of the most interesting features of the works of the logicians associated with the University of Paris in the late fifteenth century and the first part of the sixteenth century is their application of medieval logical doctrines to the discussion

of actual examples. In this paper I intend to present a detailed study of one specific example, "For riding is required a horse" [*Ad equitandum requiritur equus*]. I shall first discuss each of the arguments that was used, showing its place in the general body of logical doctrine; then I shall present three typical texts, together with an analysis of the pattern of argument found in each. One text will deal with the problem in the context of contradiction, one in the context of conversion, and one in the context of supposition theory.In this way I hope to deepen our understanding both of the theories and of the techniques of medieval and post-medieval logic." (p. 146)

(...)

"The claim that the gerund 'riding' implies a reference to particular acts of riding,which can in turn be identified with individual horses, solved the problem of "For riding is required a horse" at the expense of raising further philosophical problems about both language and the world. However, the claim that the sentence should be regarded as equivalent either to a simple conditional or to some kind of modal proposition solved all the problems very neatly without, apparently, raising new ones. In the light of such an analysis one could maintain the truth of "For riding is required a horse" without at the same time having to argue that the sentence had the same truth-value as its contradictory or a different truth-value from its simple conversion, since these related sentences would have undergone a similar analysis, thus turning out to have the desired truth-values. Whichever solution one prefers, it seems to have been amply demonstrated that the simple minded approach in terms of personal supposition alone was inadequate. To speak of horses being required for riding is to do more than to make reference, successful or otherwise, to individual horses or any other identifiable objects in the world." (pp. 157-158)

10. ———. 1975. "Descartes' Theory of Objective Reality." *New Scholasticism* no. 49:331-340.

"In the *Third Meditation* Descartes, who is at the beginning sure only of his own existence, presents a complex proof for the

existence of God which is based on the fact that he finds within himself an idea of God. I intend to ignore the supplementary proof which deals with the conservation of his existence, and to focus on his discussion of the properties of ideas, for it is here that Descartes is most difficult to comprehend yet most vulnerable to criticism. With the exception of Gassendi's remarks in the *fifth objection*, I shall concentrate upon what Descartes himself had to say, for a thorough survey of all the secondary sources often serves only to obscure the main issue." (p. 331)

(...)

"Descartes reinforced his arguments with various claims about the nature of predicates and the way in which we come to understand them. He thought, mistakenly, that one could not only distinguish between negative and positive predicates, but that one could demonstrate the logical priority of such positive predicates as 'infinite' or 'perfect' by showing that one can only understand the finite or imperfect in the light of a prior acquaintance with the infinite or perfect. (29) However, although he seems now to be talking about epistemology rather than ontology, it turns out that his claims rest upon the same assumptions about the content and causation of ideas as are involved in the main proof, so they do not need to be discussed further.

However liberal one is in granting Descartes his desired premises, I think it is fair to conclude that his arguments do not prove what they purport to prove. This seems to be a strong indication that one will lose nothing by being illiberal from the very beginning." (p. 340)

(29) E. Haldane and G. Ross, *The Philosophical Works of Descartes* (Cambridge, 1968), I, 166.

11. ———. 1976. "*I Promise You a Horse*. A Second Problem of Meaning and Reference in Late Fifteenth and Early Sixteenth Century Logic (First Part)." *Vivarium* no. 14:62-79.

    Reprinted as essay II (first part) in: *Studies in Post-Medieval Semantics*.

"The logicians associated with the University of Paris in the late fifteenth and the first part of sixteenth century were at one with their medieval predecessors in their attempt to formulate a unified theory of the reference of such general terms as 'horse'. To be successful, any such theory has to give a plausible account of what happens to general terms in modal and intentional sentences, and the logicians I am concerned with clearly tried to deal with this problem. However, because of the rather standard way in which logic texts tended to be organized, the relevant material has to be sought in various places. In an earlier paper, I made a detailed study of the reference the word 'horse' was said to have in the modal sentence, "For riding is required a horse"; and in order to carry out that study, I had to draw material from the discussion of contradiction, of conversion, and of supposition. (1) In this paper, I intend to make a detailed study of the reference the word 'horse' was said to have in the intentional sentence "I promise you a horse", and my material will be drawn from the discussion of contradiction, of conversion, of supposition and of appellation. (2) I shall first examine each of the arguments that was used, showing its place in the general body of logical doctrine; then I shall present four typical texts, together with an analysis of the pattern of argument found in each.

One text will deal with the problem in the context of contradiction, one in the context of conversion, one in the context of supposition, and one in the context of appellation. In this way I hope to show what problems intentional sentences were seen to raise for the standard theory of reference, and how these problems were dealt with." (pp. 62-63)

(...)

"On the whole, it seems fair to say that the logicians I have examined failed to produce a theory of the reference of general terms which applied with equal success to all contexts. Some, like Sbarroya, found themselves forced to emphasize the difference between intentional and non-intentional contexts by postulating completely different types of referent. Some, like Heytesbury, overlooked the difference altogether in their

appeal to personal supposition. Some, like Buridan, recognized that terms in an intentional context have a function which goes beyond that of referring to individual objects; but they were unable to say with precision just how this broader function was to be reconciled with the referential function. However, one thing is common to those who struggled with the logical problems caused by "I promise you a horse". That is, they managed to save the validity of those inferences they were concerned with, either by so interpreting sets of sentences that they were not to be counted as instances of the inferences in question, or by so interpreting sets of sentences that they came out to have the desired truth-values, and could no longer be cited as counter-examples to a general rule. Thus, they were successful as logicians, if not as philosophers of language." (p. 78)

(1) " "For Riding is Required a Horse": A Problem of Meaning and Reference in Late Fifteenth and Early Sixteenth Century Logic". *Vivarium*, XII (1974) pp. 146-72.

(2) Enzinas, Pardo and de Soto discussed the matter in the context of their discussion of contradiction; Celaya, Coronel (*Prima Pars*), Sbarroya and de Soto discussed the matter in the context of their discussion of conversion; Hieronymus of St. Mark and Martinez Siliceo discussed the matter in the context of their discussion of supposition; Tartaretus discussed the matter in the context of his discussion of descent; and Coronel (*Secunda Pars*), Dorp, Hieronymus of St. Mark, Major, Manderston, Mercarius and Pardo discussed the matter in the context of their discussion of appellation. It will be noted that some authors discussed the matter in more than one place. For details of the texts, see the bibliography at the end of the paper. Of the authors cited, Hieronymus of St. Mark and Sbarroya are not, so far as I know, specifically associated with Paris, though they are clearly influenced by Parisian logicians.

For medieval discussions of the problem, see P. T. Geach, "A Medieval Discussion of Intentionality" in *Logic Matters* (Oxford, 1972) 129-138, and J. Trentman, "Vincent Ferrer and His Fourteenth Century Predecessors on a Problem of

Intentionality" in *Arts Libéraux et Philosophie au Moyen Âge* (Montréal/Paris,1969) 951-956.

12. ———. 1976. "*I Promise You a Horse*. A Second Problem of Meaning and Reference in Late Fifteenth and Early Sixteenth Century Logic (Second Part)." *Vivarium* no. 14:139-155.

    Reprinted as essay II (second-part) in: *Studies in Post-Medieval Semantics*.

    Parto Two: *Texts and Analyses*.

13. ———. 1976. "Agostino Nifo's Reinterpretation of Medieval Logic." *Rivista Critica di Storia della Filosofia* no. 31:353-374.

    "A year ago, if I had been asked to give a brief account of medieval logic and its relationship to Renaissance logic, I would probably have said something like this. In the medieval period, logicians had made great advances in the areas both of semantics and of formal logic. In the area of semantics, we find lengthy and sophisticated discussions of terms, of propositions, of supposition theory, which dealt with the reference of terms in various contexts, and of *insolubilia*, or semantic pardoxes, with their farreaching implications for our ordinary assumptions about the truth and reference of propositions. In the area of formal logic, we find equally lengthy and sophisticated discussions of *consequentiae*,

    or valid inference forms for both unanalyzed and analyzed propositions, and of *exponibilia*, those propositions whose logical form needs to be uncovered by means of analysis. A natural result of these advances was a relative down-grading of Aristotle. Aristotelian syllogistic was put in a subordinate place, as just one variety of valid inference, and in general

    the logical works of Aristotle did not receive as much attention as one might have expected. Medieval logicians were as likely to comment on Peter of Spain or to write independent treatises on particular topics as they were to comment on Aristotle; and unless they were directly discussing Aristotle, they were unlikely to pay much attention to the matters

treated of in the *Analytica Posteriora*, *Topica* and *De Sophisticis Elenchis*.

All this, however, was to change with the coming of the Renaissance

Ignoring those at the University of Paris and at various Spanish universities who consciously continued the medieval tradition (2), we find two completely new developments. On the one hand there is Humanism, with its bitter attacks on medieval sophistry, its dropping of virtually all formal logic, and its emphasis on the topics. On the other hand, there is Aristotelianism, with its emphasis on the pure text of Aristotle, freed from medieval accretions, and to be interpreted either directly or with the aid of Greek and Arab commentators. These two schools certainly differed in important respects, but they were united in their rejection of what I have described as the great advances of the medieval

period. Supposition theory, *insolubilia, consequentiae* and *exponibilia* were to be discussed no more; and terms and propositions were to appear only as described by Aristotle or by the grammarians and rhetoricians.

My view of the medieval advances remains unchanged, but I am not now so sure about the abruptness of the change from medieval to Renaissance logic in the works of the Aristotelians of the period. In this paper, I intend to present a case study of the transition as it appears in the works of one Aristotelian, namely Agostino Nifo (or Augustinus Niphus). I intend to show that medieval doctrines were still relatively well-known to him, and were discussed by him at length; but that he presented them in a way which diminished their value and hence made them easier to abandon. Someone who knew of the theory of terms or of supposition theory, to mention just two examples, only through Nifo could well wonder what use these doctrines were, despite the apparent care with which they had been expounded, and could therefore decide to abandon them completely in his own work. Whether this is indeed what happened in the sixteenth century can, of course, only be

established after a good deal of further investigation; and I present the possibility here only as a tentative hypothesis.

(1) I would like to thank Dr. C. B. Schmitt of the Warburg Institute, University of London, for inviting me to read an earlier version of this paper as part of a series devoted to Renaissance Aristotelianism. I would also like to thank the Canada Council for the generous financial support which made the research for this paper possible.

(2) For further discussion and bibliography, see E. J. Ashworth, *Language and Logic in the Post-Medieval Period,* Dordrecht (Holland) - Boston (U.S.A.) 1974.

14. ———. 1976. "Will Socrates Cross the Bridge? A Problem in Medieval Logic." *Franciscan Studies* no. 14:75-84.

Reprinted as essay XII in: *Studies in Post-Medieval Semantics*.

"In their treatises on *insolubilia*, or semantic paradoxes, medieval logicians frequently mentioned other cases in which the assumption that a proposition was true led to the conclusion that it was false, and the assumption that it was false led to the conclusion that it was true. Some of these cases were easily solved. If one considers the proposition "Socrates will enter a religious order" in relation to Socrates' vow, "I will enter a religious order if and only if Plato does," and to Plato's vow, "I will enter a religious order if and only if Socrates does not," one sees at once that the problem stems from contradictory premises.(1). But not all cases were of this sort. Consider the favourite example, "Socrates will not cross the bridge," when said by Socrates, in relation to the two premises, "All those who say what is true will cross the bridge" and "All those who say what is false will not cross the bridge."(2) It is easily demonstrated that "Socrates will not cross the bridge" is true if and only if it is false, but what is not so easily demonstrated is the source of the paradox. Certainly it is not a paradox just like "What I am now saying is false," since the key proposition does not speak of its own semantic properties, but the premises do indeed speak of truth and falsity in a way which has implications for the truth-value of "Socrates will not cross the bridge." The question thus arises whether "Socrates

will not cross the bridge" is to be counted as a semantic paradox, to be dissolved in the same way as the Standard Liar is dissolved, or whether it is to be seen as needing another kind of solution, perhaps less radical in its implications for our common-sense notions about such matters as the legitimacy of self-reference or the definition of truth." (pp. 75-76)

(...)

"In conclusion, I would like to say that Paul of Venice's reputation as the last of the great medieval logicians seems to me to be vastly overrated. Several logicians of the late fifteenth and early sixteenth centuries, including Bricot, Eckius, Major and de Soto, offer more acute discussions of logical problems and more satisfactory solutions, as I hope I have demonstrated by this examination of the bridge paradox." (p. 83)

(1) Thomas Bricot, *Tractatus Insolubilium* (Parisius, 1492) sign. b. viii and sign, c i; Johannes Eckius, *Bursa Pavonis* (Argentine, 1507) sign, k v; John Major, *Insolubilia* (Parrhisiis, 1516) sign, c ii ff. Cf. Albert of Saxony, *Perutilis Logica* (Venetiis, 1522) fo. 46 vo; Robertus de Cenali, *Insolubilia in Liber Prioris Posterioris* (Parisius, 1510) sign, o iiii.

One should note here that vows, promises and the like were treated as propositions with truth-values rather than as performative utterances with no truth-values. This view was combined with a realization that there are certain conditions which have to be met before a vow is binding. For instance, the vower must genuinely intend to do what he vows to do, and what he vows to do must be both moral and within his power. These extra conditions were not thought relevant to the question whether "Socrates will enter a religious order" was true or false.

To the slightly different question of whether Socrates would be bound by his vow, Major, for instance, held that he would not, on the grounds that his vow was conditional and that the condition, given Plato's vow, could not be fulfilled.

For references to Major's text and to other discussions of vows and promises, see below, note 15.

(2) Paul of Venice, *Logica Magna* (Venetiis, 1499) fol. 198 and Paul of Venice, *Tractatus Summularum Logice Pauli Veneti* (Venetiis, 1498) sign. e i vo. The latter work which appeared in many editions, is known as the *Logica Parva*. See also John Buridan, *Sophisms on Meaning and Truth,* translated and with an introduction by T. K. Scott (New York, 1966), pp. 219-220; Cenali, loc. cit.; David Cranston, *Tractatus Insolubilium et Obligationum* [Paris, c. 1512] sign. e iiii; Eckius, op. cit., sign, k iiii vo; Robert Holkot, *Super Quattuor Libros Sententiarum Questiones* (Lugduni, 1497) sign. E ii; Major, op. cit., sign. c ii vo; Peter of Ailly, *Conceptus et Insolubilia* (Parisius, 1498), sign. b. viii; Peter of Mantua, *Logica* (Venetiis, 1492), sign, o vivo; Domingo de Soto, Opusculum Insolubilium in Introductiones Dialectice (Burgis, 1529), fol. cxlvi f. Bricot, op. cit., sign. b. vii vo f. speaks of giving a penny to the truth-teller rather than of allowing him to cross a bridge, but the principle is the same. Some authors (e.g. Eckius, op. cit., sign. k v) gave both versions of the paradox, as did Paul of Venice himself (*Logica Magna* fol. 197 vo f., Lógica Parva, sign. e i f.) It should be noted that there are many variations in the names of the characters and in the phrasing of the propositions. Some authors substituted "You will throw me into the water" for "Socrates will not cross the bridge."

(15) It is because of this association with promising that we find the bridge paradox and others similar to it discussed in theological works as well as logical, e.g. Holkot, op. cit., sign. C iiii ff., sign. D viii vo ff.; John Major, *In Quartum Sententiarum Questiones* ([Paris], 1519), sign. ccxcii vo ff. For general discussions of promising see, e.g., Gratian, *Decretum*, Chapter XXII (various editions) and Richard Mediavilla (or Middletown) *Scriptum Super Quarto Sententiarum* ([Venice], 1489) Book IV, distinction 38.

15. Ashworth, Earline Jennifer. 1977. "Thomas Bricot (D. 1516) and the Liar Paradox." *Journal of the History of Philosophy* no. 15:267-280.

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"Preliminary Remarks.

No one interested in the history of the Liar Paradox will gain a just appreciation of the variety and sophistication of the solutions that were offered unless he pays attention to the logicians working at the University of Paris at the end of the fifteenth century and the beginning of the sixteenth.(1) The study of semantic paradoxes, known as *insolubilia*, formed a significant part of the first-year logic curriculum, which was of course the curriculum for all arts students; and those who taught the subject by no means confined themselves to a repetition of earlier views. Although Ockham, Buridan, Paul of Venice and Peter of Ailly certainly were read and discussed, original work was also produced. One of the earliest and most influential of these original treatises was written by Thomas Bricot. First published in 1491, it received its eighth edition in 1511, (3) and was still being read as late as 1529 when Domingo de Soto discussed it in his own work on semantic paradoxes. (4)

(...)

The only original self-contained works of Bricot that I know are his *Tractatus Insolubilium* and his *Tractatus Obligationum*, which were always printed together. In this paper I intend to discuss only the *Tractatus Insolubilium*.

The book's organization is worthy of some preliminary comment. Its main division is into three *Questiones,* each phrased in a similar manner. In the first *Questio* Bricot inquires whether there is a way of saving the possibilities, impossibilities, contingencies, necessities, truths and falsities of self-referential propositions; the second and third *Questiones* ask simply whether there is another Way of saving, that is, justifying, the attribution of these modalities. The first *Questio* contains what is apparently Bricot's own solution to the problem. In the second *Questio* he discusses the solution that stems from Ockham, and the solution derived from Peter of Ailly is covered in the third. Each *Questio* has exactly the same internal organization. At the beginning, Bricot poses five main questions concerning the proposed solution. He then divides the subsequent discussion into three sections: the first, headed *notabilia*, setting out the main principles of the proposed

solution; the second, *conclusiones*, giving a brief list of conclusions; and the third, *dubia*, taking up a series of problems arising from the proposed solution. Each doubt is aimed at one of the *notabilia* and gives rise to a series of arguments against the proposed solution. Once these have been stated, they are refuted one by one.

After all the doubts have been dealt with, Bricot offers replies to the five main questions posed at the beginning of the section. At no point are the separate solutions compared to one another, though arguments drawn from one view may be used in the critical discussion of another view; and at no point does he actually claim that the first solution is his own and hence to be preferred. Bricot is more forthright in a note on *insolubilia* he added to George of Brussels's commentary on *De Sophisticis Elenchis*, where he says that the solution in question is "omnium probabilissimus." (6) The first solution is explicitly attributed to Bricot by de Soto,(7) who himself studied at Paris, and there is also indirect evidence to support de Soto's claim. The first solution does not figure among the fifteen solutions described by Paul of Venice in his Logica Magna (8) yet it does appear in the works of Parisian logicians contempory with or junior to Bricot. For example, Tartaretus discussed it in a treatise on *insolubilia* first published in 1494, (9) and it was also discussed by John Major and David Cranston.(10) Unfortunately these authors followed the normal practice of mentioning names only in a few outstanding cases. The German Trutvetter did both recommend Bricot by name and describe the view I attribute to him, but without specifically linking the two.(11)"

(2) For further details and a bibliography, see E. J. Ashworth, *Language and Logic in the Post-Medieval Period* (Dordrecht Holland and Boston: Reidel, 1974). For the medieval background, see P. V. Spade, *The Mediaeval Liar: A Catalogue of the Insolubilia-Literature* (Toronto: Pontifical Institute of Mediaeval Studies, 1975).

(3) *Tractatus Insoiubilium* (Paris, 1491; reprinted, Paris, 1492; Paris, 1494; Lyons, 1495; Lyons, 1496; Paris, 1498; Paris, 1504;

Paris, 1511). I have examined copies of each printing and have prepared an edition of the text, on which I base my discussion.

(4) *Opusculum Insolubilium*, in *Introductiones Dialectice* (Burgis, 1529), fol. cxliii-cxlix vo.

(5) I draw my material from H. Élie, “Quelques maîtres de l’université de Paris vers l’an 1500,” *Archives d’histoire doctrinale et littéraire du moyen âge* 18 (1950-1951): 197-200; and A. Renaudet, *Préréforme et humanisme à Paris pendant les premières guerres d’Italie 1494-1517* (Paris, 1916), pp. 96 ff.

(6) George of Brussels, *Expositio in logicam Aristotelis: una cum Magistri Thome bricoti textu de novo inserto nec non cum eiusdem questionibus in cuiusvis fine libri additis* (Lugduni, 1504), fol. cclxxv.

(7) *Opusculum Insolubilium*, fols, cxl vo and cxlvii.

(8) (Venetiis, 1499), fols. 192ff.

(9) Petrus Tartaretus, *Sumularum Petri de hispania explanationes* (Friburgensi, 1494), sign, k v-l i vo.

(10) John Major, *Insolubilia* (Parrhisiis, 1516); David Cranston, *Tractatus insolubilium et obligationum* [Paris, c. 1512].

(11) Jodocus Trutvetter, *Summule totius logice* (Erphurdie, 1501), sign. UUUvi vo-XXX i vo. Trutvetter’s reference is to Bricot’s note in George of Brussels, cclxxiii“vo ff.

16. ———. 1977. "Chimeras and Imaginary Objects: A Study in the Post-Medieval Theory of Signification." *Vivarium* no. 15:57-79.

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"I. *Prefatory Note*.

In the following paper I shall be discussing a particular problem of meaning and reference as it was formulated by a group of logicians who studied and/or taught at the University of Paris in the early sixteenth century.(1) In alphabetical order they are: Johannes Celaya (d. 1558) who was in Paris from 1500 or 1505 until 1524; Ferdinandus de Enzinas (d. 1528) who was in Paris from about 15x8 until 1522; John Major (1469-1550)

who was in Paris from 1492 or 1493 until 1517 and again from 1525 to 1531; William Manderston who taught at Sainte-Barbe from about 1514 and returned to Scotland in or shortly before 1530; Juan Martinez Siliceo (1486-1556) who left Paris in about 1516; Hieronymus Pardo (d. 1502 or 1505); Antonius f Silvester who taught at Montaigu ; and Domingo de Soto (1494-1560) who left Paris in 1519. I shall also discuss the work of the Spaniard Augustinus Sbarroya and the Germans Jodocus Trutvetter (d. 1519) and Johannes Eckius (1486-1543). Both Sbarroya and Eckius were well acquainted with the works of the Paris-trained logicians. Further material is drawn from the fifteenth-century Johannes Dorp and the anonymous author of Commentum emendatum et correctum in primum et quartum tractatus Petri Hyspani. The work of the medieval authors Robert Holkot, John Buridan and Marsilius of Inghen will appear as it was described by early sixteenth-century authors.

II. *Introduction*.

One of the main features of late medieval semantics was the attempt to formulate a unified theory of the reference of general terms. It is true that this attempt was not explicitly discussed, but many of the problems which arose in the context of such topics as signification, supposition, ampliation, appellation, and the logical relations between sentences clearly owed their existence to the assumption that general terms always referred to spatio-temporal individuals; and in the solutions offered to these problems, much ingenuity was employed to ensure that this assumption was modified as little as possible, if at all. I have already shown in two earlier papers how some logicians dealt with reference in the modal context “For riding is required a horse” and in the intentional context “I promise you a horse.” (2) At the end of this paper, I shall discuss another intentional sentence, "A man is imaginarily an ass”, which was thought to present a difficulty. However, it would be a mistake to think that context was the only complicating factor, for there were general terms which placed an obstacle in the path of those seeking a unified theory, not only by virtue of the contexts in which they appeared, but by virtue of their meaning. The favourite example of such terms

was “chimera”, but “irrational man”, “braying man”, and “golden mountain” also served as illustrations. The problem was not merely that they failed to refer, but rather that they were thought to be incapable of referring because the objects which they apparently denoted were impossible just as, for the modern reader, a round square is impossible. The main purpose of the present paper is to explore the way in which the problem was presented, and some of the solutions which were offered." (pp. 57-58)

(...)

"VI. *Conclusion*.

This survey of the way some early sixteenth century logicians treated the problem of chimeras reveals very clearly the alternatives faced by any philosopher who wants to give a unified theory of the reference of general terms. If one adopts a purely extensionalist interpretation of propositions, and allows only ordinary spatio-temporal entities into one’s universe of discourse, then one is faced with the choice between rejecting as false many sentences, such as “I imagine a chimera”, which one would wish to accept as true, and accepting as true many sentences, such as “ “Chimera” signifies an ass”, which one would wish to reject as false. If one extends one’s universe of discourse to include imaginary objects which are not just ordinary objects regarded in a certain way, one faces grave ontological problems. On the other hand, to appeal to appellation theory is to acknowledge that no purely extensionalist interpretation of all propositions can be given and that no unified theory of reference is possible; and to adopt Holkot’s solution is to admit that sentences which seem to be structurally similar are not in fact similar and that some sentences which appear to be about objects in the world are in fact about the contents of our own minds. On the whole my sympathies lie with those who abandoned the belief that both general terms and subject-object sentences can be given a uniform treatment, but I have great respect for the subtlety and sophistication with which arguments for a uniform treatment

were presented. Post-medieval logicians were by no means mindless followers of their medieval predecessors." (p. 79)

(2) E. J. Ashworth, 'For Riding is Required a Horse': A Problem of Meaning and Reference in Late Fifteenth and Early Sixteenth Century Logic, in : *Vivarium* 12 (1974), 94-123; E. J. Ashworth, 'I Promise You a Horse': A Second Problem of Meaning and Reference in Late Fifteenth and Early Sixteenth Century Logic, in: *Vivarium* 14 (1976), 62-79, 139-155." (pp. 57-58)

17. ———. 1977. "An Early Fifteenth Century Discussion of Infinite Sets." *Notre Dame Journal of Formal Logic* no. 18:232-234.

"In the opening years of the fifteenth century, or perhaps a little earlier, John Dorp (1) wrote a commentary on Buridan's *Compendium Totius Logicae* (2) and it is here that one finds a discussion of infinite sets which is not only quite unexpected (3) but which suggests that other thinkers of that period were interested in the same topic.

The question of infinite sets arose in the context of the theory of reference. Medieval logicians assumed that affirmative sentences were true only if the subject and object terms had reference, but this assumption conflicted with their intuitions about such sentences as "I imagine a chimera" and "The word 'chimera' refers to a chimera". These sentences seem to be true, but "chimera" cannot refer to actual or possible chimeras, since a chimera is an impossible object, just as a round square is an impossible object. The question then arose of how such sentences were to be treated, and one obvious answer was to postulate a class of imaginary objects which included impossible objects and to which reference could be made in intentional contexts. (4) In his discussion of this answer, Dorp presented several arguments against the claim that one could refer to impossible objects." (p. 232)

(...)

"Historians of logic must always be wary of taking isolated passages out of context and reading modern developments into them. However, in the case of Dorp there do seem to be good grounds for claiming that he was aware of something

describable as a non-denumerably infinite set. It is a great pity that he does not give us more detail about the reasoning that lay behind his assertions, but it is to be hoped that further research into late fourteenth and early fifteenth century mathematics will reveal it to us." (p. 233)

(1) Dorp received his M.A. from the University of Paris in 1393 and he was last heard of at the University of Cologne in 1418. The dates of his birth and death are not known.

(2) Johannes Buridanus, *Compendium Totius Logicae*, Venedig (1499). Facsimile edition: Frankfurt/Main, Minerva G.m.b.H. (1965). This edition contains Dorp's commentary.

(3) For another medieval reference to infinite sets, see I. Thomas, "A 12th century paradox of the infinite," *The Journal of Symbolic Logic*, vol. 23 (1958), pp. 133-134.

(4) For further discussion and references, see E. J. Ashworth, *'Chimeras and Imaginary Objects: A Study in the Post-Medieval Theory of Signification" [1977].

18. ———. 1978. "A Note on Paul of Venice and the Oxford Logica of 1483." *Medioevo* no. 4:93-99.

19. ———. 1978. "Multiple Quantification and the Use of Special Quantifiers in Early Sixteenth Century Logic." *Notre Dame Journal of Formal Logic* no. 19:599-613.

    Reprinted as essay X in: *Studies in Post-Medieval Semantics*.

    "I have three reasons for writing this paper. In the first place, I want to explain the early sixteenth century practice of using the letters 'a', 'b', 'c', and 'd' as special signs governing the interpretation of terms within sentences. In the second place, I want to investigate the analysis which logicians in the medieval tradition gave of such sentences as "There is somebody all of whose donkeys are running", "Everybody has at least one donkey which is running", and "At least one of the donkeys which everybody owns is running".(2) In the third place, I want to show that, despite what Geach has suggested, (3) logicians in the medieval tradition were capable of offering good reasons for rejecting such inferences as "Every boy loves some girl,

therefore there is some girl that every boy loves". My discussion will be based mainly on the work of a group of logicians who were at the University of Paris in the first two decades of the sixteenth century, in particular Fernando de Enzinas, Antonio Coronel, and Domingo de Soto." (p. 599)

(...)

"Although the logicians whose work I have examined display considerably more flexibility and subtlety than scholastic logicians have usually been credited with, their discussion reveals two important weaknesses. In the first place, they can only cope with the relations expressed in certain kinds of sentences, particularly those containing genitives; and in the second place, they do not give adequate instructions for distinguishing the case in which one is speaking of all members of a class such as donkeys from the case in which one is speaking only of the members of a subclass, such as the donkeys belonging to a particular man. On the other hand, they are clearly sensitive to the different facets of such relationships as donkey-ownership, and they are also sensitive to the kinds of inference which have to be debarred. A complete account of these strengths and weaknesses will have to await further research." (pp. 610-611)

(2) Cf. P. T. Geach, *Reference and Generality,* Ithaca, New York (1962), p. 15 ff.

(3) P. T. Geach, "History of a fallacy" in *Logic Matters,* Oxford (1972), pp. 1-13.

20. ———. 1978. "Theories of the Proposition: Some Early Sixteenth Century Discussions." *Franciscan Studies* no. 38:81-121.

Reprinted as essay IV in: *Studies in Post-Medieval Semantics*.

"I. *Prefatory Notes*

In his excellent book, *Theories of the Proposition. Ancient and Medieval Conceptions of the Bearers of Truth and Falsity*, (1) Gabriel Nuchelmans carries the story up to Paul of Venice, who died in 1429.

In this paper I intend to consider the discussions of propositional sense and reference found in the works of a group of authors connected with the University of Paris in the last decade of the fifteenth century and the first three decades of the sixteenth century. I confine myself to this group not only because it is a group, but because I know of few other sustained discussions of the problem by logicians after Paul of Venice. Two fifteenth century authors, Stephanus de Monte and Andreas Limos raised the matter in the context of insolubilia; (2) the Italian Agostino Nifo (1470-1538) discussed it in two places; (3) and various other authors, such as the German Jodocus Trutvetter, mentioned the topic only in passing. (4) Nor is the matter pursued in any of the early printed *Sentence Commentaries* I have examined, including those written by such authors as Celaya and Major. (5)

The authors I shall discuss are first the two Frenchmen, Thomas Bricot (d. 1516) who did his main logical work in the last decade of the fifteenth century, and Jean Raulin (1443-1514) who entered the Benedictine Order at Cluny in 1497. Second, there is one German, Gervase Waim (c. 1491-1554) who began his studies at Paris in 1507 and was Rector of the University in 1519. Third, there is one Belgian, Pierre Crockaert (Peter of Brussels) (d. 1514) who became a Thomist. Fourth, there are two Scotsmen, John Major (1469-1550) who was taught by Bricot and Pardo before teaching at Paris himself from 1505 to 1517 and again from 1525 to 1531, and George Lokert (d. 1547) who was a pupil of Major. Fifth, there are five Spaniards, Hieronymus Pardo (d. 1505), Juan Celaya (d. 1558), Antonio Coronel, Juan Dolz and Fernando de Enzinas. Finally, there is Hieronymus de Sancto Marco about whom I know little except that he was at one time connected with Oxford, and that he studied theology at Paris. (6)

The contexts in which theories of the proposition were discussed varied. Bricot and Major discussed the matter in their works on *insolubilia*, (7) though what Major had to say was reprinted, somewhat amplified, as a separate section in complete editions of his works.(8) This context was a natural one, since in order to solve the problem of semantic paradoxes

it was necessary to ask what it was that was true or false, and how these properties were to be defined. Dolz inquired about the total significate of the proposition in his treatise on Terms, (9) while Coronel and Pardo asked the same question in more general logic treatises. (10) In a commentary on Peter of Spain, Enzinas asked whether a proposition was true or false by indicating and if so, what it indicated. (11) Similar questions were posed by Raulin and Hieronymus de Sancto Marco. (12) Enzinas also asked about the total significate of a proposition in his work on mental propositions, and Waim asked the same question in his *Tractatus Noticiarum*. (13) Lokert raised the matter in his *Tractatus Noticiarum* by asking about the object of judgment. (14) Bricot, Celaya and Coronel asked about the objects of science, judgment and assent in their commentaries on the *Analytica Posteriora*. (15) Finally, Pierre Crockaert asked about the truth of a proposition in the second *quodlibet* attached to his commentary on Peter of Spain. (16) Presumably because of the nature of a *quodlibet* his discussion is a good deal more elliptical and allusive than that found in the other sources." (pp. 81-83)

(...)

"*Conclusion*.

One of the main features of late medieval logic was the heavy emphasis placed on the notion of reference. Another feature was the ontological parsimony which led logicians to reject impossible and imaginary objects, including complexe and incomplexe significabilia of the sort proposed by Gregory of Rimini. When we consider the theory of terms, we can see these two influences joining to produce a series of attempts to explain the reference of terms in intentional and modal contexts without abandoning either the view that entities must not be multiplied beyond necessity or the view that a unified theory of the reference of general terms is possible. Similar attempts were directed toward the explanation of the reference of such terms as “chimera,” which were thought of as having no possible extension. In other places I have argued that one of the main virtues of Parisian logicians of the early sixteenth century

was their recognition that the views mentioned above were irreconcilable, and that a purely ex-tensionalist approach to the signification of terms would have to be abandoned.165 Their achievements with respect to the theory of the proposition itself are very similar. A number of them saw that both the attempt to postulate special objects of reference for propositions and the attempt to argue that propositions referred to things in the world had failed; and they also saw that the way of escape lay in the acknowledgement that the referential role of propositions is not after all primary. Their function is not to name or to refer, but to make an assertion which can only be further described by a that-clause or a paraphrase. In the last resort, one can only see what the meaning of a proposition is by understanding what claim has been made; pointing to an object or group of objects will never serve as an answer." (pp. 120-121)

(1) Gabriel Nuchelmans, *Theories of the Proposition. Ancient and Medieval Conceptions of the Bearers of Truth and Falsity* (Amsterdam/London: North Holland Publishing Company 1973). This work should be consulted for discussion, references and bibliography pertaining to Buridan, Ockham, Gregory of Rimini, and other medieval authors. For further bibliography see E. J. Ashworth, *The Tradition of Medieval Logic and Speculative Grammar from Anselm to the End of the Seventeenth Century: A Bibliography from 1836 Onwards* (Toronto: Pontifical Institute of Mediaeval Studies, 1978). [Note added to the reprint: "Since I wrote this paper, Nuchelmans's book dealing with the period from 1450 to 1650 has appeared, see Gabriel Nuchelmans, *Late-Scholastic and Humanist Theories of Proposition*,. Amsterdam: North-Holland, 1980.]"

(2) Andreas Limos, *Dubia in Insolubilibus* (Parisiis 1499) sig. a ii rb-b iv vb. Stephanus de Monte, *Ars Sophistica* [Paris, c. 1490?] sign, a vi r-b i r.

(3) Agostino Nifo, *Dialectica Ludicra* (Venetiis, 1521) fo. 50V-53V, cited as DL. Agostino Nifo, *Super Libros Priorum Aristotelis* (Venetiis 1554), fols. 6v-γτ. Nifo follows Pseudo-Scotus very closely, especially in the latter source: cf. *Super*

Librum I Priorum Quaestio VIII in John Duns Scotus *Opera Omnia* (Parisius, L. Vivès, 1891) II, 98-101.

(4) Jodocus Trutvetter, *Summule Totius Logice* (Erphurdie, 1301) sign. AA vi r.

(5) In the earlier editions of his commentary on *Sentences I*, John Major gives a very brief discussion of some of the main views about objects of faith and knowledge, but he declines to discuss *complexe significabilia* on the grounds that they are "voluntarie ficta et sine auctoritate et sine ratione." John Major, *In Primum Senlentiarum* (Parisiis 1519) fol. xvi ra. However in the Paris 1530 edition even this brief discussion has been excluded. He explains in the preface that he has revised the work so as to exclude many Arts topics such as the intension and remission of forms, and he refers to the struggle against Lutheranism as a reason for concentrating on theology.

(6) I draw my information from the title and end pages of Hieronymus de Sancto Marco, *Opusculum de Universali Mundi Machina ac de Metheoricis Impressionibus*, s.l. [1505?], which also tells us that he was a Franciscan.

(7) Thomas Bricot, *Tractatus Insolubilium* (Parisius, 1492), cited as TI. John Major, *Insolubilia* (Parrhisiis, 1516).

(8) John Major, *Inclytarum Artium ac Sacre Pagine Doctoris Acutissimi Joannis Maioris Scoti Libri Quos in Artibus in Collegio Montis Acuti Parisius Regentando in Lucem Emisit* (Lugduni, 1516). All references will be to this edition.

(9) Juan Dolz, *Termini* (Parisius [c. 1511)].

(10) Antonio Coronel, *Prima Pars Rosarii* (Paris, s.a.), cited as PPR. Hieronymus Pardo, *Medulla Dyalectices* (Parisius, 1505).

(11) Fernando de Enzinas, *Primus Tr[actatus Summularum]* (Compluti, 1523) cited as PT.

(12) Jean Raulin, *In Logicam Aristotelis* (Parisiaca Urbe, 1500). Hieronymus de Sancto Marco, *Compendium Preclarum quod Parva Logica seu Summule Dicitur* (Impressum in alma Coloniensi universitate, 1507). All references are to this work.

(13) Fernando de Enzinas, *Tractatus de Compositione Propositionis Mentalis* (Lugduni, 1528) cited as PM. Gervase Waim, *Tractatus Noticiarum* ([Paris] 1519).

(14) George Lokert, *Scriptum in Materiam Notitiarum* (Parisius, 1524).

(15) Thomas Bricot, *Logicales Questiones Subtiles ac Ingeniose super Duobus Libris Posteriorum Aristotelis* (Parisius, 1504) cited as AP. Juan Celaya, *Expositio in Libros Priorum Aristotelis* [Paris, c. 1516]. Antonio Coronel, *Expositio super Libros Posteriorem Aristotelis* (Parisius [1510]), cited as AP. Since completing this paper, I have discovered a similar discussion in the Aristotle commentary of another Scotsman, David Cranston: *Questiones super Posteriorum* ([Paris], 1506) sign, g iv ra-h iii ra. He mentions by name Andreas de Novo Castro, Buridan, Gregory of Rimini, Andreas Limos, Peter of Mantua and Hieronymus Pardo.

(16) Pierre Crockaert, *Summularum Artis Dialetice Utilis Admodum Interpretatio... una cum Fructuosis Quibusdam Quotlibetis ab Eodem Fratre Petro Compilatis in Conventu Parisiensi* (Parisius, 1508).

(165) See Ashworth, "Chimeras and Imaginary Objects: A Study in the Post-Medieval Theory of Signification", *Vivarium*, 15 (1977), 57-77. See also E. J. Ashworth, " 'For Riding is Required a Horse': A Problem of Meaning and Reference in Late Fifteenth and Early Sixteenth Century Logic," *Vivarium*, 12 1x974), 94-123; and E. J. Ashworth, " 'I Promise You a Horse': A Second Problem of Meaning and Reference in Late Fifteenth and Early Sixteenth Century Logic," *Vivarium*, 14 (1976), 62-79; continued: *Ibid*., 14 (1976), 139-155.

21. ———. 1979. "The *Libelli Sophistarum* and the Use of Medieval Logic Texts at Oxford and Cambridge in the Early Sixteenth Century." *Vivarium* no. 17:134-158.

"I. Introduction

In this paper I intend to analyze two early printed logic texts, the *Libellus Sophistarum ad Usum Cantabrigiensium* (or Cantabrigiensem) published four times between 1497 and 1524,

and the *Libellus Sophistarum ad Usum Oxoniensium*, published seven times between 1499 and 1530. I also intend to demonstrate the origin of these books in the manuscript tradition of the early fifteenth century.

A complete description of the various editions of the printed texts, together with their reference numbers in the new Short Title Catalogue, (2) will be found in the appendix." (p. 134)

(...)

"Obviously I do not pretend to have done more than sample the available manuscript sources, but the interested reader will find a large number of further references in De Rijk's invaluable studies of the *Logica Cantabrigiensis* and the *Logica Oxoniensis* (7).

The importance of my task stems from the fact that the *Libelli Sophistarum* provide the main evidence we have for the nature of logic teaching at Oxford and Cambridge in the first three decades of the sixteenth century. The nature of this evidence can best be brought into focus if we start by considering the state of logic in continental Europe, as revealed by a study of publication between 1472 and 1530. As a brief glance at Risse's *Bibliographia Logica* (8) will show, European presses produced an extremely large number of logic texts during this period. Some of them were editions of medieval authors alone, and some of them were editions of medieval authors combined with a contemporary commentary. Many more contained only contemporary writing, whether this took the form of a general introduction to logic, or a discussion of a particular topic such as terms or insolubles. Virtually none were anonymous, and virtually all were highly structured, with topics following one another in an orderly sequence. Even those few texts which were a compendium of shorter treatises were united either by author, as were the editions of Heytesbury's works, or by theme, as was the 1517 edition of Strode, Ferrybridge, Heytesbury and others on the topic of consequences. The texts were devoted purely to logic, and natural science crept in only in predictable places, such as commentaries on the *Analytica Posteriora*, the discussion of *incipit* and *desinit* in works on

exponibles, or editions of such earlier writers as Heytesbury and Menghus Blanchellus Faventinus. In the assessment of these texts, knowledge of the manuscript tradition is vital only when one wishes to know how original the writers were, or how accurately medieval texts were reproduced. On the whole the texts are self-explanatory, and simply by reading them one can get a good idea of how they might have been used in teaching.

The situation in England could not have been more different. In the first place, the number of logic books published was extremely small, even if one bears in mind that some may have perished without trace. Including the two *Libelli Sophistarum*, only seven separate works seem to have appeared, and of these only two are by named authors, both medieval. The first author is Antonius Andreas whose commentary on the *ars vetus* appeared at St. Albans in 1483, and the second is Walter Burleigh, whose commentary on the *Analytica Posteriora* appeared at Oxford in 1517. Apart from the *Libelli Sophistarum*, the remaining works are a *Logica* which appeared at Oxford in 1483 [StC 16693]; the *Opusculum insolubilium* which appeared at Oxford in about 1517 [StC 18833] and in London in about 1527 [StC 18833a]; 9 and the *Libellulus secundarum intentionum* which appeared in London in 1498 [STC 15572], in about 1505 [STC 15573], and in 1527 [STC 15574] as well as in Paris before 1500.(10) I do not know the provenance of the first two works, but the third is an edition of the medieval tract which starts "Bene fundatum preexigit debitum fundamentum", and which is found incomplete in both Gonville and Caius 182/215 (p. 70) and Corpus Christi 378 (105 r 107 r).(11)" (pp. 135-136)

(2) *A Short Title Catalogue of Books Printed in England, Scotland &- Ireland and of English Books Printed Abroad 1475-1640*. First Compiled by A. W. Pollard & G. R. Redgrave. Second Edition, Revised and Enlarged, begun by W. A. Jackson & F. S. Ferguson. Completed by Katharine F. Pantzer. Volume 2, I-Z, London 1976.

(7) For the *Logica Cantabrigiensis* see L. M. De Rijk, 'Logica Cantabrigiensis -- A Fifteenth Century Cambridge Manual of

Logic', in: *Revue Internationale de philosophie* (Grabmann), 29e année, 113 (1975), 297-315. For the *Logica Oxoniensis*, see L. M. de Rijk, 'Logica Oxoniensis. An Attempt to Reconstruct a Fifteenth Century Oxford Manual of Logic', in: *Medioevo*, III (1977), 121-164.

(8) W. Risse, *Bibliographia Logica*. Band 1. 1473-1800, Hildesheim 1965.

22. ———. 1979. "A Note on an Early Printed Logic Text in Edinburgh University Library." *Innes Review* no. 30:77-79.

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Writings of E. J. Ashworth on the History of Logic. Third Part: Articles from 1980 to 1989

Articles 1980-1989

1. Ashworth, Earline Jennifer. 1980. "*Can I Speak More Clearly than I Understand?* A Problem of Religious Language in Henry of Ghent, Duns Scotus and Ockham." *Historiographia Linguistica* no. 7:29-38.

   Reprinted in Konrad Koerner, Hans-J. Niederehe and R. H. Robins (eds.), *Studies in medieval linguistic thought dedicated to Geoffrey L.Bursill-Hall on the occasion of his sixthieth birthday on 15 May 1980*, Amsterdam: John Benjamins, pp. 29-38.

   "The title of this paper is somewhat misleading. The problem I intend to discuss is certainly one of religious language, but none of the three authors I am concerned with would have put the problem in the terms used above. The question Henry of Ghent (d. 1293) asked in his *Summae Quaestionum Ordinariaum* was: “Can God be more truly understood than he is signified or named?”. Duns Scotus (1265-1308) and William Ockham (1280/85-1349) put their questions in yet another way. In their commentaries on Book I, Distinction 22, of Peter Lombard’s *Sentences*, they asked respectively: “Is God nameable by us by a name signifying his essence?” (Duns Scotus 1966: 301) and “Can itinerant man impose a name to signify the divine essence distinctly?” (Ockham, *Sent*., sign, z vi rb). The concern of all these authors arose from their beliefs

that a spoken word can only signify if it is subordinated to an appropriate concept in the speaker's mind, and that our concept of God is an imperfect one. When we inquire about the relationship between the words we use of God and the idea we have of him, it may seem that our words are more precise than our ideas warrant; yet it may also seem that our words fail to do justice to what we know about God. These apparent variations in the relation between word and concept have to be explained, given the natural assumption that our words will be neither more nor less precise than our ideas.

Before I consider the actual texts, I will discuss briefly two essential background issues, the notion of signification, and the question whether words signify ideas or things. The notion of signification was of course closely related to the notion of a sign, which Augustine had defined (1975: 87) as "Something which is itself sensed and which indicates to the mind something beyond the mind itself."(1) Accordingly, for a word to signify was for it to make known, reveal, express, or represent. Exactly which of these descriptions was most appropriate depended on the context, for in addition to written and spoken language, if was taken for granted that there was a mental language formed of elements all of which were naturally meaningful. A spoken word could make known an object or reveal it by causing (or by expressing) a concept, but a mental term, being itself a concept, could not be thought of in this way. In the early 16th century the Parisian author Raulin (c. 1443-1514) explained that concepts signified in their capacity as formal representations of objects, but that spoken words signified because they were objective representations (Jean Raulin, *Commentarium in logicam Aristotelis,* 1500. sign, g v ra-rb). That is, they were both the object and the cause of a cognition. Thus the explicitly causal definition of signification, "to signify is to constitute an understanding", (2) applied, he said, only to signs which had objective signification and not to concepts. What it was that a spoken word made known could be an object in the world, a formal element of an object in the world, the speaker's concept of that object, or the definition of that object. (3) Indeed, a spoken word could also make known

itself or its speaker, but these ways of making known were accidental to it as a conventionally significant unit. It should be obvious that the notion of *significatio* is by no means to be identified either with meaning or with reference, though elements of both meaning and reference were certainly involved." (pp. 29-30)

(...)

" Ockham was in essential agreement with the position adopted by Duns Scotus in his much briefer treatment of the question “Is God nameable by us by a name signifying his essence?“. Duns Scotus began *(Opera Omnia. Vol 17: Lectura in Librum Primum Sententiarum,* Civitas Vaticana, 1966:301) by saying that he took the view of Thomas Aquinas that nothing could be named by us more properly than it was understood to be false. (10) He said that he would offer no arguments instead, he offered an example. Suppose that we see a wall as having both whiteness and shape. Because the colour can vary while the shape remains, and the shape can vary while the colour remains, we conclude that there is some substratum. We can name this substratum A, and can use the general term ‘body’ of it, yet we have no specific notion of it. All we understand of it is that it is ‘This being', and hence we can name it more truly than we can understand it. Just the same situation obtains with respect to God (p. 301). We have a general understanding of him as "This infinite being which depends on nothing”, and we can refer to the divine nature by such names as ‘God', yet we have no particular understanding of the divine nature which our terms denote. We do not understand it as "This essence'. "Whence”, he wrote," I believe that we have many names of God which properly signify the divine nature, even though we do not understand it." (11)

Henry of Ghent, Duns Scotus and Ockham differed in the way they supported their positions and in their epistemological assumptions; yet there are two extremely important subjects on which they agreed: first, that the problem of religious language was not one of religious language alone; and second, that the Thomistic connection between spoken language and

understanding had to be loosened. They all accepted the doctrine whereby spoken language was subordinated to mental language; and they all accepted the commonsense view that in the absence of mental activity speaking becomes mere parrotting, but these beliefs did not blind them to the fact that language has functions which are to some extent independent of the individual's ability to understand the world. As Henry of Ghent emphasized, language has a descriptive function, and because words are common currency, human beings can describe more, or less, accurately than they understand. As Duns Scotus and Ockham emphasized, language also has a denotative function, and human beings can use words to denote objects even if they know little about these objects. Signification and naming are essentially linguistic activities, and they must be assessed as such. Our words can have degrees of truth and distinctness which our understanding lacks, just as our understanding can go beyond our words." (pp. 37-38)

(1) The more usual reference is to *De Doctrina Christiana* II, but Henry of Ghent made heavy use of *De Dialectica*.

(2) For discussion of this definition, see Spade "Some Epistemological Implications of the Burley-Ockham Dispute," *Franciscan Studies* 35 (1975), pp. 212–222; see pp. 214-15.

(3) The Latin translation of *Metaphysics* IV.7 1012 a 23 was "*ratio quam significat nomen est definitio*" (Thomas Aquinas, *Summa Theologiae* 1a 13.6, p.68) and accordingly a word was often said to signify a rath. But *ratio* had a variety of meanings, including "concept", "definition", "a formal element of things" and the "essence of things." For discussion see McCord Adams in Paul of Venice, *Logica magna: Part II, Fascicule 6: Tractatus de veritate et falsistate propositionis et tractatus de significato propositionis*, F. del Punta (ed.), M. McCord Adams (trans.), (Oxford: Oxford University Press, 1978), pp. 272-73.

(10) He does not refer to Thomas by name. "Ad quod dicendum - sine argumentis -quod, ut mihi videtur, haec propositio falsa est quod nihil potest nominari a nobis magis proprie quam intelligatur, sicut quidam dicunt quod sicut intelligimus sic significamus, et quia non intelligimus Deum nisi ex creaturis,

ideo non significamus nisi per nomina accepta a creaturis. Hoc enim falsum est."

(11) “Unde credo quod multa nomina habemus de Deo quae proprie significant naturam divinam quam tamen non intelligimus.”

2. ———. 1980. "The Scholastic Background to Locke's Theory of Language." In *Progress in Linguistic Historiography. Papers from the International Conference on the History of the Language Sciences, Ottawa, 28-31 August 1978*, edited by Köerner, Konrad, 59-68. Amsterdam: John Benjamins.

   "In III.2.2 of the *Essay concerning Human Understanding* Locke said: "Words in their primary or immediate signification, stand for nothing but the ideas in the mind of him that uses them." In the eyes of most subsequent commentators, this statement encapsulates what Kretzmann ("The main thesis of Locke’s semantic theory", *Philosophical Review,* 77, 1968, p. 177) has called "one of the classic blunders in semantic theory", namely, the thesis that words name or refer to ideas rather than things, and that meaning depends on private mental events. Since Locke's statement when so interpreted seems clearly false, many commentators, including Kretzmann and Landesman ("Locke’s theory of meaning", *Journal of the History of Philosophy,* 14 1976, p. 35), have struggled to interpret it in some other way. However, they have undertaken this task without considering Locke's intellectual background. In this paper I intend to argue that the work of various 17th-century scholastics who were read at Oxford, particularly the Polish Jesuit Martin Smiglecius (1564-1618), throws much light on Locke's thesis, both by filling in the arguments which he only sketched in passing, and by limiting the ways in which the argument quoted above can be read.

   It is true that no direct link between Locke and Smiglecius has been established. However, since Locke recorded that two copies of Smiglecius’ *Logica* were bought by his students (W. H. Kenney, *John Locke and the Oxford training in logic and metaphysics,* unpublished Ph.D. Thesis, St. Louis University, 1959, pp. 31-32), and since the work was published in Oxford in

1658, the year Locke took his M.A. degree, it can be hardly a matter of accident that many of his remarks in Book III of the *Essay* seem to echo remarks made earlier by Smiglecius." (p. 59)

(...)

"So far as Locke is concerned, he obviously followed such logicians as Burgersdijck in adopting the view whereby concepts rather than things are said to be the immediate significates of words. He may have been influenced in this by introductory logic textbooks, but it also fitted his general philosophical position better than the view of Smiglecius. His discussion of general terms indicates one reason why he thought it necessary to assign a certain kind of primacy to ideas, and in addition I think that Kretzmann was right (p. 184) when he mentioned Locke's representative theory of perception in the context of his theory of language. If ideas are the immediate objects of perception, then it makes good sense that they should also be the immediate objects of signification.

However, if I am right in supposing that Locke was acquainted with Smiglecius and some of the other authors, if only at second-hand, then certain limitations are surely imposed on what he could have meant when he wrote: "Words in their primary and immediate signification stand for nothing but ehe ideas in the mind of him that uses them". He cannot have intended to say that words refer to concepts, that when we way "The man is disputing" we are talking only about our own thoughts. Nor can he have intended to deny the obvious corollary that we use words to signify things secondarily and mediately. The alternative hypothesis, that Locke intended to convey some new doctrine by his use of the conventional phraseology, could only be sustained if one were willing to overlook two outstanding features of Locke's discussion. First, nearly everything he says about language in the first two chapters of Book III is closely parallel to the scholastic texts which were read at Oxford when Locke was an undergraduate and a tutor there. Second, he does not bother to give a detailed explanation and justification of his claim that words signify

ideas primarily and immediately, which would be a very curious oversight on the part of one who had in mind a doctrine radically different from that normally conveyed by these words. Locke was careless, but he was not as careless as that." (pp. 66-67)

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Franco Burgersdijck, (1590-1636). 1647. *Institutionum Logicarum Libri duo*. Cantabrigiae: Ex officina Rogeri Daniel, Academiae celeberrimae Typography.

Martin Smiglecius, (1564-1618). 1658. *Logica*. Oxonii: excudebet A. Lichfield, impensis H. Crypps, J. Godwin & R. Blagrave.

Kretzmann, Norman. 1968. "The Main Thesis of Locke's Semantic Theory". *The Philosophical Review* 77.175-96.

3. ———. 1980. "Descartes and Human Reason." *Queen's Quarterly* no. 86:653-656.
4. ———. 1981. "The Problems of Relevance and Order in Obligational Disputations: Some Late Fourteenth Century Views." *Medioevo* no. 7:175-193.
5. ———. 1981. "Two Early Sixteenth Century Discussions of *Complexe Significabilia*." In *Sprache und Erkenntnis im Mittelalter. Axten des VI. Internationalen Kongresses für Mittelaterliche Philosophie der Société internationale pour l'étude de la philosophie médiévale 29. August - 3, September 1977 in Bonn. I Halbband*, edited by Beckmann, Jan P., Honnefelder, Ludger, Jüssen, Gabriel, Münxelhaus, Barbara, Schrimpf, Gangolf, Wieland, Georg and Kluxen, Wolfgang, 511-516. Berlin, New York: Walter de Gruyter.

"In bis excellent book *Theories of the Proposition. Ancient and Medieval Conceptions of the Bearers of Truth and Falsity*, Nucbelmans states that "after the beginning of the fifteenth Century no really new or interesting views concerning our topics were put forward."(1) In this paper I hope to modify his judgment somewhat by examining the theories presented by Juan Dolz and Fernando de Enzinas, two Spaniards associated

with the University of Paris in the early sixteenth Century (2). One cannot expect that their views on the signficate of the proposition were new in every detail, given the thoroughness with which earlier writers had explored the issue.

Nevertheless, one can argue that they put elements from earlier views together in a new way, and that they displayed an insight into the nature of propositions which had not been achieved by their predecessors.

I shall begin by saying a little about the background to their views. In the late fifteenth and early sixteenth centuries, the question of *complexe significabilia* was discussed by a small group of logicians. Those writers in whom I have found more than a passing reference are Bricot, Juan de Celaya, Antonio Coronel, Dolz, Enzinas, Hieronymus of St. Mark, Limos, Major, Nifo, Pardo, Peter of Brüssels, Raulin and Gervase Waim; and all of these except Nifo and possibly Hieronymus of St. Mark were associated with Paris (3). Although some of them wrote theological works, they raised the issue only in their logical writings, either in works on *insolubilia*, in general introductions to logic, or in treatises on such topics as terms and mental propositions. The question was introduced in one of two closely related ways. Either they took the statement that a proposition was an *oratio* which signifies the true or the false by indicating and inquired whether there was indeed a thing which was true or false, or they took such sentences as " "Man is an animal" signifies man to be an animal" and asked whether the *dictum* or infinitive phrase functioned as the name of some object or other. In the words of Dolz the question was: "Does a proposition signify some thing or some things or in some way? Is there to be given a *complexum significabile* or not, and if so, is it to be distinguished from the significates of the terms of the proposition?'" (4) The issues of theological and scientific knowledge were referred to, if at all, only in passing, and the question of objects of belief versus objects of knowledge, objects of doubt and so on, was not often raised. In other words, we are faced with a discussion which is limited to those aspects of the matter which primarily concern a logician.

References to earlier authors included mention of Ockham, Duns Scotus, Ugolino and André de Neufchateau, but the focal point of discussion was provided by the rival positions of Gregory of Rimini and the one which, as Coronel put it, "Buridan applauded in whole or in part." (5)" (pp. 511-512)

(...)

"To conclude, I would like to say that of all the sources mentioned by late fifteenth and early sixteenth Century authors, Dolz and Enzinas are obviously most influenced by Peter of Ailly. It is from him that they take the notion of a proposition signifying *aliqualiter*, and it is from him that Enzinas takes his emphasis on the relationship between the *dictum* and a phrase beginning with the word "that". But they also go beyond Peter of Ailly in ways which I find interesting and important. First, they introduce the notion of the proposition as having a syncategorematic function, and second, they reconcile the notion of propositional sense with the notion of propositional reference by admitting that in some contexts the *dictum* can have legitimate referential use (12). Moreover, Enzinas made use of Peter of Ailly's point about "that" phrases to reinforce the insight that propositions are not referring phrases. I do not know of any earlier authors who approached the matter in quite the way that Dolz and Enzinas did; and, I must confess, I find their view more plausible than any of the others I am acquainted with." (p. 516)

(1) G. Nuchelmans, *Theories of the Proposition* (Amsterdam-London: North Holland Publishing Company, 1973) p. 279. This book should be consulted for a very thorough survey of the medieval background to the authors I am concerned with.

(2) Little seems to be known about their lives. Dolz came from Castellar in Spain, and taught at the College of Lisieux in Paris. Enzinas went to Paris in 1518, where he studied at the Colleges of Saint Barbara and Beauvais. He later taught at the University of Alcala.

(3) For further details, see E. J . Ashworth, *Language and Logic in the Post-Medieval Period* (Dordrecht-

Holland/Boston-U.S.A., D. Reidel Publishing Company, 1974) p. 55ff.

(4) J. Dolz, Termini (Parisius, s.a.) fo. v r.

(5) A. Coronel, Prima Pars Rosarii (Parisiis, 1512) sign, a iiii r.

(12) Cf. Kretzmann, op.cit., p. 767.

6. ———. 1981. ""Do Words Signify Ideas or Things?" The Scholastic Sources of Locke's Theory of Language." *Journal of the History of Philosophy* no. 19:299-326.

   Reprinted as essay VII in: *Studies in Post-Medieval Semantics* and in Udo Thiel (ed.), *Locke, Epistemology and Metaphysics,* Aldershot: Ashgate 2002, pp. 383-410.

   "My aim in this paper is to shed some light on Locke's claim that words signify ideas. Although I shall start by considering two contemporary attempts to interpret Locke's theory of language, I shall devote most of my attention to a group of late-sixteenth- and early-seventeenth-century authors whose views are likely to have influenced Locke. My main claim will be that Locke's theory of language is easier to understand, if not to accept, when it is placed in what seems to be its proper context. When one is dealing with the great figures of early modern philosophy it is always a mistake to overlook their background. At Oxford, as at European universities, students were still reading scholastic texts in the mid-seventeenth century. That is, they were reading works written as university text books by Roman Catholic philosophers, predominantly Jesuit, who consciously placed themselves within the tradition of medieval philosophy and theology while at the same time making use of sixteenth-century developments in Aristotelian studies. Locke makes it very clear that he did not approve of the scholastic philosophy he was acquainted with, but it is *prima facie* implausible to suppose that nothing of what he read had any effect upon his writings. As I shall try to make clear, my own view is that his theory of language was produced within a scholastic context, and relied heavily on the arguments which had been developed by scholastic philosophers. Locke was

original and innovative, but not when he said that word s signify ideas.

Obviously the scholastic philosophers of the late sixteenth and early seventeenth centuries were themselves writing within a tradition which cannot be overlooked if one wishes to understand their discussions. Equally obviously one cannot within the compass of a short paper on the background to Locke deal adequately with the background to Locke's background . However, a few brief remarks may be in order. The view that words signify ideas or concepts (two words which for the purposes of this paper may be used interchangeably) stems from Aristotle and in particular from Boethius's translation of Aristotle, *De lnterpretatione* I6 a 3. (1) He said that spoken words (*ea quae sunt in voce*) were signs (*notae*) of those passions which are in the mind; and every commentator agreed that *passiones* were to be taken as concepts rather than passions in the normal sense. By the late thirteenth century a debate was raging over the question whether words could properly be said to signify concepts rather than things. (2) Roger Bacon said that there was " not a moderate strife among famous men," (3) and a little later Duns Scotus wrote of a "great altercation. (4) Everyone who wrote a commentary on *De Interpretatione* had something to say on the issue; and it also turned up in other works, in Sentence commentaries and, for instance, in Buridan's *Sophismata*. Aristotle commentaries written in the late fifteenth and early sixteenth centuries were still largely focused on the arguments of earlier writers, especially Duns Scotus and Buridan, though occasional use was m a d e of the commentary by St. Thomas Aquinas. (5) The later-sixteenth- and early-seventeenth-century writers I am concerned with took their theme from the medieval debates and, for the most part, their conclusions. However, as I shall explain below, their emphases and some of their arguments are quite different. Thus a by-product of this paper will be additional evidence of ways in which late scholasticism differed from medieval scholasticism." (pp. 299-301)

(...)

"To conclude, I would like to ask whether Locke intended to summarize his theory of meaning when he said that words primarily and immediately signify ideas. I have argued that in the scholastic authors the issue was one of making known rather than of meaning, and this is borne out by the distinction I earlier quoted from Smiglecius between the confused idea conveyed by a name and the explicit idea conveyed by the definition of the name. Obviously one would answer the question "What does this word mean?" not by exhibiting the confused idea expressed by the word, but by producing the definition. If it turns out that a definition just is a sequence of concepts, then meanings can be identified with concepts; but this is a thesis which has to be stated and justified separately from the initial thesis, that words make known concepts. I suggest that the same distinction should be applied to Locke. In III. 3. 10 he tells us that "the defining of words . . , is nothing but declaring their signification." Later, in IV. 8.4., he refers to the romance knight "who by the word *palfrey* signified these ideas: -- body of a certain figure, four-legged, with sense, motion, ambling, neighing, white, used to have a woman on his back"; and I think that this passage and others like it are certainly intended to give an account of meaning. What a word means according to Locke just is a series of ideas. However, one must now ask whether a distinction can be drawn between this series of ideas and the original complex idea of a palfrey. I think that it can, at least psychologically.

There is certainly a sense in which a complex idea for Locke just is a group of less complex ideas, but this group is unified by its name, "which is as it were the knot that ties them fast together" (III. 5. 10). Furthermore, giving a meaning must involve a psychological progression from the original idea to its components listed separately. The romance knight would have to reflect before he recognized all the eight components of his complex idea "palfrey," just as one may have to reflect before one realizes that 12 is identical to 7 + 5. T o be sure, there is a close link between a word's signifying an idea and a word's having a meaning. If the speaker cannot on reflection give a definition for the word he has used, if he cannot break down his

complex idea into its component parts, then one will be tempted to say that he has no idea of what a palfrey is, and that nothing was made known by his utterance of the word "palfrey." But the fact that giving a definition serves as a criterion for having an idea does not entitle one to blur the distinction between an idea's being made known through the utterance of a word and a word's having a meaning. Locke has an ideational theory of meaning, but contrary to what Kretzmann and Landesman assert, it is not stated in III. 2." (pp. 325-326)

(1) Aristoteles Latinus II I-2. *De Interpretatione vel Periermenias Translatio Boethii Specimina Translationum*, edidit Laurentius Minio-Paulello (Leiden: E. J. Brill, 1965), p. 5. For an interesting discussion of Aristotle's original text and what he may have meant by it, see Norman Kretzmann, "Aristotle on Spoken Sound Significant by Convention," in *Ancient Logic and Its Modern Interpretations*, John Corcoran, ed. (Dordrecht and Boston: D. Reidel, 1974), pp. 3-21.

(2) There was also a debate among the ancient commentators on Aristotle, but its influence on the Middle Ages seems to have been only through references in Boethius's two commentaries on the *De Interpretatione*.

(3) K. M. Fredborg, Lauge Nielsen, and Jan Pinborg, "An Unedited Part of Roger Bacon's 'Opus Maius': 'De Signis'," *Traditio* 34 (1978): 132.

(4) John Duns Scotus. *Ordinatio* I d. 27, qq. 1-3, n. 83 in *Opera Omnia* VI (Civitas Vaticana, 1963), P. 97.

(5) For further discussion see E. J. Ashworth, "Words, Concepts and Things: A Study of *Perihermenias* Commentaries from the Late Thirteenth to the Sixteenth Century," to appear in a special issue of *Paideia* on medieval philosophy [not published]. For interesting material on the reception of St. Thomas Aquinas's views in the sixteenth century, see F. E. Cranz, "The Publishing History of the Aristotle Commentaries of Thomas Aquinas," *Traditio* 34 (1978): 157-92. Cranz's work has considerable bearing on what I shall say below about the differences between

late-sixteenth and early-seventeenth-century commentaries on *De Interpretatione* 16 a 3 and the medieval commentaries.

7. ———. 1981. "Mental Language and the Unity of Propositions: A Semantic Problem Discussed by Early Sixteenth Century Logicians." *Franciscan Studies* no. 41:61-96.

   Reprinted as essay VI in: *Studies in Post-Medieval Semantics*.

   "Gregory of Rimini's influential *Sentence Commentary* was written in the 1340s. One of the questions which he discussed in his prologue was how it is that a mental proposition functions as a united whole, with a force that its apparent parts taken separately do not possess. (1)

   In this article I intend to explore the reactions to Gregory's arguments among a group of logicians who studied or taught at Paris in the first three decades of the sixteenth century. The most important of the authors I shall examine are three Spaniards: Jerome Pardo (d. 1502 or 1505) whose *Medulla Dialectices* was published in 1500 and again in 1505; Antonio Coronel, whose *Duplex Tractatus Terminorum* was published in 1511 and whose *Prima Pars Rosarii in qua de Propositione Multa Notanda* was published at about the same time; and Fernando de Enzinas, whose most noteworthy book for our purposes was his *Tractatus de Compositione Propositionis Mentalis Actuum Sincathegoreumaticorum Naturam Manifestans*, first published in 1521, and reprinted in 1526 and 1528." (p. 61)

   (...)

   "In conclusion there are two points I would like to make. On the one hand it is quite clear that when early sixteenth century logicians were discussing mental language they took it that they were concerned with philosophy of mind. In part this is the natural result of their approach to signification as a causal process. If one defines "signify" in terms of making known or representing to the cognitive faculty, then the question of the various effects of words upon the hearer's mind, and what they reveal about the speaker's mind, will embrace both semantic and psychological issues. One also has to bear in mind the part

played by speaker intentions in endowing linguistic aggregates with their propositional force.(134) At this level the study of language cannot be separated from the study of mental attitudes and processes. On the other hand, if one isolates the part of the discussion which was devoted to purely semantic issues, then it is no longer necessary to postulate mental language as such. Everything that was said about the semantic function of syncategorematic acts, subject and predicate, the unity of propositions and the equivalence between propositions, could be described in neutral terms as the study of semantic structure leaving it quite open what the relationship is between the semantic structure of a given utterance and the psychological states of the speaker. Nor does there seem any genuine need to postulate a naturally meaningful language in addition to conventionally meaningful language, since a given speaker's psychological states can be adequately described in terms of conventional language, and since synonymy can be redefined for conventional languages.

Indeed, one can argue that the notion of a naturally meaningful mental language is without any function, since we have no criteria for identifying it or its structures. But this is to go far beyond Gregory of Rimini and sixteenth century reactions to his arguments." (pp. 95-96)

(1) Gregory of Rimini, *Gregorii Ariminensis O.E.S.A. Super Primum et Secundum Sententiarum* (Reprint of the 1522 edition: St. Bonaventure, N.Y.: The Franciscain Institute; Louvain: E. Nauwelaerts; Paderborn: F. Schöningh, 1955), fol. 3va-5rb.

(134) But Michael Dummett, *Frege: Philosophy of Language* (London: Duckworth, 1973, p. 311, reminds us that "*linguistic* acts should be classed as conventional actions, not as the external expression of interior states. Assertion, for example, is to be explained in terms of the conventions governing the use of those sentences which are understood as having assertoric force, not as the utterance of a sentence with the intention of expressing one's interior act of judgment (or interior state of belief) that it is true."

8. ———. 1982. "The Eclipse of Medieval Logic." In *The Cambridge History of Later Medieval Philosophy*, edited by Kretzmann, Norman, Kenny, Anthony P. and Pinborg, Jan, 787-796. Cambridge: Cambridge University Press.

   "The view that the insights and developments of medieval logic were eclipsed during the fifteenth century by a humanist, rhetorically-oriented logic has long been popular, but it needs considerable revision and modification. In what follows I shall first give a brief account of what happened to the writing, teaching, and publication of logical works in the medieval style, by which I mean those which discuss such topics as consequences, insolubles, exponibles, and supposition. I shall then examine in more detail what was actually said about certain medieval doctrines in the late fifteenth and sixteenth centuries in order to indicate both where logicians of the period had something new to contribute, and where there were departures from medieval doctrines which cannot be attributed to new logical insight. (1) My conclusion will be that medieval logic as a living tradition did largely disappear, but that the eclipse dates from about 1530 (in so far as a specific date can ever sensibly be offered) rather than the mid fifteenth century." (p. 787)

   (...)

   "Conclusion.

   Why did these interesting and varied treatments of medieval logical themes cease so abruptly after 1530? (9) Humanism alone cannot be the answer, since it apparently triumphed only by default. Italian universities continued to teach medieval logic long after the attacks on it by such men as Lorenzo Valla; and Agricola's logic did not capture Paris until the production of texts in the medieval style had already ceased. (10) Humanism certainly had a part to play in the process, however. Soto, for instance, came to believe as a result of humanist influences that doctrines which were difficult and not clearly expressed by Aristotle should be omitted from logic, and that too much time was devoted to summulist doctrines in the teaching of logic. Accordingly, the later editions of his

Introductiones dialecticae were very much altered and simplified. Another instructive example is Agostino Nifo's *Dialectica ludicra* (1520). Here we have an introductory text written by a leading Aristotelian who had a good knowledge of medieval doctrines, yet he distorts them completely by describing only those parts of the scholastic theory of terms and supposition theory which are directly applicable to standard categorical propositions. (11) No one who became acquainted with medieval logic through Nifo would understand the function of the non-Aristotelian parts at all. A very plausible account of the indirect effect of humanism on logic teaching is provided by Terrence Heath, whose study of the teaching of grammar at three German universities at the end of the fifteenth century and beginning of the sixteenth century shows that the change to non-medieval logic was preceded by the change to humanistic grammar. (12) The significance of this sequence of changes is brought out in Heath's claim that medieval grammar prepared the student for medieval logic, whereas humanist grammar did not. One may also speculate that social changes were influential in creating a need for men with a new style of education. The rise of modern physics has been cited as a possible cause, but this suggestion cannot be accepted, given that modern physics can hardly be said to have risen before the end of the sixteenth century. (13) The judgement of a contemporary logician might be that medieval logic came to an end because no further progress was possible without the concept of a formal system and without the development of a logic of relations. This view is borne out by the desperate, complicated attempts to analyse such propositions as 'Every man has a head' that are to be found in the writings of the Parisian logicians. They certainly pushed medieval logic to its limits, but whether they gave up in despair because they realised that that was what they had done is another matter. For the moment our question must remain without a fully satisfactory answer." (pp. 795-795)

(1) For further details about the period as a whole, and for some of the doctrines mentioned below, see Ashworth, *Language and Logic in the Post-medieval Period* (Synthese Historical

Library, 12), Reidel 1974, and Wilhelm Risse, *Die Logik der Neuzeit* (Band I: 1500-1640), Frommann Holzboog 1964. For a bibliography of primary sources, see Risse, *Bibliographia Logica. Verzeichnis der Druckschriften zur Logik mit Angabe ihrer Fundorte*, (Band I. 1472-1800), Georg Olms 1965. For a bibliography of secondary sources, see Ashworth, *The Tradition of Medieval Logic and Speculative Grammar from Anselm to the End of the Seventeenth Century: A Bibliography from 1836 Onwards* (Subsidia Mediaevalia, 9), Pontifical Institute of Mediaeval Studies 1978.

(9) Charles B. Schmitt, 'Philosophy and Science in Sixteenth-Century Universities: Some Preliminary Comments', in Murdoch, John E. and Edith Sylla, eds., *The Cultural Context of Medieval Learning*, Reidel 1975, p. 512, notes that certain branches of medieval physics also declined. He writes: '... several fourteenth-century traditions - including nominalism, the logical traditions of *sophismata* and *insolubilia*, and the Merton and Paris schools of philosophy of motion - continued on into the first few decades of the sixteenth century and after that quickly lost ground to other approaches and sets of problems. The printing-history of the medieval texts in question as well as new commentaries being written on Aristotle indicate this. Why this happened is not clear.

Humanism had a strong impact, as did the reintroduction of the writings of the Greek commentators on Aristotle, but neither of these facts explains why the calculators and writers on *sophismata* lost out, while the commentaries of Averroes did not. In brief, certain medieval aspects of the tradition expired in the early sixteenth century, while other equally medieval aspects continued to play an important role.'

(10) For a discussion of Valla, Agricola, and their influence, see Lisa Jardine, 'Lorenzo Valla and the Intellectual Origins of Humanist Dialectic', *Journal of the History of Philosophy* 15:143-64 1977.

(11) See Ashworth, 'Agostino Nifo's Reinterpretation of Medieval Logic', Rivista critica di storia della filosofia, 31 (1976) 355-74.

(12) Terrence Heath, 'Logical Grammar, Grammatical Logic, and Humanism in Three German Universities', *Studies in the Renaissance* 18 (1971) 9—64.

(13) William and Martha Kneale, *The Development of Logic*, Clarendon Press 1962, p. 307. It should be noted that the Kneales speak as if interest in formal logic declined only during the seventeenth century, so that their reference to modern physics is not implausible in its context.

9. ———. 1982. "The Structure of Mental Language: Some Problems Discussed by Early Sixteenth Century Logicians." *Vivarium* no. 20:59-83.

   Reprinted as essay V in: *Studies in Post-Medieval Semantics*.

   "Preface.

   As is well known, late and post-medieval logicians shared the belief that were three types of language, spoken, written, and mental. (1) Spoken and written languages had conventional meaning, and were in fact, though not necessarily so, different for different groups of people. Mental language, on the other hand, was thought to have natural meaning and to be common to all men. The obvious question to ask about mental language concerns its structure and how this relates to the structure of spoken or written languages, especiallyLatin. Ockham's position on the matter has been investigated by more than one author; (2) so in this paper I intend to focus on the views held by logicians in early sixteenth centuryParis, and by some of those earlier logicians who most influenced them. I shall leave firmly aside the obvious philosophical question of what criteria could possibly be used in determining a structure for mental language which is independent of spoken or written language. Sufficeit to say that late medieval logicians saw no problem here.

   The main issues concerning structure arose from a consideration of the categorical proposition.This was taken to be the simplest kind of proposition, which at its most basic displays a subject and a predicate, both in the nominative case, and the copula "is" or "are". To these ingredients may be added

quantifiers such as "all" and "some", negation signs, adjectives, adverbs, and other modifiers. Two kinds of problem are presented by this account. First there is the question of what to say about spoken or written propositions which do not fit the standard mould.I include here such sentences as "Pluit"/"It is raining" which do not have a subject; sentences displaying so-called adjectival verbsuch as "runs" in "Socrates runs" which do not have a separate copula and predicate; and sentences containing pronouns and demonstrative terms such as "I am running"and "This is white", whose subject is given only by the context of the utterance. Second, there is the question of how to account for certain features of those spoken and written propositions which do fit the standard mould, namely such features as syncategorematic terms, tense variations (which will not be discussed in this paper) and variations of number, case and gender. It was in their discussion of these issues that Parisian logicians gave their most detailed account of the structureof mental propositions." (pp. 59-60)

(...)

"It seems that the road was left open to considerable variation in mental language. Two speakers could perfectly well utter sentences which were logically equivalent and which picked out the same state of affairs without using the same mental propositions.As a result,one can suggest both that it is consistent with the post-medieval view that sentences in different languages may be equivalent and translatable without exhibiting precisely the same deep structure, and that there is no reason why one should speak of mental language as containing "*the* forms that are necessary for any true description of the world", as Trentman put it in his account of Ockham's view of mental language. (110) Ockham may have had an ideal language in mind; Enzinas and his contemporaries did not. (111)". (p. 82)

(1) See Gabriel Nuchelmans, (1) *Theories of the Proposition. Ancient and Medieval Conceptions of the Bearers of Truth and Falsity*, Amsterdam/London 1973 and (2) *Late Scholastic and*

Humanist Theories of the Proposition, Amsterdam, Oxford, New York 1980, passim.

(2) For a discussion of Ockham's views, see Peter Geach, *Mental Acts*, London 1957, pp. 101-104 and John Trentman, "Ockham on Mental", in: *Mind*, 79 (1970), 586-590.

(110) Trentman, p. 589, my italics.

10. ———. 1983. "English *Obligationes* Texts after Roger Swyneshed. The Tracts beginning *Obligatio est quaedam ars*." In *The Rise of British Logic. Acts of the Sixth European Symposium on Medieval Logic and Semantics, Balliol College, Oxford, 19-24 June 1983*, edited by Lewry, Osmund P., 309-333. Toronto: Pontifical Institute of Mediaeval studies.

"Introduction.

In this paper I hope to shed some light on the development of *obligationes* in England by examining a number of texts which all have the same *incipit*.

'*Obligatio est quaedam ars*'. A list of the manuscripts and early printed books I have used, together with the sigla I have adopted, will be found in Appendix A. (1) In Appendix B I have given a list of other relevant manuscripts which I was unable to consult for reasons of time. (2) My paper has three parts. Part One contains a general survey of the texts, with an account of their relationship to each other and to the *Logica oxoniensis* text.

Part Two contains a discussion of the doctrines and influence of Billingham's *Ars obligatoria* and the almost identical treatise found in the *Logica oxoniensis*. Part Three contains a detailed analysis, with references, of the texts discussed in Part Two.

It seems appropriate to begin with some further remarks about the incipit itself. The fullest version is found in Richard Billingham, who wrotes: (3)

'Obligatio est quaedam ars mediante qua aliquis opponens potest ligare respondentem ut ad suum bene placitum respondeat ad obligationem sibi positam; vel obligatio est

oratio mediante qua aliquis obligatus tenetur affirmative vel negative ad obligationem respondere.'

(Obligation is an art whereby some opponent can bind a respondent to reply at the opponent's pleasure to the obligatory sentence posited to him. Alternatively, an obligation is a sentence by virtue of which someone who is obligated is committed to reply affirmatively or negatively to the obligatory sentence.)

As can be seen from the appendices, a number of variations in this incipit were possible. A and Q replaced 'opponens potest ligare' in Billingham's first definition with the phrase 'obligatus tenetur' from the second definition; and a number of authors added 'affirmative vel negative' to tyhe first definition.

Dspite these minor variations, there is no doubt that the texts listed in Appendix A have basically the same *incipit*; but as il shall show, it does not follow from this that the texts listed are otherwise identical, or even similar." (pp. 309-310)

(...)

"I shall finish with a few remarks about the influence of Billingham and the *Logica oxoniensis*. Generally speaking, it seems to have been slight. Apart from Wyclif, no named author, including John of Holland and Paul of Venice in the *Logica parva*, adopted Billingham's organization of the material. There was a little discussion of Billingham's definition of *obligatio*, of his attitude to inconsistent *posita* and of his conjunction rules, but one cannot claim that these topics loomed large in the literature. The most striking influence is that of the sophisms themselves, a number of which reappear in Albert of Saxony (see Part Three, Section B). I suspect that the apparent popularity (judging by the number of extant manuscripts) of the *Logica oxoniensis* in the fifteenth century, a period when people had on the whole ceased to write original *obligationes* treatises, stems solely from its character as a convenient brief compendium." (pp. 317-318)

11. ———. 1984. "Inconsistency and Paradox in Medieval Disputations: A Development of some Hints in Ockham."

Franciscan Studies no. 44:129-139.

"The Liar Paradox is well-known, as is the way it calls into doubt some of our most basic semantic assumptions. In this paper, I intend to consider a more modest group of paradoxes, that is, propositions which seem puzzling, absurd or even inconsistent whether because of some feature of the proposition itself or some feature of the situation in which it is uttered.(1) Examples from ordinary English include the familiar cases "I have nothing to say to you," "My lips are sealed," "I have no comment to make." They also include such sentences as "I'm sorry, I don't speak any English," "I'm quite incapable of uttering a grammatically correct sentence," "I never generalize," "Don't talk to me, I'm asleep," or even "I do not exist." Such pragmatic paradoxes will turn out to have certain features in common with the Liar Paradox.

Some of them give rise to logical contradictions, some of them are self referential, some of them seem to include a reference to their own truth or falsity. But there are also important differences, as I hope to demonstrate.

Hints of a solution to some of these problems are to be found in Ockham; but my main discussion will be based on the work of several later medieval logicians, notably John Buridan, Albert of Saxony and William Buser, all of whom were active at the University of Paris in the middle years of the fourteenth century. To be precise, Buridan taught there from about 1320 to about 1360, Albert taught there from 1351 to 1362, and Buser taught there from 1357 until after 1364. (2) I shall also draw on the work of Paul of Venice, who wrote his *Logica Magna* in 1397-1398. These writers all had a very strong interest in pragmatic paradoxes. The reason for this has to do with the nature of the university curriculum. Virtually all undergraduate students were in the Arts Faculty, and at least the first two years of the four year course were largely devoted to the study of logic." (pp. 129-130)

(...)

"I shall conclude with some brief remarks about the relationship between pragmatic paradoxes and the Liar Paradox. One general way of characterizing the cases I have examined is to say that in each case there is an inconsistency which arises from the relationship between the rules of the game, the facts of the situation (including the syntactic properties of what is said) or some initial conditions on the one hand, and a particular utterance on the other. However, these rather general remarks could also be applied to the Liar Paradox. Alternatively, one might say that the difference between pragmatic paradoxes and the Liar Paradox lies in the importance of the principles which are thrown in doubt. This is true, but unhelpful. Perhaps the real difference is that in none of the cases I have mentioned was it difficult to fix a referent for the sentence uttered, whereas in the case of the Liar Paradox the apparent reference fails. If I say "My reply is in the negative" the referent of "my reply" is fixed by the context; and if I say "What I am now saying is in English" the referent of what I am now saying is similarly fixed. But if I say "What I am now saying is false," apparent reference is made to the content of my utterance, and there is now nothing either in the context of my utterance or in its syntactic features which fixes that reference.26 Unsurprisingly, it is the presence of the semantic term "false" which brings about this unhappy situation." (p. 139)

(1) For some twentieth century discussion and further references see A. Pap, *Semantics and Necessary Truth* (New Haven and London: Yale University Press, 1958) 259-267; C. L. Hamblin, *Fallacies* (London: Methuen &. Co., 1970) 301.

(2) For information about Buser, see C. H. Kneepkens, "The Mysterious Buser Again: William Buser of Heusden and the *Obligationes Tract Ob rogatum*" in *English Logic in Italy*, edited by A. Maierù (Naples: Bibliopolis, 1982) 147-166.

(26) These remarks are loosely based on D. Odegard, *Knowledge and Scepticism* (American Philosophical Quarterly Library of Philosophy. Totowa, New Jersey: Rowman and Littlefield, 1984) 44-52.

12. ———. 1984. "Locke on Language." *Journal of Philosophy* no. 14:45-73.

    Reprinted as essay VIII in: *Studies in Post-Medieval Semantics*.

    Reprinted also in: Vere Chappell (ed.), *John Locke, Theory of Knowledge*, New York: Garland Publishing 1992, pp. 55-83 and in: Vere Chappell (ed.), *Locke*, New York: Oxford University Press 1998 pp. 175-194.

    "Locke's main semantic thesis is that words stand for, or signify, ideas. He says this over and over again, though the phraseology he employs varies. In Book III chapter 2 alone we find the following statements of the thesis: (1) '... *Words* ... come to be made use of by Men, as the *Signs* of their *Ideas*' [111.2.1; 405:10-11] (*); (2) 'The use then of Words, is to be sensible Marks of *Ideas*; and the *Ideas* they stand for, are their proper and immediate Signification' [III. 2.1 ; 405:15-17]; (3) *Words in their primary or immediate Signification, stand for nothing, but the* Ideas *in the Mind of him that uses them*' [111.2.2; 405:21-2]; (4) 'That then which Words are the Marks of, are the Ideas of the Speaker' [111.2.2; 405:27-8]; (5) Words, as they are used by Men, can properly and immediately signify nothing but the Ideas, that are in the Mind of the Speaker' [111.2.4; 406:29-31]. Locke offers no explanation of the terms he uses in these remarks, and I am going to take it that the phrases 'stand for; 'being a mark of,' and 'being a sign of are all roughly synonymous with the term 'signify.' The purpose of this paper is to explore what Locke intended to convey when he said that words signify ideas. I shall attempt to defend him against some, though not all, standard objections; and part of my defense will rest on the claim that Locke was using 'signify' in the same way that his scholastic predecessors used the Latin term '*significare*'. My paper falls into three parts. First, I shall give a general description of Locke's account of language; second, I shall look more closely at the scholastic theories of mental language and of signification, and their relation to Locke's theory; third, I shall return to Locke's text to examine what he has to say about the signification of general terms, and

how it is that our ideas conform both to the ideas of other men and to external objects." (pp. 45-46)

(...)

"I have now arrived at the heart of my argument, for not only was 'signify' a quasi-technical term for Locke; it was a genuinely technical term in the scholastic literature of the period, and indeed, in all medieval writings concerned with the theory of language. I wish to contend that Locke's use of the term 'signify' makes much more philosophical sense if one sees it against the scholastic background than if one approaches it from the point of view of twentieth century theories of meaning. It also makes a good deal more historical sense to suggest that Locke was influenced by his background, rather than being a complete innovator in every aspect of his thinking.

But before I examine the late and post-medieval doctrine of signification, I should explain my grounds for supposing that Locke was acquainted with it. Locke went to Oxford in 1652 at the age of twenty, and he stayed there until 1665, first as an undergraduate at Christ Church, and then as a lecturer and tutor at the same college. The Oxford curriculum, as laid down by the Laudian statutes of 1636, covered a variety of subjects. (17) The undergraduate was supposed to study grammar, rhetoric, logic, moral philosophy, political philosophy, geometry, and music; and at the M.A. level such subjects as metaphysics, natural philosophy, history and Greek were added. In theory the main texts studied for logic and metaphysics (as for ethics, natural, and political philosophy) were those of Aristotle, but in practice secondary sources were used. The leading metaphysics texts included some by Catholics such as the Frenchman, Eustace of St. Paul, and some by Protestants, such as the German, Scheibler, and the Dutchman, Burgersdijck. They were all predominantly scholastic in nature, by which I mean that they were highly organized, were heavily influenced by the renewed Aristotelianism of the sixteenth century, and were equally heavily influenced by such medieval authors as Thomas Aquinas (who was undoubtedly more popular in the seventeenth century than in the thirteenth) and

Duns Scotus. Even the Protestant authors seem to have used mainly Catholic sources. The leading logic texts were also predominantly Aristotelian, with a few references to specifically medieval developments such as supposition theory. Two of the most popular at Oxford were by the Flemish Jesuit, Du Trieu, and the Polish Jesuit, Smiglecius, though Burgersdijck's logic text was used as well as his metaphysics text. Indigenous Oxford authors were represented by such men as the very popular Robert Sanderson whose logic text was repeatedly published up to 1841. Nothing that anyone would count as new philosophical work was being done at Oxford (except by Robert Boyle, who was not a member of the university) and hardly any attention was paid to such figures as Descartes. Locke himself may not have read Descartes until 1666 or 1667, after he had left Oxford.(18)" (pp. 55-56)

(...)

"Conclusion

If Locke has been correctly absolved of the twin accusations that words mean ideas and that ideas are invariably images, his discussion of language can be viewed in a somewhat more sympathetic light than is usually the case. His emphasis on the place of ideas in the significative process can be interpreted as an emphasis on the importance of a speaker's concepts, beliefs, and experiences, in the process of communication; and he can be credited with a genuine awareness that there is also something public about language use. Not only must the things spoken of be publicly accessible (at least some of the time), but definitions too must be publicly ascertainable (and this all of the time). To this extent Hacking is wrong when he argues that Locke has no theory of meaning in the sense of a theory of public discourse,(46) but he is correct if we place the emphasis on the word 'theory.' In so far as Locke had a fully-fledged semantic theory, as opposed to a collection of observations." (p. 72)

(*) Page and lines reference are to John Locke, *An Essay Concerning Human Understanding*, edited with a foreword by Peter H. Nidditch (Oxford: Clarendon Press, 1979).

(17) See E.J. Ashworth, "Philosophy Teaching at Oxford"' to appear in the new edition of J.-P. Schobinger, ed., Friedrich *Ueberwegs Grundriss der Geschichte der Philosophie. V. Philosophie im 17 Jahrhundert*, (Basel, Stuttgart: Schwabe & Co.), [1988].

(18) Various dates have been suggested including c.1656 and after 1671: see H.A.S. Schankula, "Locke, Descartes and the Science of Nature," *Journal of the History of Ideas*, 41 (1980) 461-3. I am following Maurice Cranston, *John Locke. A Biography* (London: Longmans Green and Co. 1957), 99-100.

(46) Ian Hacking, *Why Does Language Matter to Philosophy?*, (New York: Cambridge Unviersity Press 1975), p. 52.

13. ———. 1985. "Logic and Set Theory: Ancient, Medieval, and Renaissance." In *The History of Mathematics from Antiquity to the Present: A Selective Bibliography*, edited by Dauben, Joseph, 513-515. New-York: Garland.

14. ———. 1986. "Renaissance Man as Logician: Josse Clichtove (1472-1543) on Disputations." *History and Philosophy of Logic* no. 7:15-29.

    "Josse Clichtove represents a turning point in the history of disputation, for he combines one of the earliest accounts of the doctrinal disputation with one of the latest accounts of the obligational disputation. This paper describes the nature and significance of the theories that he offered. Particular attention is paid to the doctrines of truth, necessity and possibility which lie behind his doctrines; and also to the light which his work throws on the aims and nature of an obligational disputation."

15. ———. 1987. "Jacobus Naveros (fl. ca. 1533) on the Question: "Do Spoken Words Signify Concepts or Things?"." In *Logos and Pragma. Essays on the Philosophy of Language in Honor of Professor Gabriel Nuchelmans*, edited by Rijk, Lambertus Maria de and Braakhuis, Henk A.G., 189-214. Nijmegen: Ingenium Publishers.

    "In a volume dedicated to the celebration of Gabriel Nuchelmans' achievements, it seems appropriate to pick up one of the themes that he himself has discussed. In his seminal

work on post-medieval philosophies of language, *Late Scholastic and Humanist Theories of the Proposition*, Nuchelmans devoted a section to the relation between written, spoken and mental propositions (1). In it he made reference to a few writers Grom the fifteenth and sixteenth centuries, such as George of Brussels and Petrus Tartaretus, and he spoke of their reactions to arguments put forward by Aquinas, Ockham and Buridan. In this paper I intend to explore in more detail the question of whether words signify concepts or things, as it was discussed by Jacobus Naveros, a Spaniard who studied and taught at Alcalâ, and whose lengthy and interesting commentary on the Perihermenias was first published in 15332. I shall also discuss the 1530 commentary of Alphonsus Prado, who taught at Alcalâ juntil 1534, when he moved to Coimbra3. Both men were influenced by the strong school of logic at Paris, and I shall make particular reference to the Parisian authors Johannes Raulin (1443-1514), Petrus Crockaert de Bruxellis (1455/70-1514), and Johannes Dullaert (ca. 1470-1513)4. A number of other authors who discussed the question in some detail will be mentioned in passing, particularly in the footnotes5. I shall thus use my examination of Naveros to add to the material given by Nuchelmans, and to explore further the impact of Aquinas, Ockham and Buridan on later writers.

The debate about whether words signified concepts or things was not, of course, a new one. It was already raging in the late thirteenth century, when Roger Bacon said that there was "not a moderate strife among famous men"6. A little later, Duns Scotus wrote of "a great altercation"7. Nearly everyone who wrote a commentary on the Perihermenias had something to say on the issue, and it was also discussed in Sentence commentaries and in Buridan’s Sophismata. The debate had been triggered by the words of Aristotle, who had opened his Perihermenias (16a3) by saying that spoken words were signs of affections in the mind. As translated by Boethius the passage reads: "Sunt ergo ea quae sunt in voce earum quae sunt in anima passionum notae, et ea quae scribuntur corum quae sunt in voce"8. What Aristotle himself had intended to assert can be ignored here9, for the later debate began not just from

Boethius' Latin, but from a particular interpretation of it. Notae were taken to be signa, passiones were taken to be concepts10; and ea quae sunt in voce were taken to be primarily such substantive nouns as 'human being' and 'animal'. Those words which themselves stand for signs were excluded for the obvious reason that, at least in the case of mental signs, the referents must be concepts11. In his analysis of the passage in question12, Naveros argued that because nothing is called a sign of something unless it is representative or significative of it, Aristotle intended to assert that spoken words do signify concepts. Moreover, because Aristotle went on to state that spoken words were not the same for all men, Aristotle had meant to assert that this signification was ad placitum, i.e. conventional. Naveros strengthened the claim by adding the word proprie: the signification is not merely conventional, but conventional in the strictest sense. On the face of it, Naveros came down very strongly on one side of the debate. However, as we shall shortly see, this did not involve him in any denial that words also signified things. Indeed, the very theory of signification committed him to the assertion of a word-thing relationship." (pp. 189-190)

(...)

" Conclusion.

I would like to conclude by making three brief observations. First, any modern attempt to construe the thesis that spoken words signify concepts as a theory of meaning involves a simple misunderstanding of the verb significare. Second, although Naveros, like others, asserted that spoken words did signify concepts, he had no intention of overlooking the referential function of words. Nor did those who asserted that spoken words signified things have any intention of overlooking the place of concepts in the significative process. In many ways the dispute between the two groups was verbal rather than real. Third, when one considers the influence of the great medieval philosophers on the discussions found in the late fifteenth and early sixteenth centuries, it seems that Duns Scotus held pride 'of place, followed closely by Buridan. Ockham's conclusions

were influential, though his arguments were not; and the arguments presented by Aquinas in his Perihermenias commentary had little effect." (p. 214)

(1) Nuchelmans (Amsterdam 1980: 16-24).

(2) For some details about Naveros' life and works, see V. Munoz Delgado ("La lógica en la Univesidad de Alcalà durante la primera mitad del Siglo XVI", *Salamanticensis* 15, 1968:193-200).

(3) For some details about Prado, see Munoz Delgado, *op.cit.*, pp. 184-187.

(4) For details of these and other authors, see Lohr ("Renaissance Latin Aristotle Commentaries", 1974-1982).

(5) On the other hand, there are many *Perihermenias* commentaries I have looked at and shall not make any further reference to. Details of most of the works I exclude are to be found in Risse (*Bibliographia Logica. Verzeichnis der Druckschriften zur Logik mit Angabe ihrer Fundorte. I. 1472-1800,* Hildesheim 1965).

16. ———. 1988. "The Historical Origins of John Poinsot's Treatise on Signs." *Semiotica* no. 69:129-147.

"Introduction.

In 1631-1632 John Poinsot (otherwise known as John of St. Thomas) published his *Ars Logica* at Alcalá. From this massive work John Deely has extracted all those parts relating to the theory of signs, and has given them the general heading of *Tractatus de Signis (Treatise on Signs),* though it should be noted that the *Treatise on Signs* (*) proper consists of just three Questions related to Aristotle's *Perihermenias*. The project is a valuable one, for Poinsot was an interesting writer in his own right who frequently had original observations to make. Deely's contribution, so far as the edition and translation are concerned, is superb; and the book itself is a splendid example of the printer's art. However, I have some very grave reservations about Deely's interpretation of Poinsot's work, and it is these reservations that I intend to discuss here. Others

(notably Sebeok, "A signifying man. Review of Tractatus de Signis" *The New York Time Book Review,* March 30, 1986, pp. 14-15) have already sung the praises of Deely and Poinsot; and as one of the few philosophers who has actually read some of the sixteenth-century authors to whom Poinsot was indebted, I feel it incumbent on me to point out that there is another side to the coin. However, I do not intend my remarks to detract in any way from the achievement represented by Deely's version of the *Treatise on Signs*.

I shall first discuss Deely's attitude toward the historical interpretation of Poinsot and how it differs from my own. In so doing, I shall show that there was a tradition of placing the discussion of signs in a *Perihermenias* commentary. Second, I shall discuss the topic of relations, since Deely claims that the 'revolutionary' nature of Poinsot's doctrine of signs stems from his classification of relations. I shall remark that a very similar classification of relations is found in at least one of Poinsot's sources, namely Domingo de Soto (1494-1560). Third, I shall discuss the details of the theory of signs as described by some early sixteenth-century writers, and I shall show that the general lines of Poinsot's classification are due to Domingo de Soto. Finally, I shall make some remarks about other aspects of the translation and editorial material which seem to need further comment." (p. 129)

* John N. Deely (trans. and ed.), with Ralph Austin Powell, *Tractatus de Signis. The Semiotic of John Poinsot,* Berkeley: University of California Press, 1985.

17. ———. 1988. "Traditional Logic." In *The Cambridge History of Renaissance Philosophy*, edited by Schmitt, Charles B. and Skinner, Quentin, 143-172. Cambridge: Cambridge University Press.

"There were several waves of commentaries during the period after 1350.

Some of these were on individual books from the *Organon*, such as the commentary on the *Prior Analytics* by Marsilius of Inghen, which was published in Venice in 1516, and the commentary on the *Posterior Analytics* by Paul of Venice,

which had been published seven times by 1518, nearly always in Venice. (4) In the fifteenth century we find important commentaries on both the *Logica vetus* and the *Logica nova* being produced by the Thomists at the Bursa Montis in Cologne (5) and by Johannes Versor in Paris. However,

such commentaries were soon to disappear. Bartholomaeus Arnoldi de Usingen, who taught at Erfurt, seems to be one of the last to write specifically on the *Logica vetus* (1514) and the *Logica nova* (1507, 1516) as such. Of the earlier medieval commentaries the most popular was that on the *Logica vetus* by Walter Burley, which had thirteen printed editions, the last in Venice in 1541. The most prevalent form of commentary from the late fifteenth century on dealt with the entire *Organon* in one book . The first commentaries of this sort, such as those by George of Brussels and Petrus Tartaretus (both first published at Paris in 1493) were in a traditional style, but almost at once the influence of humanism became apparent. In Paris Jacques Lefevre d'Etaples produced his *Paraphrases et annotationes in libros logicorum* (eleven editions up to 1588) and in Germany in 1516-17 Johannes Eck published a complete commentary based on the new translations of Johannes Argyropulos but using the work of logicians in the medieval

tradition. (6) Eck's work was produced for the University of Ingolstadt, and was prescribed by the statutes of 1519-20; but it is not clear how much it was actually used." (pp. 143-144)

(...)

"At the end of the sixteenth century we find both new texts and new emphases in the curricula of various institutions. There are three kinds of text which are particularly noteworthy. First, there are commentaries on specific works by Aristotle, such as Jacopo Zabarella's commentary on the *Posterior Analytics* which , along with his other works, was to be extremely popular in the first part of the seventeenth century, especially in Germany.

Second, there is the extensive commentary on selected parts of the whole *Organon*, most notably the *Commentarii in*

universam dialecticam Aristotelis by the Coimbra Jesuit Sebastian Couto , which first appeared in 1606. It has been described as presenting a fusion of two late sixteenth-century approaches to Aristotle, the philosophical one of Zabarella and the philological one of Pace. (13) Third, there are numerous shorter works which offer a complete introduction to the logic of Aristotle, such as those by Toletus and Fonseca (see below, p. 163)." (pp. 145-146)

(...)

By about 1530 most of this activity had come to an abrupt end. New commentaries on medieval authors disappeared except in Spain, where Thomas de Mercado's commentary on Peter of Spain was first published as late as 1571 . Treatises on individual topics ceased to be written, with an occasional exception such as Antonius Kesler's treatise on consequences of 1623. (56) The publication both of the newer works in the medieval tradition and of the older ones virtually ceased . (57) At the same time the university curricula changed. Authors such as Rudolph Agricola and Johannes Caesarius were required in place of the medieval texts, (58) and Philipp Melanchthon's simplified summary of Aristotelian logic swept Germany.

Later, Petrus Ramus was to enjoy a runaway success. Yet the most important and influential texts of the last years of the sixteenth century were by no means simplified humanist manuals, and they contained not only considerably more syllogistic logic than Lorenzo Valla, Agricola or Ramus had thought appropriate, but also treatments of such medieval doctrines as supposition theory." (pp. 152-153)

(4) For general information on both manuscripts and printed editions of Aristotle commentaries, see Lohr [Latin Aristotle Commentaries: II. Renaissance Authors (Florence 1988)].

(5) For some information about the Cologne commentators, see Lohr, 'Authors: Johannes de Kanthi - Myngodus ', *Traditio*, 27 : 251-351 1971, pp. 310-12. A 'bursa' was a kind of college in which students lived and were taught.

(6) The full title of Aristotle 1516-17 is instructive: *Dialectica: cum quinque vocibus Porphyrii Phenicis: Argyropilo traductore: a Joanne Eckio Theologo facili explanatione declarata: adnotationibus compendiariis illustrata: ac scholastico exercitatio explicata: videbis O Lector priscam Dialecticam restitutam: ac Neotericorum subtilitati feliciter copulatam*. For discussion of Eck, see Seifert, *Logik zwischen Scholastik und Humanismus: Das Kommentarwerke Johann Ecks*, Munich 1978.

(13) Schmitt, *Studies in Renaissance Philosophy and Science*, London 1981, § vi, p. 170.

(56) See Ashworth, 'Andreas Kesler and the later theory of consequences', *Notre Dame Journal of Formal Logic*, 14: 205-14 1973 for a discussion.

(57) For more details see *Cambridge History of Later Medieval Philosophy*, 1982, p. 790 (Ashworth).

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18. ———. 1988. "Changes in Logic Textbooks from 1500 to 1650: The New Aristotelianism." In *Aristotelismus und Renaissance. In Memoriam Charles B. Schmitt*, edited by Kessler, Eckhard, Lohr, Charles H. and Sparn, Walter, 75-87. Wiesbaden: Otto Harrassowitz.

"My own interest is in the fate of specifically medieval logical doctrines and the process whereby they were either lost from view or were transmuted into a subordinate part of Aristotelian logic. In order to pursue this theme, I have chosen six textbooks which were used at various times and places during the period 1500 - 1650; and I intend to consider their contents in some detail so as to demonstrate the interaction between medieval logic and the other three streams I isolated above. It must, of course, be pointed out that there were many other textbooks which did not contain any medieval logic, and hence were not suitable for my purposes. The works I have chosen are as follows: (I) the *Libelli Sophistarum*, loose collections of late fourteenth-century material which were used at Oxford and Cambridge in the first decades of the sixteenth century (11), (II)

the *Logica parva* (12) of Paul of Venice, probably written 1395 - 1396 (13), printed many times up to 1614 (or beyond), and used as a textbook particularly in Italy. Both the *Libelli Sophistarum* and the *Logica parva* show how well-embedded medieval logic could seem, even in the early sixteenth century. (III) the *Summulae* of Domingo de Soto, a Spaniard who studied at Paris (14). The first edition appeared in Burgos in 1529, and the much-altered second edition in Salamanca in 1539 (15). Soto's work is illustrative both of early sixteenth-century developments within the medieval tradition; and, in its second edition, of the impact of rhetorical humanism. (IV) the *Institutionum Dialecticarum libri octo* of Pedro da Fonseca (16). It was first published in Lisbon in 1564, and the last of its fifty-three editions appeared in Lyon in 1625 (17). This work typifies the solid, late-scholastic textbook, full of detail and heavily influenced by Aristotelian humanism. (V) the *Logicae Artis Compendium* of Robert Sanderson, dating from 1615, and used as a textbook in Oxford well into the eighteenth century (18). In this work, all the four streams are mingled. (VI) the *Logica Hamburgensis* of Joachim Jungius, first published as a whole in 1638 (19), though Books 1 to 3 had appeared in 1635 (20). This too is a solid, detailed textbook, but it brings us to the end of the road so far as the medieval contribution to logic is concerned." (pp. 76-78)

(11) For full discussion, see E. J. Ashworth, 'The "Libelli Sophistarum" and the Use of Medieval Logic Texts at Oxford and Cambridge in the Early Sixteenth Century', Vivarium 17 (1979), pp. 134 - 158.

(12) This work has been published in facsimile: Paulus Venetus, *Logica* (Venice 1472; Hildesheim, New York: Georg Olms, 1970). For a translation with notes, see A. R. Perreiah, *Paulus Venetus: Logica Parva* (Munchen, Wien: Philosophia Verlag, 1984).

(13) See F. Bottin, `Logica e filosofia naturale nelle opere di Paolo Veneto' in Scienza e filosofia all'Universita' di Padova nel Quattrocento, edited by A. Poppi (Contributi alla Storia dell'Universita. di Padova 15. Trieste: Lint, 1983), p. 89 - 91.

(14) For a discussion of Soto's logical work, see V. Munoz Delgado, *Logica formal y filosofia en Domingo de Soto (1494 - 1560)* (Madrid: Edita Revista "Estudios", 1964).

(15) For a discussion of the various editions, see A. d'Ors, 'Las Summulae de Domingo de Soto', Anuario Filosofico. Universidad de Navarra 16 (1983), pp. 211 - 213.

(16) There is a modern edition: Pedro da Fonseca, *Instituções Dialecticas Institutionum Dialecticarum libri octo*, 2 volumes, edited and translated by J. Ferreira Gomes (Coimbra: Universidade de Coimbra, 1964).

(17) See Ferreira Gomes, editor's introduction to Fonseca, see fn. 16 above, I, pp. xxxv-xlvi.

(18) For a facsimile of the 1618 edition, see Robert Sanderson, *Logicae Artis Compendium*, with an introduction by E. J. Ashworth (Bologna: Editrice CLUEB, 1985).

(19) For a modern edition, see R. W. Meyer, editor, *Joachimi Jungii Logica Hamburgensis* (Hamburg: J. J. Augustin, 1957).

(20) See W. Risse, *Joachimi Jungii Logicae Hamburgensis Additamenta* (Göttingen: Vandenhoeck & Ruprecht, 1977, p. 7.

19. ———. 1988. "Oxford." In *Ueberweg, Friedrich, Grundriss der Geschichte der Philosophie. Vollig neubearbeitete Ausgabe. Die Philosophie des 17. Jahrhunderts. Band 3.1. England*, edited by Schobinger, Jean-Pierre, 6-9; 26-27. Basel: Schwabe & Co.

20. Ashworth, Earline Jennifer. 1989. "La Sémantique Du Xiv Siècle Vue À Travers Cinq Traités Oxoniens Sur Les '*Obligationes*'." *Cahiers d'Épistémologie*.

21. ———. 1989. "Boethius on Topics, Conditionals and Argument-Forms." *History and Philosophy of Logic* no. 10:213-225.

"Eleonore Stump's splendid translation of *Boethius's In Ciceronis Topica* (Ithaca and London: Cornell University Press, 1988) is a very welcome companion to her earlier translation of Boethius's *De topicis differentiis* (Ithaca and London: Cornell University Press, 1978). Together the iwo volumes provide us with a hitherto unequalled opportunity to come to grips with

the logical work of an author whose influence on medieval and Renaissance developments in this field was surpassed only by Aristotle himself. Indeed, it was only because of Boethius, his translations and commentaries, that Aristotle was first transmitted to the Latin speaking West. The importance of Boethius's work on the Topics is not purely historical, for it offers us a valuable insight into a type of logic which is aimed not at the production of formal languages or the examination of valid inference forms, but at ways to produce belief in the context of debate and against a background of straightforwardly metaphysical doctrines.

In this essay review I shall first make some general remarks about the nature of Topics-logic, with particular reference to *In Ciceronis Topica*. I shall then explore just one Topic, that of incompatibles, which is a particularly interesting Topic for several reasons. First. Boethius's attempt to define incompatibles shows the limitations of any formal approach to the material in hand. Second, Boethius's use of the Topic casts considerable light on his view of conditionals and their basis in metaphysical features of the world. Third, the examination of these issues helps explain Boethius's interpretation of certain key argument forms and their relation to Stoic logic. Finally, I shall make some remarks about Stump’s translation and notes." (p. 213)

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Writings of E. J. Ashworth on the History of Logic. Fourth Part: Articles from 1990 to 1995

Articles 1990-1995

1. Ashworth, Earline Jennifer. 1990. "Paul of Venice on Obligations. The sources for both the *Logica Magna* and the *Logica Parva* versions." In *Knowledge and the Sciences in Medieval Philosophy. Vol. II*, edited by Knuuttila, Simo, Työrinoja, Reijo and Ebbesen, Sten, 407-415. Helsinki: Yliopistopaino.

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   "Treatises on obligations formed part of the specifically medieval contribution to logic along with treatises on supposition theory, consequences, and insolubles.(1) Their history may go back as far as the late twelfth century; but the most important early treatise was the *Tractatus de Obligationibus* of Walter Burley, which dates from around 1302. This work presented the theory in a fully developed form, and set the stage for all subsequent discussion. For my purposes, the next leading figure was Roger Swyneshed, who probably wrote between 1330 and 1335, and who held controversial views about the treatment of conjunctions and disjunctions. His doctrines were presented in a favourable light by Martinus Anglicus,(2) Robert Fland and Richard Lavenham, (3) but were otherwise generally rejected. Richard Billingham, who became a fellow of Merton College, Oxford, in 1344, wrote

a text on obligations which formed part of the *Logica Oxoniensis*, a loose collection of logic treatises which was popular in the fifteenth century, and which was printed in England as late as 1530. (4) Another Englishman, Ralph Strode, who was a fellow of Merton 1359-1360, wrote a treatise which was especially popular in Italy. (5) At Paris, we find Albert of Saxony, whose discussion of obligations in his *Perutilis Logica* (6) was particularly influential for the 1360 treatise of the Dutchman William Buser (7). In turn, Buser's treatise was heavily used in the treatise by his pupil, Marsilius of Inghen. (8) Two Italian authors must also be mentioned. Peter of Candia, later Pope Alexander V, wrote an obligations treatise perhaps between 1370 and 1380.(9) Peter of Mantua, writing between 1384 and 1392, included a long section on obligations in his *Logica* (10) This is the background against which Paul of Venice must be considered.

Four independent logic treatises have been attributed to Paul: the *Logica Parva* (11) the *Logica Magna* (12) the *Quadratura*; and the *Sophismata Aurea*. The first two are general texts, each of which contains a section on obligations. There is also some relevant material in the *Quadratura*, but I shall not consider it here. (13) Francesco Bottin has given reasons for dating the *Logica Parva* 1395-96 and for dating the *Logica Magna* 1397-98. (14) However, there is some controversy about the relationship between these works; and it has even been asked whether Paul was the author of both. (15) In this paper I shall first give a brief survey of the sources for the *Logica Magna* treatise on obligations; and I shall then argue that, in light of what I have discovered, there is good reason to attribute both the *Logica Magna* and the *Logica Parva* tracts on obligations to the same author." (pp. 407-409)

(...)

"To sum up: the pattern of sources for the *Logica Parva*'s treatment of obligations is exactly the same as the pattern of sources for the *Logica Magna*'s treatment. We find Albert of Saxony, Buser, the *Logica Oxoniensis,* Strode and Peter of Candia. The rules given are generally standard rules, but their

organization is idiosyncratic, and common to both the *Logica Magna* and the *Logica Parva*. The sophisms in the *Logica Parva* are nearly all found in the *Logica Magna*. Given these facts, I would be astounded to discover that the same man had not compiled both treatises. Whether similar conclusions can be drawn for other parts of the *Logica Parva* remains to be seen." (p. 415)

(1) For general discussion of obligations and further references, see E. Stump, "Obligations: A. From the beginning to the early fourteenth century" in *The Cambridge History of Later Medieval Philosophy*, edited by N. Kretzmann, A. Kenny and J. Pinborg (Cambridge etc.: Cambridge University Press, 1982), pp. 315-334; and P.V. Spade, 'Obligations: B. Developments in the fourteenth century', ibid., pp. 335-341.

(2) See E.J. Ashworth, 'English Obligationes Texts after Roger Swyneshed: The Tracts beginning "Obligatio est quaedam ars"' in *The Rise of British Logic*, edited by P. Osmund Lewry, O.P. (Toronto: Pontifical Institute of Mediaeval Studies, 1985), pp.311-312.

(3) See Spade, *op.cit*., pp.334-338. There are some striking similarities between Martinus Anglicus and Robert Fland.

(4) For Billingham's *Ars Obligatoria* and the subsequent manuscript tradition, see Ashworth, 'English Obligationes Texts'. For the *Logica Oxoniensis*, see L.M. de Rijk, 'Logica Oxoniensis: An Attempt to Reconstruct a Fifteenth Century Oxford Manual of

Logic', *Medioevo* 3 (1977), pp.121-164; and E.J. Ashworth, The "Libelli Sophistarum" and the Use of Medieval Logic Texts at Oxford and Cambridge in the Early Sixteenth Century', Vivarium 17 (1979), pp.134-158.

(5) I am presently preparing an edition of this text in conjunction with A. Maierù's edition of the rest of Strode's *Logica*. References in this paper are to Ralph Strode, *Obligationes*, in *Consequentie Strodi* etc. (Venetiis, 1517), fol. 78ra - fol. 93rb.

(6) Albert of Saxony, *Perutilis Logica* (Venice, 1522; Hildesheim, New York: Georg Olms, 1974), fol. 46va-fol. 51vb.

(7) I have used Oxford, Bodleian Library MS Canon. Class.Lat. 278, fol. 72ra-fol. 78rb. For discussion of Buser, see C.H. Kneepkens, "The Mysterious Buser Again: William Buser of Heusden and the Obligationes Tract Ob Rogatum" in *English Logic in Italy in the 14th*

and 15th Centuries, edited by A. Maierù (Napoli: Bibliopolis, 1982), pp.147-166.

(8) I have used Cracow, Biblioteka Jagiellonska MS 2602, fol. 70r - 101r.

(9) I have used Oxford, Bodleian Library MS Canon.Class.Lat. 278, fol. 65ra - fol. 69rb. For the date, I have used Green-Pedersen's conjecture about the date of Peter of Candia's *Consequentiae*: see N.J. Green-Pedersen, 'Early British Treatises on Consequences' in *The Rise of British Logic*, p.307.

(10) I have used Peter of Mantua, *Logica* (Venice, 1492), sig. G iira -sig. G viiivb. For the dating of his logical works, see T.E. James, 'Peter Alboini of Mantua: Philosopher Humanist', *Journal of the History of Philosophy* 12 (1974), pp.161-170.

(11) Paulus Venetus, *Logica* (Venice, 1472; Hildesheim, New York: Georg Olms, 1970). For a translation of this edition, see A.R. Perreiah, *Paulus Venetus. Logica Parva* (München, Wien: Philosophia Verlag, 1984). I shall use the citation LP, with page references to the 1472 edition. These references are included in Perreiah's translation.

(12) Paulus Venetus, *Logica Magna* (Venetiis, 1499); E.J. Ashworth, editor and translator, *Paul of Venice. Logica Magna. Part II. Fascicule 8. Tractatus de Obligationibus* (printed for the British Academy by the Oxford University Press, 1988). I shall use the citation LM, with folio references to the 1499 edition. These references are included in my edition.

(13) Paulus Venetus, *Quadratura* (Venetiis, 1493): see *Dubium secundum*, cap. 11; *Dubium tertium*, cap. 6, cap. 23, cap. 29.

(14) F. Bottin, 'Logica e filosofia naturale nelle opere di Paolo Veneto' in *Scienza e Filosofia all'Università di Padova net Quattrocento*, edited by A. Poppi (Contributi alla Storia dell'Università di Padova 15. Trieste: Lint, 1983), pp.87-93.

(15) See F. del Punta and M.M. Adams, edition and translation, Paul of Venice, *Logica Magna. Part II. Fascicule 6. Tractatus de Veritate et Falsitate Propositionis et Tractatus de Significato Propositionis* (Published for the British Academy by the Oxford University Press, 1978), p.xiii: '...while the common authorship of the *Logica Magna*, the *Logica Parv*a, the *Sophismata,* and the *Quadratura* is highly probable, it has not been proved with certainty.... We have found that the teachings of the *Logica Parva* are in any event often inconsistent with those of the *Logica Magna*.' Perreiah, op.cit., pp. 327-343, gives the strong impression that he doubts common authorship of the *Logica Parva* and the *Logica Magna*.

2. ———. 1990. "The Doctrine of Signs in Some Early Sixteenth-Century Spanish Logicians." In *Estudios de Historia de la Lógica. Actas del II Simposio de Historia de la Lógica, Universidad de Navarra, Pamplona, 25-27 de Mayo de 1987*, edited by Angelelli, Ignacio and D'Ors, Angel, 13-38. Pamplona: Ediciones Eunate.

   "In this paper I intend to discuss the doctrine of signs as it was presented by six Spanish logicians from the first half of the sixteenth century, all of whom except Naveros studied or taught at the University of Paris. I shall consider the *Termini* of Gaspar Lax, whose second edition appeared in 1512; the *Termini* of Juan Dolz, which appeared about 1510; the *Dialecticae introductiones* of Juan de Celaya, published as early as 1511; the *Summulae* of Domingo de Soto, which appeared in 1529 and were heavily revised for their second edition in 1539; the posthumous *Termini perutiles* of Fernando de Enzinas, published in 1533; and the *Praeparatio dialectica* of Jacobo de Naveros, published in 1542. I shall, of course, be mentioning various other authors, particularly from Paris, both to set the stage for the work of the Spanish logicians, and in order to trace subsequent developments.

There are three reasons why I have chosen to focus on the doctrine of signs. First, there is the link with the doctrine of signification. For the early sixteenth-century logician, at least for those writing in the medieval tradition, to signify was to be a sign; and unless we understand how the notion of sign was handled we will be unable to understand such crucial debates as that concerning the question whether words signify concepts or things (1). In particular, we will be likely to fall into the modern trap of translating the word '*significatio*' by the word 'meaning', and thereby misreading large portions of medieval and post-medieval logic and philosophy of language (2). Second, it is in the late fifteenth and early sixteenth centuries that logicians broke away from the medieval trend of discussing signification only in relation to *voces* or utterances (3), and attempted to present the linguistic sign in a much wider framework. Third, recent attention has been focussed on the sign-theory of later authors, particularly the seventeenth-century John of St. Thomas, and I think it is important to reveal the true pioneers in this field (4)." (pp. 13-14)

(1) See E. J. Ashworth, "Jacobus Naveros (fl.ca.1533) on the Question: 'Do Spoken Words Signify Concepts or Things?", in *Logos and Pragma. Essays on the Philosophy of Language in Honour of Professor Gabriel Nuchelmans*, edited by L. M. de Rijk and H. A. G. Braakhuis, pp. 189-214 (Artistarium, Nijmegen: Ingenium Publishers, 1987); and E. J. Ashworth, "'Do Words Signify Ideas or Things?' The Scholastic Sources of Locke's Theory of Language", *Journal of the History of Philosophy* 19 (1981), pp. 299-326, reprinted as Study VII in E. J. Ashworth, *Studies in Post-Medieval Semantics* (London: Variorum Reprints, 1985).

(2) For examples of such misreading, see E. J. Ashworth, "Locke on Language", *Canadian Journal of Philosophy* 14 (1984), pp. 45-73, reprinted as Study VIII in *Studies in Post-Medieval Semantics*.

(3) Two medieval exceptions to this trend were Robert Kilwardby and Roger Bacon. For references, see below notes 31 and 32.

(4) See John N. Deely, translator and editor, with Ralph Austin Powell, *Tractatus de Signis. The Semiotic of John Poinsot* (Berkeley: University of California Press, 1985). See also E. J. Ashworth, "The Historical Origins of John Poinsot's 'Treatise on Signs', *Semiotica* 69 (1988), 129-147.

3. ———. 1990. "Domingo de Soto (1494-1560) and the Doctrine of Signs." In *De Ortu Grammaticae. Studies in Medieval Grammar and Linguistics Theory in Memory of Jan Pinborg*, edited by Bursill-Hall, Geoffrey L., Ebbesen, Sten and Köerner, Konrad, 35-48. Amsterdam-Philadelphia: Benjamins.

   "Doctrines of signs permeated medieval culture, being found in such diverse fields as medicine, rhetoric and theology (Maierù 1981). However, despite Augustine's important insight that words could be treated as one type of sign (Markus 1957; Jackson 1969) it seems true to say that the notion of a sign as such was not of central importance to medieval logicians. Certainly words were spoken of as being signs, but no attempt was made to place them in a wider setting. Peter of Spain in his *Summulae Logicales* had focussed on the notion of a *vox* or utterance, so that the distinction between significative and non-significative was introduced only in a linguistic context (Peter of Spain 1972:1-2) and his commentators were thus given no incentive to go beyond this context. William Ockham did give a general definition of sign in his *Summa Logicae,* but he immediately said that he did not intend to use the word 'sign' in this wider sense (William Ockham 1974:89); and his remarks were later echoed by Albert of Saxony (Albert of Saxony 1522:f.2ra). The only medieval exceptions to this trend in the field of linguistic sciences seem to have been Robert Kilwardby, who discussed signs as such in his grammatical work (Kilwardby 1975:1-7) and Roger Bacon who, when writing on logic, followed Augustine in firmly subordinating the notion of a linguistic sign to the notion of a sign in general (Roger Bacon 1978:81-84; Pinborg 1981:405). One of Jan Pinborg's many achievements was to find and publish Roger Bacon's treatise *De Signis*. Hence, it seems appropriate that in a volume devoted to Pinborg's memory, some attention should be paid to another

logician, Domingo de Soto, who attempted to place linguistic signs in a wider context.

It must be recognized that Soto was not the first sixteenth century author to focus afresh on the notion of a sign. Humanism had resulted in new attention being paid to the rhetorical concept of sign (cf. Melanchthon 1854:cols.750-751, and Melanchthon 1846:cols.704-706) and various fifteenth and sixteenth century logicians referred to the definitions of sign found in Cicero (Versor 1572:f.6v; Raulin 1500:sig.g 5ra) and Quintilian (Sanchez Ciruelo 1519:sig.B 5vb). Another factor which should be taken into account was the renewed interest in medieval metaphysics and theology which characterized many of the great sixteenth and seventeenth century writers. However, of the early sixteenth century writers I know only Pedro Sanchez Ciruelo paid attention to the work on signs found, for instance, in Thomas Aquinas (Sanchez Ciruelo 1519:sig.B 5vb-6ra); and it seems to have been the Jesuits of Coimbra who were responsible for bringing together the rich theological tradition of the Middle Ages with the new logical tradition (Conimbricensis 1607:11 cols,7-33). This new logical tradition, found in such authors as Tomas de Mercado (1571:f.3vb-5va), Alonso de la Vera Cruz (1572:22 A-23 A), Francisco de Toledo (1596:208 A-209 B) and Diego Mas (1621:11 7 B-10 A) stems almost entirely from Domingo de Soto. He it was who classified the subject-matter, and set up the framework within which his successors would discuss the topic of signs. (1)

The main inspiration for Soto's work was obviously the then-standard Parisian doctrine of signification, which was directly derived from Peter of Ailly's Conceptus et Insolubilia. In this work, Peter of Ailly (c. 1350-1420) had, without elaboration, remarked that "a term is a sign" (1980:16; cf. Stanyol 1504:sig.a 3r, Sanchez Ciruelo 1519:sig.B 5va, Enzinas 1533:sig.b 3rb); that "to 'signify' is the same as to be a sign of something" (17; cf. Buridan 1977:22) and that something can be a sign in two ways (17). It can itself be an act of knowing a thing, or it can lead to an act of knowing. In the second case, there is a further division to be made, since the act of knowing can be either primary or

secondary (18). He also gave a definition of ‘signify’ which reappeared in text after text “... to ‘signify’ is to represent (a) something, or (b) some things or (c) somehow, to a cognitive power by vitally changing it” (16). In the hands of various early sixteenth century logicians at Paris, Peter’s remarks had been elaborated into a doctrine which Soto found profoundly misleading; and which he therefore set out to rework completely." (pp. 35-36)

(...)

"Once Soto had completed his general classification of signs, he came up against another problem, this time specifically to do with linguistic signs. According to Aristotle, spoken words were signs of concepts; yet there seemed to be an obvious sense in which spoken words were signs not of concepts but of actual things. (7) In order to deal with this issue, Soto introduced a distinction. When I utter the word ‘homo’ I signify men in the sense of making them known (facere cognoscere), and I definitely do not make known my own concept of man. On the other hand, I do express (exprimer e) the fact that I have such a concept, and I do so in order to cause my hearers to form similar concepts (Soto 1529:f.6ra). Facere cognoscere and exprimere are two types of signification, the second being a less general kind which pertains only to written and spoken words (f.6ra). In the later edition of his work Soto put the same point in terms of a distinction between two kinds of instrumental sign, one of which leads the cognitive power to form a concept of a thing, and the other of which expresses the presence of a concept. Thus a vocal sign can represent both a thing and a concept, but in different ways (Soto 1554:f.3rb-va). The whole matter was put more generally by the later author, Francisco de Toledo, who introduced the notion of manifestive and suppositive signs. A manifestive sign, he wrote, is one which leads to the knowledge of another thing. Thus a sound can be a manifestive sign that reading is to occur. A sign which is both manifestive and suppositive is one which not only manifests another thing, but can be used in place of it. Thus a Viceroy both manifests or makes known the king and acts in his place. Utterances are signs of both kinds. On the one hand, they

manifest concepts; on the other hand they both manifest and stand for actual things (Toledo 1596:209 A). Clearly Toledo did not find it awkward that a linguistic sign could perform several significative functions at once. Indeed, he had already pointed out that all utterances signify their utterer in the same way that smoke signifies fire, i.e. as an effect does its cause, so that one and the same sign can have both natural and conventional signification (Toledo 1596:209 A).

These last remarks point to one of the main strengths of the doctrine of signs developed by Domingo de Soto and his immediate successors. While many of the distinctions made seem to be ordinary, common-sense distinctions without much philosophical novelty, they enable one to place the linguistic sign in the context of signs in general. As a result one gets a much better apprehension of the various uses which can be made of a single utterance. At the same time, it is made perfectly evident that the doctrine of signification developed by medieval and post-medieval logicians was not, and should not be confused with, a theory of meaning in the contemporary sense. To say that words signify things is to say that they make things known; to say that words signify ideas is to say that they express ideas; and we are not given any license to identify the meaning of words with either type of significate. (8)" (pp. 44-45)

(1) There is a curious tendency among linguists to attribute Domingo de Soto's achievements to the much later John of St.Thomas (1589-1644). For instance Arens (1984:509) refers to John St.Thomas's "remarkable faculty for systematization" in relation to a series of distinctions about signs taken directly from Domingo de Soto; and Deely (1983:116) calls him "the earliest systematizer of the doctrine of signs." In fact John of St.Thomas's discussion of signs (John of St.Thomas 1930:9A-10A, 646A-722A) draws very heavily not only on Soto but also on the lengthy and more ontologically oriented discussion in the Coimbra commentary. He comes at the end of a tradition, not at the beginning.

(7) For a survey of medieval discussion of the question whether words signify ideas or things, see Ashworth (1981); and for a survey of post-medieval discussion, see Ashworth (1987).

(8) For a fuller discussion of this issue see Ashworth (1984).

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4. ———. 1991. "Signification and Modes of Signifying in Thirteenth-Century Logic: A Preface to Aquinas on Analogy." *Medieval Philosophy and Theology* no. 1:39-67.

"My study of Aquinas in the context of thirteenth-century logic has two parts. In the first part, which constitutes the present essay, I shall explore the general theory of language that lies behind theories of equivocation and analogy. I shall explain such key concepts as imposition, signification, and *res significata,* and I shall pay particular attention to the notion of *modi significandi*. In the second part, to be published separately, (*) I shall survey thirteenth-century accounts of equivocation from Peter of Spain to John Duns Scotus. I shall show how the discussion of analogy came to be subsumed under discussions of equivocation and how logicians developed a threefold classification of analogy that has a close relation to Aquinas's own classification in his *Sentences*-commentary.

In embarking on this study, I am guided by the belief that to understand Aquinas fully we need to know how his words would have been understood by his contemporaries. We need to know which phrases had a standard technical usage and what distinctions were routinely made. I do not intend to argue that we will always find just one correct interpretation, nor do I want to claim that Aquinas was never innovative in his use of material taken from logicians. I am convinced, however, that a careful reading of the logicians will not only show us which interpretations of Aquinas's philosophy of language can be ruled out as fanciful reconstructions, but will also shed light on much that is currently obscure to the twentieth-century reader." (pp. 40-41)

(...)

"Conclusion.

What I have examined in this paper is a theory of language that tends to take words as units, endowed both with their signification and their *modi significandi* before they enter sentences and independently of speaker intention on any given occasion, (123) This attitude was reinforced by Priscian's claim that the noun has priority over other parts of speech, which led logicians to argue that the noun received its imposition first. (124) One might think that equivocal and analogical terms are precisely those whose functioning is best explained through context and use, but although Roger Bacon at least did recognize that any term could be used equivocally, (125) there was a tendency to speak as if equivocal and analogical terms formed special classes that could be identified in advance of use. To the extent that Aquinas's doctrine of analogy is embedded in such a general theory, one may fear that it will share the theory's defects." (p. 67)

(*) See: *Analogy and Equivocation in Thirteenth-Century Logic. Aquinas in Context*.

(123) For some references to authors who paid more attention to speaker intention, see Irène Rosier, "Signes et sacrements: Thomas d'Aquin et la grammaire speculative," Revue des sciences philosophiques et théologiques 74 (1990): 392-436.

(124) Priscian, *Institutionum grammaticarum* libri XVIII, in *Grammatici Latini,* edited by Heinrich Keil (Leipzig: Teubner, 1855), reprint ed. (Hildesheim and New York: Georg Olms, 1981), 2:115-121. Priscian's remarks were used to show that an equivocal noun could not have a conjunctive signification, since syncategorematic terms were posterior to nouns. See CPDMA 7 [anonymous *Quaestiones super Sophisticos Elenchos*, edited by Sten Ebbesen, Copenhagen:Gad, 1977), p. 291. Compare Simon of Faversham, *In SE* [*Sophisticos Elenchos*] p. 68; Duns Scotus, *In SE* [*Sophisticos Elenchos*], p. 13A.

(125) Karin Margareta Fredborg, Lauge Nielsen, and Jan Pinborg, "An Unedited Part of Roger Bacon's Opus maius: De signis," *Traditio* 34 (1978): 109-110.

5. ———. 1991. "Equivocation and Analogy in Fourteenth-Century Logic: Ockham, Burley and Buridan." In *Historia Philosophiae*

Medii Aevi. Studien zur Geschichte der Philosophie des Mittelalters. Festschrift für Kurt Flasch zu seinem 60. Geburtstag. *Vol. I*, edited by Mojsisch, Burkhard and Pluta, Olaf, 23-43. Amsterdam, Philadelphia: B. R. Grüner.

"In this paper I shall explore the notions of equivocation and analogy as they were handled by William of Ockham in his logical writings; (1) and I shall compare his position with those adopted by Walter Burley and John Buridan.(2) I realize that Ockham's views on these issues have already been discussed in print, (3) and I shall not be able to point to hitherto unnoticed material in his works. My main intention is to place his views in perspective, by locating them in their historical context. This project is one which has been touched on only indirectly by scholars, (4) yet it is crucial to the proper understanding both of Ockham himself and of later developments in the theory of analogy.

My study of Ockham is part of a series in which I intend to explore the notions of equivocation and analogy as they were handled by logicians from the mid-thirteenth to the end of the sixteenth century. (5) I became interested in this issue when I noticed that virtually the only logician ever referred to in discussions of Aquinas's theory of analogy is Cajetan, despite the fact that he wrote over two centuries later, and had a rather different philosophical agenda. In fact, there are a number of striking dissimilarities between logicians contemporary with Aquinas and such sixteenth-century logicians as Domingo de Soto. Some of these are of minor importance. For instance, sixteenth-century logicians had access to more of the Greek commentators on Aristotle's *Categories*, and they tended to discuss analogy in the context of commentary on the *Categories* rather than in the context of commentary on the *Sophistici Elenchi*. Others affect the general approach: here I have in mind the different theories of signification which were predominant in the two periods, and the more-or-less complete abandonment of the grammatical doctrines of *modi significandi*. Yet others are crucial to the details. In the thirteenth century, the analogy of attribution was the important kind, and the analogy of proportionality was barely mentioned.

The reverse is true after Cajetan. In the thirteenth century, the key notion was that of signification *per prius et posterius*, and the implications of this were spelled out partly in terms of concepts (whether one or more), but especially in terms of common natures. In the sixteenth century the focus was on concepts, whether one imprecise concept matched with more than one precise concept, or one formal concept matched with more than one objective concept. In addition, sixteenth-century logicians worried about the differences between intrinsic and extrinsic denomination, not an issue which had concerned late thirteenth-century logicians.

The fourteenth century had two big contributions to make to the changes in doctrine that I have just outlined. First, John Duns Scotus's arguments about the univocity of being seem to have persuaded logicians that it makes sense to postulate just one concept of being, even if one goes on to reject the claim that <*ens*> is a univocal term. Second, Ockham and his followers diverted attention from common natures, which they rejected, to words and concepts. Sixteenth-century discussions of analogy have to be understood in terms of a reaction to these fourteenth-century developments, and not just in terms of a reaction to the writings of Thomas Aquinas. I shall leave the elucidation of Scotus and his influence to others; but it must be remembered that in concentrating on Ockham and the logicians I am telling only part of the story." (pp. 23-25)

(...)

"Conclusion.

In this brief paper I have not been able to address the issue of how Ockham handled religious language (85) or the issue of how he handled the notion of ens. (86) Nor have I been able to pursue Burley's theory of analogy in the depth and detail which it clearly deserves. However, I have shown the place analogy occupies in relation to equivocation in the logic of both Ockham and Buridan - and a very modest place it is." (p. 43)

(1) William of Ockham, *Summa Logicae,* edited by P.Boehner, G.Gál, S.Brown, Opera Philosophica I (St.Bonaventure, N.Y.:

St.Bonaventure University, 1974); *Expositio in librum Praedicamentorum Aristotelis*, edited by G. Gal in Opera Philosophica II (St.Bonaventure, N.Y.: St.Bonaventure University, 1978); *Expositio super libros Elenchorum*, edited by F. del Punta, Opera Philosophica III (St.Bonaventure, N.Y.: St.Bonaventure University, 1979). I shall also refer to the following theological writings: Scriptum in librum Primum Sententiarum Ordinatio. Distinctiones II-III, edited by S. Brown with G.Gál, Opera Theologica II (St.Bonaventure, N.Y.: St.Bonaventure University, 1970); *Quaestiones in librum Tertium Sententiarum (Reportatio)*, edited by F.E. Kelley and G.I. Etzkorn, *Opera Theologica VI* (St.Bonaventure, N.Y.: St. Bonaventure University, 1982); *Quodlibeta Septem*, edited by J.C. Wey, Opera Theologica IX (St. Bonaventure, N.Y.: St.Bonaventure University, 1980).

(2) Much research remains to be done on both Burley and Buridan. I shall draw most of my material relating to Burley from his 1337 commentary on the *Categories* in *Burlei super artem veterem Porphirii et Aristotelis* (Venetiis, 1497). For Buridan I have used *Iohannes Buridanus. Quaestiones in Praedicamenta*, edited by J. Schneider (Munchen: Verlag der Bayerischen Akademie der Wissenschaften, 1983) and extracts from his *Summulae* in S. Ebbesen, *The Summulae. Tractatus VII. De Fallaciis* in *The Logic of John Buridan*, edited by Jan Pinborg (Copenhagen: Museum Tusculanum, 1976), pp.139-160.

(3) The most recent and best discussion is found in M.McCord Adams, *William Ockham* (Notre Dame, Indiana: University of Notre Dame Press, 1987), Vol.II, pp.903-960, especially pp.952-960. See also G. Leff, *William of Ockham: The Metamorphosis of Scholastic Discourse* (Manchester: Manchester University Press, 1975) pp.149-164 for a detailed but very confused discussion. A much earlier work, containing some useful material, is M.C. Menges, *The Concept of Univocity Regarding the Predication of God and Creature According to William Ockham* (St.Bonaventure, New York: The Franciscan Institute, Louvain: E.Nauwelaerts, 1952).

(4) For a bibliography of works on fallacies, which of course include equivocation, and some discussion. see S.Ebbesen, *The way fallacies were treated in scholastic,* Cahiers de l'institut du moyen-age grec et latin 55 (1987), 107-134.

(5) See E. J. Ashworth, *Analogy and Equivocation in Thirteenth-Century Logic: A New Approach to Aquinas*. I am currently writing a paper on equivocation and analogy in sixteenth-century logicians. Full documentation of my claims about thirteenth and sixteenth-century logic will be found in these papers.

(85) See e.g. Quodlibet IV q. 4, Ockham, *Quodlibeta*, pp. 123-128.

(86) See e.g. Quodlibet IV q.12, Ockham, *Quodlibeta*, pp. 352-359.

6. ———. 1991. "*Nulla propositio est distinguenda:* la notion d' *equivocatio* chez Albert de Saxe." In *Itinéraires d'Albert de Saxe. Paris-Vienne au XIV siècle. Actes du Colloque organisé les 19-22 juin 1990 dans le cadre des activités de l'URA 1085 du CNRS à l'occasion du 600 anniversaire de la mort d'Albert de Saxe*, edited by Biard, Joël, 149-160. Paris: Vrin.

   "Le célèbre statut édicté à l'université de Paris le 29 décembre 1340 exige que personne ne dise qu'aucune proposition ne doit être le sujet d'une distinction — « quod nullus dicat quod nulla propositio sit distinguenda » (1). Cette interdiction est liée à la conviction qu'il y a d'importantes propositions, surtout dans la Bible, qu'on peut regarder comme fausses de *virtute sermonis*, c'est-à-dire au sens littéral des mots, tout en étant vraies d'après les intentions de leurs auteurs (2). Le statut condamne ceux qui nient tout simplement de telles propositions, au lieu de les accepter ou de faire une distinction entre leurs divers sens (3). Dans le passé, les historiens de la philosophie médiévale ont souvent soutenu que Guillaume d'Ockham était la cible de ce décret, mais Katherine Tachau et William Courtenay ont récemment attaqué cette prétention (4). Je ne reprendrai pas leur argumentation, que je trouve assez convaincante, mais je me concentrerai sur un aspect que Tachau et Courtenay n'ont pas considéré en profondeur: le lieu

que les distinctions entre les divers sens d'une proposition occupait dans la logique du XIVe siècle.

Je choisis ce thème à cause de son rapport avec la pensée d'Albert de Saxe. Assez curieusement, dans sa *Perutilis logica* (5) ainsi que dans ses *Quaestiones in logicam* (6), Albert adopte une position tout à fait contraire à celle du statut. Il dit carrément qu'aucune proposition ne doit être le sujet d'une distinction: « nulla propositio est distinguenda ». En disant cela, il attaque implicitement Aristote, au moins l'Aristote des logiciens du Moyen Age (7), et en meme temps il attaque explicitement « Occham et socios eius » (8). Cela peut nous surprendre, étant donné qu'en général Albert suit Ockham de très près, mais il faut reconnaître que Guillaume d'Ockham était, entre les logiciens sinon les théologiens, le défenseur prééminent des distinctions (9).

(1) Le texte du statut est donné par W. J. Courtenay et K. H. Tachau dans « Ockham, Ockhamists, and the English-German Nations at Paris, 1339-1341 », in *History of Universities*, 2 (1982), p. 84, n. 17.

(2) Pour une discussion récente, voir W. J. Courtenay, « Force of Words and Figures of Speech: The Crisis over Virtus Sermonis in the Fourteenth Century », in *Franciscan Studies*, 44 (1984), pp. 107-128.

(3) Cf. Tachau et Courtenay, *loc. cit.*: « quod nulli (...] audeant aliquant propositionem famosam illius actoris cujus librum legunt, dicere simpliciter esse falsam, vel esse falsam de virtute sermonis, si crediderint quod actor ponendo illam habuerit verum intellectum; sed vel cancedant eam, vel sensum verum dividant a sensu falso [...] », Il faut constater que dans sa traduction des *Réfutations sophistiques*, Boèce utilise le mot « dividere » où l'on pourrait s'attendre qu'il utilise le mot « distinguere »: voir sourtout I, 17-19, 175 a 31-177 a 32. dans *Aristoteles latinus*, VI, 1-3: *De sophisticis elenchis*, éd. B. G. Dod, Leiden: E. J. Brill, Brussels: Descjée de Brouwer, 1975, pp. 36-41.

(4) Voir n. 1.

(5) Albert de Saxe, *Perutilis logica*, Venise, 1522, reproduction photomécanique Hildesheim, New York: Georg Olms, 1974.

(6) Ms. Cité du Vatican, Biblioteca apostolica vaticana, Urb. Lat. 1419, fos 1ra-31vb. Pour « nulla propositio est distinguenda », voir fo 24va-vb.

(7) Voir par exemple Jean Duns Scot, *In libros Elenchorum quaestiones*, in *Opera omnia*, II, Paris: Vivès, 1891, p. 14 A : « Item, si sic esset, propositio multiplex non esset distinguenda. Consequens est falsum, ut palet per Philosophum ». Cf. S. Ebbesen, « Can Equivocation be Eliminated?» in *Studia Mediewistyczne*, 18 (1977), p. 104.

(8) P. L. fo 37vb.

7. ———. 1991. "A Thirteenth-Century Interpretation of Aristotle on Equivocation and Analogy." *Canadian Journal of Philosophy* no. Supplementary volume 17:85-101.

   "This paper is a case study of how a few short lines in two of Aristotle's logical works were read in the thirteenth century. (1) I shall begin with a quick look at Aristotle's own remarks about equivocation in the *Categories* and the *Sophistical Refutations,* as they were transmitted to the West by Boethius's translations. (2) I shall continue with an analysis el the divisions of equivocation and analogy to be found in an anonymous commentary on the *Sophistical Refutations* written in Paris between 1270 and 1280. (3) I have chosen this author's work to focus on, because it offers a remarkably full account which brings together the elements found in many other logical works from the second half of the thirteenth century. In the course of my analysis I shall attempt to show the part played by four different sources: (I) the Greek commentators of late antiquity; (II) the new translations of Aristotle's *Physics* and *Metaphysics;* (III) the reception of Arabic works, particularly the commentaries of Averroes; and (4) new grammatical doctrines, notably that of *modi significandi.* At the same time, I hope to throw some light on the development of the doctrine of analogy as it was understood by late thirteenth-century logicians." (pp. 85-86)

(1) For full bibliographies and more information on the matters touched on here, see E.J. Ashworth, 'Signification and Modes of Signifying in Thirteenth-Century Logic: A Preface to Aquinas on Analogy,' *Medieval Philosophy and Theology* 1 (1991) 39-67; E.J. Ashworth, 'Analogy and Equivocation in Thirteenth-Century Logic: Aquinas in Context,' *Mediaeval Studies* (1992); E.J. Ashworth, 'Equivocation and Analogy in Fourteenth Century Logic: Ockham, Burley and Buridan,' *Historia Philosophiae Medii Aevi. Studien Zur Geschichte der Philosophie des Mittelalters,* B. Mojsisch and O. Pluta, eds. (Amsterdam: B.R. Gruner 1991).

(2) *Aristotelis Latinus I 1-5. Categoriae vel Praedicamenta*. L. Minio-Paluello. Leiden: E.J. Brill 1961 and *Aristotelis Latinus VI 1-3. De Sophisticis Elenchis*. B.G. Dod. Leiden: E.J. Brill, Brussels: Desclée de Brouwer 1975.

(3) *Incerti Auctores, Quaestiones super Sophisticos Elenchos,* S. Ebbesen, ed. *Corpus Philosophorum Danicorum Medii Aevi* VII. Copenhagen: Gad 1977. Of the two sets of questions edited by Ebbesen I shall use only the first (the SF commentary).

8. ———. 1991. "Logic in Late Sixteenth-Century England: Humanist Dialectic and the New Aristotelianism." *Studies in Philology* no. 88:224-236.

"In this paper I intend to look at the kind of logic that was taught at Oxford and Cambridge in 1590, and that was central to the undergraduate curriculum. I shall begin with a survey of the authors who were studied during the sixteenth century; then I shall consider the contents of their texts, with particular emphasis on the interplay between logic, dialectic and Aristotelianism. My main purpose is to explain what humanist dialectic might have been, and what it actually became in the hands of the textbook writers.

Suppose we start by considering the logic texts known to have been published in England between 1580 and 1590, or more accurately, between 1580 and 1589, since no logic text survives from the year 1590 itself. (1) There are in all 25 titles, and of these titles five are in English.

Thomas Wilson's *Rule of Reason* appeared in 1580. It was first published in 1551,and was the most popular of all the English vernacular texts. (2)

The second English text is a translation of Petrus Ramus's *Dialectica*, (3) and the last three, all dated 1588, are variants of Abraham Fraunce's *The Lawiers Logike*, which is basically a Ramist text. (4) Turning to the Latin titles, there are four printings of John Seton's *Logica* which had first appeared in 1545, and went through 14 editions by the end of the century. (5) It was by far the most popular of the English non-vernacular texts. Next there is the first edition in 1584 of John Case's important work on Aristotle's logic, the *Summa Veterum Interpretum*, which received the accolade of five editions in Frankfurt. (6) Of the remaining works, two are Latin versions of Ramus's *Dialectica* and thirteen are about Ramus's logic. There is a good deal we can learn from this list, both with respect to the languages used and with respect to what is absent from it." (pp. 224-225)

(...)

"I find the English logic scene in 1590 somewhat depressing. We are faced with elementary manuals which have lost sight of the important medieval developments in logic, and which have failed to make anything theoretically interesting of the humanistic innovations. (53) What we are left with is basically simplified Aristotle with some Ciceronian flourishes." (p. 236)

(1) A useful chronological list of logic books printed in England before 1620 is given by Charles B. Schmitt, *John Case and Aristotelianism in Renaissance England* (Kingston and Montreal: McGill-Queen's University Press, 1983), 225-29. For discussion of English

logic during the sixteenth century, see E. J. Ashworth, *Introduction*, in Robert Sanderson, *Logicae Artis Compendium*, edited by E. J. Ashworth (Bologna: Editrice CLUEB, 1985), especially xxiii-xxxii; Luce Giard,"La production logique de l'Angleterre au xvie siècle,"

Les Etudes Philosophiques 3 (1985) :303-24; Lisa Jardine, "The Place of Dialectic Teaching in Sixteenth-Century Cambridge," *Studies in the Renaissance* 21 (1974):31-62. No attention should be paid to W. S. Howell, *Logic and Rhetoric in England*, 1500-1700 (Princeton: Princeton University Press, 1956), since its account of logical developments, particularly during the medieval period, is inaccurate, and this vitiates the judgments the author makes about the texts he describes.

(2) See Thomas Wilson, *The Rule of Reason Conteinying the Arte of Logique*, edited by Richard S. Sprague (Northridge, Califomia: SanFernando Valley State College, 1972).

(3) Fora modem edition of a translation of Ramus, see Catherine M. Dunn, ed., *The Logike of the Moste Excellent Philosopher P. Ramus Martyr Translated by Roland MacIlmaine (1574)* (Northridge, Califomia: San Femando Valley State College, 1969).

(4) Probably the appearance of three variants in one year represents the work's lack of success, since the reissue of a work with a new title page and reference to a new bookseller was a way of getting rid of unsold stock: see Giard, 319. For some discussion of Fraunce's work, see Lisa Jardine,"Humanistic Logic"in *The Cambridge History of Renaissance Philosophy*, ed. Charles B. Schmitt (Cambridge: Cambridge University Press, 1988), 190-91.

(5) John Seton, *Dialectica* (Londini, 1584).

(6) John Case, *Summa veterum interpretum in universam dialecticam Aristotelis* (Londini, 1584). For a discussion of Case's work and significance, see the book by Schmitt cited above. For editions of the text, see Schmitt, 261.

(53) I would like to thank Lisa Jardine and Eleonore Stump who, over the years, have persuaded me that formal logic is not the whole story. I would also like to thank the organizers of the "London,1590"conference for inviting me to present this paper.

9. ———. 1992. "Analogy and Equivocation in Thirteenth-Century Logic. Aquinas in Context." *Mediaeval Studies* no. 54:94-135.

"One of the outstanding features of the extensive literature on Aquinas's doctrine of analogy is the complete absence of any attempt to set him in the context of thirteenth-century logic. (1) Certainly frequent reference is made to Cardinal Cajetan; but Cajetan wrote over two centuries later, and he had his own philosophical agenda, which in many ways owed more to fourteenth-century developments than it did to Aquinas himself. (2) In this paper I intend to provide some essential background to Aquinas by examining how equivocation was handled by logicians, including the young Duns Scotus, between ca. 1230 and ca. 1300. I shall show how analogy entered the logic texts in the context of equivocation; and I shah argue that the emphasis on analogy *per attributionem*, the absence of the analogy of proportionality, and the development of a threefold classification of analogy ah throw considerable hght on Aquinas's own discussion of analogy, particularly as found in the passage from his *Sentences* commentary which was the focus of Cajetan's attention. While I do not wish to claim that paying attention to Aquinas's historical situation will by itself provide us with a definitive interpretation of his doctrines, I do believe that such an endeavour will enable us to rule out certain interpretations as inappropriate or unlikely, and that it will enable us to make sense of otherwise obscure remarks.

The present paper is the second part of a two-part study of Aquinas in relation to thirteenth-century logic. In the first part I discussed the general theory of language which provides the context for doctrines of equivocation and analogy. (3) In particular, I explained such key terms as *significatio, res significata,* and *modi significandi.* I also discussed the effects of context on equivocal and analogical terms. While the present paper stands by itself, reading it in conjunction with the other will lead to a fuller understanding of some of the details that I can mention here only in passing." (pp. 94-95)

(1) An exception to this remark is provided by a paper which has just appeared: A. de Libera, "Les sources gréco-arabes de la théorie médiévale de l'analogie de l'être," *Les études philosophiques* [special issue on analogy] (1989): 319-45. De

Libera, however, is more concerned with metaphysical than with logical issues. For a very interesting use of speculative grammar to interpret Aquinas on the language of the sacraments, see I. Rosier, “Signes et sacrements: Thomas d’Aquin et la grammaire spéculative,” *Revue des sciences philosophiques et théologiques* 74 (1990): 392-436.

(2) For some details, see E. J. Ashworth, “Equivocation and Analogy in Fourteenth Century Logic: Ockham, Burley and Buridan” in *Historia Philosophiae Medii Aevi: Studien zur Geschichte der Philosophie des Mittelalters*, ed. B. Mojsisch and O. Pluta (Amsterdam, 1991). I am currently working on a study of Cajetan in relation to some fifteenthand sixteenth-century Thomist logicians. Recent studies by Bruno Pinchard make some attempt to place Cajetan in his philosophical and theological context but have little to offer so far as relating him to fifteenth-century logic and semantics is concerned. See B. Pinchard, *Métaphysique et sémantique* (Paris, 1987); idem, “Du mystère analogique à la ‘Sagesse des Italiens,’ ” *Les études philosophiques* (1989): 413-27. See also the critical notice of Pinchard’s book by O. Boulnois, ibid., 517-26.

(3) See E. J. Ashworth, “Signification and Modes of Signifying in Thirteenth-Century Logic: A Preface to Aquinas on Analogy,” *Medieval Philosophy and Theology* 1 (1991): 39-67.

10. ———. 1992. "Analogical Concepts: The Fourteenth-Century Background to Cajetan." *Dialogue. Canadian Philosophical Review* no. 31:399-413.

"In 1498 Cajetan published a short book, *On the Analogy of Names*, which is often regarded as a masterly summary of Aquinas's doctrine of analogy. It opens in the very first paragraph with an attack on three views of the concept of being (*ens*): first, that it is a disjunction of concepts; (1) second, that it is an ordered group of concepts; and third, that it is a single, separate concept which is unequally participated by substances and accidents. A number of questions immediately spring to mind. Why are concepts being discussed when analogy is said by Cajetan to be a theory of language? What is meant by ‘concept’? Who held the views under attack and why? So far as I

can tell, the extensive literature on both Aquinas and Cajetan offers no satisfactory answers to these questions.

In this paper I shall locate the views mentioned by Cajetan in some fourteenth-century sources. I shall limit myself in two ways. First, I shall focus on those authors, particularly Peter Aureol (d. 1322), Hervaeus Natalis (d. 1323), and John of Jandun (d. 1328), whose views were discussed by Cajetan's immediate predecessors, (2) and whose works were to be influential during the Renaissance. Second, I shall for the most part ignore the Scotists, who held that 'being' was univocal, and the nominalists, who did not accept common natures, and did not appeal to the distinction between formal and objective concepts.

I hope not only to cast some light on developments in the theory of analogy between Aquinas and Cajetan but also on medieval theories of signification. The doctrine that ens is an analogical term provides us with a useful test case, for given the beliefs that a noun signifies a concept, and that a concept captures a common nature, we are faced with an obvious problem. On the one hand, ens does not seem to be straightforwardly equivocal, in the sense of being subordinated to more than one concept, since we at least have the illusion of being able to grasp ens as a general term; on the other hand, there does not seem to be any common nature involved. The issue is further complicated by beliefs about the nature of mental language. If the language of thought is an ideal language, at least to the extent of containing no equivocal terms, then one can ask what room there is in it for analogical concepts. Such terms as 'healthy' (*sanum*) are capable of analysis into a complex of concepts (e.g., a food is healthy because it contributes to the health of those animals that eat it), but the most important analogical terms, those used of God, are precisely the terms which do not seem susceptible of replacement by a complex whose parts are fully clear.

The theory of analogy as presented by medieval philosophers is also gravely affected by the belief that each word is endowed with its signification, including its grammatical features or

consignification, as a unit. Such an assumption is not easy to reconcile with the thought that language is flexible, and that one and the same word can have different shades of meaning in different contexts without thereby becoming a different lexical item. This is not the place, however, to cast doubt on the viability of the whole enterprise, and I shall content myself with asking how some of the parts of the enterprise were thought to fit together." (pp. 399-400)

(...)

"Conclusion

This short paper merely scratches the surface of fourteenth- and fifteenth-century accounts of analogical concepts. Nonetheless, I hope I have said enough to show that Cajetan needs to be read in the light of his more immediate predecessors, rather than as a man wrestling in solitude with the works of Aquinas." (p. 413)

(1) See Bruno Pinchard, *Métaphysique et sémantique. Autour de Cajetan*. Étude [texte] et traduction du "De Nominum Analogia" (Paris: Vrin, 1987), p. 114. The text has “in-disiunctionis,” but this has to be wrong: cf. p. 133, par. 71, where Cajetan once more lists the three views, beginning with “conceptum disiunctum.” Pinchard wrongly suggests (p. 152, par. 1, n. 5) that the latter text should be emended.

(2) Notably Johannes Capreolus (d. 1444), Dominic of Flanders (d. 1479), and Paulus Soncinas (d. 1494).

11. ———. 1992. "New Light on Medieval Philosophy: The *Sophismata* of Richard Kilvington." *Dialogue. Canadian Philosophical Review* no. 31:517-521.

"The fourteenth-century English philosopher and theologian Richard Kilvington (1302/5–61) presents a useful correction to popular views of medieval philosophy in two ways. On the one hand, he reminds us that to think of medieval philosophy in terms of Aquinas, Duns Scotus and Ockham, or to think of medieval logic in terms of Aristotelian syllogistic, is to overlook vast areas of intellectual endeavour. Kilvington, like many before and after him, was deeply concerned with problems that

would now be assigned to philosophy of language; philosophical logic and philosophy of science. He discussed topics in epistemic logic, semantic paradoxes, problems of reference, particularly those connected with the interplay between quantifiers and modal or temporal operators, and problems arising from the use of infinite series in the analysis of motion and change. On the other hand, this very account of his work raises the important issue of conceptual domain. I have spoken as if Kilvington's work can be neatly classified in terms of contemporary interests; and the temptation to read medieval philosophy in modern terms is only strengthened when one recognizes Kilvington as the first member of the group of Oxford calculatores, men such as William Heytesbury and Richard Swineshead, whose discussions of mathematics and physics have caused them to be hailed as forerunners of modern science."

12. ———. 1992. "The *Obligationes* of John Tarteys: Edition and Introduction." *Documenti e Studi sulla Tradizione Filosofica Medievale* no. 3:653-703.

13. ———. 1992. "Logic in Late Medieval Oxford." In *The History of the University of Oxford, Vol. II: Late Medieval Oxford*, edited by Catto, Jeremy C. and Evans, Ralph, 35-64. Oxford: Clarendon Press.

    Co-author Paul Vincent Spade.

    "This chapter discusses three main periods in the history of Oxford logic that occurred approximately between 1330 and 1500. It talks about three Merton authors who were accountable for the course of much subsequent medieval logical theory — Thomas Bradwardine (1295–1349), William Heytesbury (1313–1372 or 1373), and Richard Billingham. This chapter also evaluates the logical activities that occurred during the late medieval period in Oxford by looking at the collections of texts that circulated in manuscript and were eventually printed as the two libelli sophistarum. It argues that the libelli sophistarum shows a disappointing picture of English logic in the fifteenth century. However, Oxford logic was excellent for it reached a level of sophistication and insight that was not gained

anywhere else until the end of the seventeenth century with Leibniz, and not surpassed until the middle of the nineteenth century."

14. ———. 1993. "Ralph Strode on Inconsistency in Obligational Disputations." In *Argumentationstheorie. Scholastische Forschungen zu den logischen und semantischen Regeln korrekten Folgerns*, edited by Jacobi, Klaus, 363-386. Leiden: Brill.

    "Treatises on obligations represent one of the interesting new developments of medieval logic.(1) They set out the rules which were to govern a certain kind of disputation, the obligational disputation. Truth was not at issue in such disputations, since their starting point was normally a false proposition;(2) nor was any particular subject-matter explored. Instead, according to Strode, their purpose was both to provide exercise for beginning students in handling logical inferences; and to prepare them to reason from truths in real-life situations.(3) He compared these disputations to the military exercises which young soldiers had to undergo before they could participate in real battles.(4)

    Obviously both the acceptance of falsehoods and the application of rules in isolation from a given subject-matter have their dangers; and one of the features of obligations treatises is the way they explore the different kinds of inconsistency which can arise in a disputational setting. In this paper I intend to discuss Ralph Strode's reaction to earlier attempts to amend the rules so as to avoid some of these kinds of inconsistency. So far as Strode's predecessors are concerned, my main focus will be on Roger Swyneshed (5) and on an anonymous author whose treatise on obligations was preserved in a Merton College manuscript, (6) though I shall also pay some attention to Richard Kilvington. (7)" (pp. 363-364)

    (1) For bibliography and discussion, see Paul of Venice, *Logica Magna*. Part II Fascicle 8. [*Tractatus de Obligationibus*] ed./trad. E. J. Ashworth, published for the British Academy by the Oxford University Press, 1988. Two papers which are particularly relevant to the theme of this paper are: P. V. Spade,

' Three Theories of Obligationes: Burley, Kilvington and Swyneshed on Counterfactual Reasoning", *History and Philosophy of Logic* 3, 1982, 1-32; and E. J. Ashworth, "Inconsistency and Paradox in Medieval Disputations: A Development of Some Hints in Ockham", *Franciscan Studies* 44, 1984, 129-139.

(2) Some authors, including Strode, explicitly allowed the possibility of a true *positum*: see Paul of Venice, op. cit., p. 33; Ralph Strode, *Obligationes,* Oxford Bodleian Library MS Canon. misc. 219, fol. 37"; Spade, op. cit., p. 12 (for a discussion of Burley on this point).

(3) Strode, ibid., fol. 37', fol. 37va. The second point is made even more clearly by the anonymous Merton author who refers to jurists and moral philosophers in this context: see N. Kretzmann and E. Stump,' The Anonymous De Arte Obligatoria in Merton College MS. 306", in *Mediaeval Semantics and Metaphysics. Studies dedicated to L.M. de Rik*, ed. E. P. Bos, Nijmegen: Ingenium, 1985, pp. 243 sq., § VI. (Short title: *Anon. Merton*). It should be noted that I use the phrase 'anonymous Merton author' for convenience, and not because we know that he was actually a Mertonian. In Paul of Venice, op. cit., I referred to him as Pseudo-Dumbleton.

(4) Strode, op. cit., fol. 37ra.

(5) Swyneshed's treatise was probably written between 1330 and 1335. For discussion and an edition of the text, sec P.V. Spade, "Roger Swyneshed's Obligationes: Edition and Comments", A*rchives d'histoire doctrinale et littéraire du moyen age* 44, 1977, 243-285. (Short title: *Swyneshed*).

(6) See note 3 above. This treatise was probably written during the period 1335-1349: see Anon. Merton., p. 239.

(7) Since I wrote this paper, *The Sophismata of Richard Kilvington*, edited and translated by Norman Kretzmann and Barbara Ensign Kretzmann, has appeared in two volumes: translation, introduction and commentary, Cambridge: University Press, 1990; edition, Oxford: University Press for the British Academy, 1990. However, I have drawn my material

from Spade, op. cit., pp. 19-28, and from E. Stump, "Roger Swyneshed's Theory of Obligations", *Medioevo* 7, 1981, 143-153.

15. ———. 1994. "*Obligationes* Treatises: A Catalogue of Manuscripts, Editions and Studies." *Bulletin de Philosophie Médiévale* no. 36:118-147.

    "*Obligationes* treatises, which deal with the rules to be followed in a certain kind of logical disputation, still form perhaps the least wellunderstood part of medieval logic. Although a number of texts have been edited in recent years, and although various theses about the nature and purpose of obligational disputations have been put forward, we are unlikely to achieve a proper understanding of the issues until the larger part of the surviving material has been edited and assessed. I have decided to publish the following catalogue of manuscripts, editions and studies in the hope that it will speed up this process of edition and assessment.

    I am reasonably confident that my bibliographies of edited texts, studies and translations are complete and accurate. I am also reasonably confident that my bibliography of early printed editions is more-or-less complete and accurate. I have indicated those few cases in which I have not been able to see a book for myself. So far as medieval manuscripts are concerned, I am less confident, either of completeness or of accuracy. In the catalogue of manuscripts I have indicated whether or not I have seen the manuscript in whole or in part, but unfortunately some of the microfilms I have seen were virtually illegible, owing to their poor technical quality. In the catalogue of medieval authors, I have indicated what I know about current editorial projects. My own editions of John Tarteys, Paul of Venice and Ralph Strode have been completed, and I am now trying to come to grips with the series of obligationes treatises associated with Oxford and Cambridge. Needless to say, I shall be grateful for any comments on, corrections of, or additions to the lists which follow.

    I have to thank those people who have already helped me with information and advice, including Louis J. Bataillon, Egbert P.

Bos, Julian Deahl, Angel d'Ors, Sten Ebbesen, Gedeon Gal, Alfonso Maierù, John Murdoch, Paul Spade, and Rega Wood. I also owe a great debt of gratitude to the Killam Program of the Canada Council for awarding me the Kfilam Research Fellowship which enabled me to do much of the work recorded here.

The material is arranged under the following headings:

1. Catalogue of medieval authors.

2. Catalogue of manuscripts.

3. Early printed editions.

4. Edited texts.

5. Studies and translations." (pp. 118-119)

16. ———. 1994. "Les manuels de logique à l'université d'Oxford aux XIV et XV siècles." In *Manuels, programmes de cours et techniques d'enseignement dans les universités médiévales*, edited by Hamesse, Jacqueline, 351-370. Louvain-la-Neuve: Université Catholique de Louvain, Publications de l'Institut d'Etudes Médiévales.

"Quand j'ai commencé mes recherches pour cette communication, je me suis posé deux questions: Qu'est-ce qu'un manuel; et quels sont les rapports entre l'écrit et l'oral dans l'enseignement de la logique? A première vue, la notion de manuel semble tout à fait claire. Dans Le Petit Robert, on lit « Manuel: ouvrage didactique présentant, sous un format maniable, les notions essentielles d'une science, d'une technique, et les connaissances exigées par les programmes scolaires ». D'après cette définition, on peut exclure de cette catégorie les textes de base, les commentaires, et les monographies destinées aux autres professionnels. Malheureusement, quand on commence à étudier l'enseignement à la faculté des arts à Oxford, on constate très vite que les commentaires étaient utilisés de la même manière que les autres genres de littérature, et qu'il n'est pas possible de faire une distinction nette entre les monographies et les manuels. Qui plus est, on ne peut pas comprendre le contenu ni

le but des manuels sans connaître les textes de base et les techniques d'enseignement.

Ma deuxième question n'a pas de réponse plus claire que la première, car il faut faire face à deux problèmes. Tout d'abord, il y a la tension entre l'écrit et l'oral dans l'enseignement lui-même. D'un côté, cet enseignement était carrément fondé sur l'étude des textes. On prenait les textes d'Aristote, on les lisait, on les commentait, on les apprenait par coeur (1). De l'autre côté, la dispute jouait un rôle central dans l'enseignement, et, par sa structure et son contenu, a stimulé la production d'une grande partie de la littérature médiévale sur la logique. Deuxièmement, il y a la question du rapport entre les textes écrits et les disputes ou les leçons. Est-ce que les textes dont nous disposons, surtout les collections de *sophismata*, reproduisent ce qui se passait dans la salle de classe, ou est-ce qu'on les a écrits pour aider la discussion de ce qui devait se faire dans la salle de classe?

Je vous ai donné ce bref aperçu de mes questions initiales afin de vous expliquer pourquoi je vais parler de l'enseignement en général, avant de me concentrer sur les manuels de logique dans l'acception stricte de ce terme. Dans la première partie de ma communication, je présenterai le programme d'études en logique tel qu'on le trouve à Oxford, mais aussi à Cambridge. Afin de vous donner quelques points de repère, j'expliquerai le contenu de la *Logica vetus* et la *Logica nova*, et j'examinerai les commentaires qu'on associe avec les universités anglaises. Ensuite, je parlerai des manuels de logique, et j'essayerai de montrer comment ils sont liés, et aux silences d'Aristote, et à la dispute comme méthode d'enseignement." (pp. 351-352)

(...)

Pour terminer, je voudrais revenir à mes deux premières questions: Qu'est-ce qu'un manuel? Quels sont les rapports entre l'écrit et l'oral dans l'enseignement de logique? Je pense que la réponse à la première question est tout simplement qu'un manuel est une oeuvre écrite, distincte des textes de base, que l'on utilise dans l'enseignement. Donc, un commentaire des textes de base peut constituer un manuel pour les étudiants, et

un exemple d'un autre genre littéraire en logique peut être une monographie. Quant à la deuxième question, il n'y a pas de réponse facile. Considérons les *sophismata* écrits. Quelques-uns, y compris les *Sophismata* de Kilvington et Heytesbury, étaient écrits comme tels (85); d'autres sont la *reportatio* ou la *determinatio* d'une dispute (86). Ce qu'on peut dire, c'est qu'il y a un grand nombre de *sophismata* que l'on trouve dans tous les textes d'un certain genre. Donc, s'il s'agissait là de *reportationes* de disputes au début, je pense que ces *sophismata* sont très vite devenus de purs exemples écrits, sans référence évidente à une dispute ayant réellement eu lieu (87)." (pp. 369-370)

(1) Comme Alain de Libera l'a très bien dit, « La philosophie s'enseigne aujourd'hui comme au Moyen Age: il a des *auctores* et des *textus*; bref, comme auparavant à Athènes, à Alexandrie et à Bagdad, on lit et on commente ». A. De Libera, *Penser au Moyen Age*, Paris, 1991, p. 144.

(85) E. Sylla, *The Oxford calculators*, dans *The Cambridge History of Later Medieval Philosophy*, éd. N. Kretmann, A. Kenny, et J. Pinborg, Cambridge, 1982, p. 546.

(86) Voir A. Maierù, *The sophism « Omnis propositio est vera vel falsa » by Henry Hopton (Pseudo-Heytesbury's « De Verdate et Falsitate Propositionis »)*, dans S. Read (éd.) *Sophisms in Medieval Logic and Grammar*, Dordrecht - Boston - London, 1993, p. 103-115.

(87) Je voudrais remercier Luce Giard d'avoir revu ma grammaire et beaucoup amélioré mon style.

17. ———. 1995. "Suarez on the Analogy of Being. Some Historical Background." *Vivarium* no. 33:50-75.

"In his *Disputationes Metaphysicae*, published in 1597, the great Scholastic philosopher Francisco Suárez offered an account of the analogy of being that has long been the focus of attention. (1) However, little attempt has been made to situate his account historically, despite the wealth of references to earlier authors given by Suárez himself. (2)

Certainly Suárez is seen as reacting to his predecessors, but only two of these, John Duns Scotus and Thomas de Vio, Cardinal Cajetan, are thought to be of any real importance. In relation to Cajetan, Suárez is criticized (or praised) for allowing the analogy of attribution to embrace both intrinsic and extrinsic denomination, and for refusing to assign the analogy of proportionality any role outside the area of metaphor. In relation to Scotus, Suárez is accused of following Scotus so closely in emphasizing the unity of the concept of being that little if any room is left for genuine analogy. Jean-Luc Marion, for instance, has claimed that Suárez tried to construct a new model of analogy which would allow an escape from univocity at the verbal level while admitting its conceptual presuppositions. (3)

I intend to argue that Suárez is best read as par tof a tradition which predates Cajetan with respect to the classification of types of analogy, and which to some extent predates Scotus in its insistence on a concept of being which is both one and analogical. I add "to some extent" because the fullest working out of the theory of a single analogical concept is found in later works which make full use of Scotus' s own arguments. (4) I shall draw most of my material from three fifteenth century philosophers and theologians, Johannes Capreolus (d. 1444), Dominic of Flanders (d. 1479) and Paulus Soncinas (Paolo Barbo da Soncina, d. 1495). (5) I shall also draw on the sixteenth-century Spaniard Domingo de Soto (d. 1560). (6) All of these authors were cited by Suárez, and all had a clear influence on him.

My paper is divided into two parts. In Part I, I consider how different types of analogy were distinguished and described. In Part II, I turn to the discussion of *ens* itself, and the question of whether it is possible for humans to have a single, separate concept of being.

Because my purpose is to place Suárez in his historical context, I shall not consider his actual arguments in any depth; nor shall I consider the philosophical difficulties inherent in his theories. (7)" (pp. 50-51)

(1) For the text, see Francisco Suárez, *Disputationes Metaphysicae* in *Opera omnia*, vols. 25 and 26,Paris 1866; repr. Hildesheim 1965. I shall refer to these volumes as DM I and II. For discussion of Suárez,see John P. Doyle, 'Suárez, on the Analogy of Being', in: *The Modern Schoolman*, 46 (1969), 219-49, 323-41; and Walter Hoeres, Francis Suarez and the Teaching of John Duns Scotus on "Univocatio Entis" ,in: *John Duns Scotus, 1265-1965*, ed. John K. Ryan and Bernardine M. Bonansea, Washington, D.C.

1965, 263-90 (Studies in Philosophy and the History of Philosophy, 3).

(2) Lyttkens does relate Suárez to Petrus Fonseca, who is certainly an important near contemporary source: see Hampus Lyttkens, *The Analogy between God and the World: An Investigation of Its Background and Interpretation of Its Use by Thomas of Aquino*, Uppsala 1953, 234-6. However, Fonseca is too close to Cajetan to serve my current purposes.

(3) Jean-Luc Marion, *Sur la théologie blanche de Descartes*,Paris 1981, 82: "Loin de conclure à l'univocité,Suárez, va entreprendre de construire un nouveau modèle d'analogie, qui permette à la fois d'échapper verbalement à l'univocité, et d'en admettre

les présupposés conceptuels".

(4) Olivier Boulnois has recognized the importance of the absorption of Scotist arguments by Thomists: see Boulnois in Jean Duns Scot, *Sur la connaissance de Dieu et l'univocité de l'étant*, introduction, traduction et commentaire par Olivier Boulnois, Paris 1988 ,36: "Mais l'univocité triomphe de façon plus éclatante encore à l'endroit où elle est le plus violemment combattue, dans l'école thomiste, car elle s'impose comme le fonds commun sur lequel s'engage la polémique. - Cajetan est ici un cas exemplaire, lui qui entendait défendre l'esprit thomiste contre l'enseignement scotiste", For some discussion of analogical concepts, see E. J. Ashworth, *Analogical Concepts: The Fourteenth-Century Background to Cajetan*, in: Dialogue, 31 (1992), 399-413.

(5) For discussion of Capreolus, see Johannes Hegyi, *Die Bedeutung des Seins bei den klassischen Kommentatoren des heiligen Thomas von Aquin: Capreolus-Sylvester von Ferrara Cajetan*, Pullach bei München 1959. Hegyi has nothing to say about Capreolus on analogy. Some useful biographical material about Dominic of Flanders and Soncinas, as well as a compendium of passages about analogy, can be found in Michael Tavuzzi, Some Renaissance Thomist Divisions of Analogy, in: *Angelicum*, 70 (1993), 93-122.

(6) For discussion of Soto, see E. J. Ashworth, Domingo de Soto (1494-1560) on Analogy and Equivocation, in: Ignacio Angelelli and Maria Cerezo (eds.), *Proceedings of the Third Pamplona Conference on the History of Logic*, New York-Berlin (Walter deGruyter), forthcoming [1996].

(7) For these matters, the reader can safely be referred to the two articles mentioned in note 1.

18. ———. 1995. "Late Scholastic Philosophy. Introduction." *Vivarium*:1-8.

"This issue of *Vivarium* is devoted to late scholastic philosophy, by which I understand a type of philosophy that coexisted with humanism, Renaissance philosophy, and early modern philosophy roughly from the late fifteenth to the late seventeenth century.(1) I shall not attempt to characterize early modern philosophy, other than by pointing out that Descartes's *Meditations* and Locke's *Essay concerning human understanding* may be taken as typical works,but a few remarks about humanism and Renaissance philosophy will help to indicate the types of contrast I wish to draw. So far as humanism is concerned, I follow Kristeller in seeing it as primarily "a cultural and educational program which emphasized and developed an important but limited area of studies." (2) The studies referred to included grammar,rhetoric, poetry, history, and moral philosophy, as opposed to the strictly philosophical disciplines of logic, natural philosophy, and metaphysics, thought here was obviously an overlap in the case of moral philosophy." (p. 1)

(1) For slightly different characterizations, see J. Trentman, 'Scholasticism in the seventeenth century', in: N. Kretzmann, A. Kenny, J. Pinborg (eds.), *The Cambridge History of Later Medieval Philosophy*, Cambridge 1982, 818; and E. Keßler, 'The intellective soul', in: C.B. Schmitt and Q. Skinner (eds.), *The Cambridge History of Renaissance Philosophy,* Cambridge 2 P.O. Kristeller, 1988, 507.

(2) P.O. Kristeller, *Renaissance Thought and Its Sources*, ed. M. Mooney, New York 1979, 22.

19. ———. 1995. "La doctrine de l'analogie selon quelques logiciens jésuites." In *Les jésuites à la Renaissance. Système éducatif et production du savoir*, edited by Giard, Luce, 107-126. Paris: Presses universitaires de France.

Traduction de Lucie Giard.

"Je voudrais présenter, sur l'exemple de quelques auteurs de la Compagnie, la doctrine logique de l'analogie dont j'ai entrepris l'histoire du XIIIe à la fin du XVIe siècle (1). Jusqu'ici on s'était en général intéressé à la question de l'analogie telle qu'elle se présente chez les grands métaphysiciens, notamment Thomas d'Aquin, Jean Duns Scot et Francisco Suárez, auxquels on ajoutait, pour son court traité *De nominum analogia* (1498), un seul logicien, Cajetan (Thomas de Vio) (2). Si ces choix textuels sont compréhensibles, je les crois pourtant trompeurs. D'un côté, l'importance donnée aux arguments de Duns Scot en faveur de l'univocité de l'être a masqué l'existence d'une longue tradition qui acceptait que des termes analogiques correspondent à un seul concept, lui-même analogique. De l'autre, on a présenté Cajetan comme s'il donnait à la fois un résumé des doctrines médiévales et une interprétation de Thomas d'Aquin, restée pure de tout développement postérieur à l'Aquinate, en dépit d'un intervalle de plus de deux siècles entre lui et Cajetan. Je suis persuadée qu'en lisant les logiciens de plus près on aboutira à un jugement plus équilibré sur les positions de Cajetan et de Suárez par rapport à leurs prédécesseurs et qu'ainsi on pourra même mieux comprendre Thomas d'Aquin.

Dans ce chapitre, mon objectif sera limité. Je partirai de la classification des types d'analogie proposée par Francisco de Toledo (1532-1596), un logicien jésuite, et j'en expliquerai les origines à partir des théories médiévales de l'équivocité. Ensuite, en examinant de plus près l'analogie de proportionalité proprement dite, je comparerai les thèses de Toledo sur ce point à celles d'autres jésuites, notamment Pedro da Fonseca (1528-1599) et Antonio Rubio (1548-1615). Je voudrais déterminer comment les logiciens de la Compagnie ont répondu aux demandes de Cajetan. Sans qu'il soit discuté véritablement de Suárez, ce qui suit sera directement applicable à l'intelligence de son rejet de l'analogie de proportionalité proprement dite au bénéfice de l'analogie d'attribution." (pp. 107-108)

(1) On trouvera des bibliographies et des informations sur ce thème dans une série d'études que je lui ai consacrée: Signification and Modes of Signifying in 13th c. Logic: A Preface to Aquinas on Analogy, *Medieval Philosophy and Theology,* 1, 1991, p. 39-67; Analogy and Equivocation in 13th c. Logic: Aquinas in Context, *Mediaeval Studies,* 54, 1992, p. 94-135; Equivocation and Analogy in 14th c. Logic: Ockham, Burley and Buridan, in B. Mojsisch et O. Pluta (eds), *Historia Philosophiae Medii Aevi. Studien zur Geschichte der Philosophie des Mittelalters,* Amsterdam, 1991, t. 1, p. 23-43; Analogical Concepts: The 14th c. Background to Cajetan, *Dialogue,* 31, 1992, pp. 399-413.

(2) Bruno Pinchard, *Métaphysique et sémantique. Autour de Cajetan (...),* Paris, 1987.

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History of Logic

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Writings of E. J. Ashworth on the History of Logic. Fifth Part: Articles from 1996 to 2005

Articles 1996-2005

1. Ashworth, Earline Jennifer. 1996. "Domingo de Soto (1494-1560) on Analogy and Equivocation." In *Studies on the History of Logic. Proceedings of the Third Symposium on the History of Logic*, edited by Angelelli, Ignacio and Cerezo, Maria, 117-132. Berlin: Walter de Gruyter.

   "In 1543 the Spanish logician, Domingo de Soto, published a commentary on Aristotle's *Categories*. (1) As one might expect, Soto offers a detailed discussion of the opening lines in which Aristotle presents a definition of equivocal terms, but his discussion also includes an analysis of analogical terms, together with an account of the conceptual correlates of such terms. The purpose of this paper is to show how Soto's analysis fits into a long tradition of commentary on the *Categories*. In particular, I wish to show that although Soto betrays the influence of Thomas de Vio, Cardinal Cajetan, whose short book, *On the Analogy of Names,* was published in 1498, it is a great mistake to suppose that the history of analogy from the thirteenth to the sixteenth century should be read through the eyes of Cajetan. At the same time, I hope to throw some light on the background to Suarez, for it seems to me that there is a close relationship between the doctrines found in Soto and those developed by Suarez.

My paper is divided into three parts. In the first part, I shall look at the notion of equivocation and how it came to be related to analogy. In the second part, I shall describe Soto's divisions of analogy and how they are related to those of Cajetan. In the third part, I shall discuss what Soto had to say about the imposition of analogical terms and about their relationship to concepts and natures." (p. 117)

(...)

"3. *Analogy, Imposition, and Concepts*.

The mention of concepts brings us to the last section of my discussion, in which I shall consider Soto's explanation of the way analogical terms were related to conventional signification on the one hand, and to concepts on the other. For Soto, as for other medieval and post-medieval logicians, spoken words were endowed with their signification by arbitrary imposition. Some logicians, including the sixteenth-century Spaniard Antonio Coronel, argued that deliberate equivocation involves two acts of imposition, (39) but Soto followed Dominic of Flanders in affirming that only one act of imposition is involved for analogical terms. (40) In the case of such analogical terms as '*homo*', used of painted men, '*ridere*', used of fields, and '*sanum*', used of urine, there is a transference of signification, and what is imposed to signify one thing, comes to signify another. In the case of 'ens', however, there is no transference. This word was originally imposed to signify *id quod est,* and so it signifies substance and accidents, God and creatures, without any need for a specially extended use. (p. 124)

(...)

"In his *Categories* commentary, Soto was more forthright. After giving a lengthy account of Scotus's arguments for the univocity of the word '*ens*', he put forward four theses. (46) The first thesis was that there is one formal concept of being, a view which Soto supported both by reference to Scotus's arguments and by extra reasons of his own. One of these had to do with imposition. Whoever first imposed the word *'ens*' could not have been thinking specifically of God or of creatures, of

substance or of accidents, any more than do those Latin-speakers who are ignorant of philosophy. So far as the first thesis was concerned, Soto saw no difference between Scotus and Aquinas. His second thesis postulated just one objective concept. Even though many Thomists deny this, he said, '*ens*' signifies one formal ratio in the object, abstracted by reason from substance and accidents. Nonetheless, in his third thesis he stated that 'ens' signifies substance and accidents not univocally but analogically. This is because the ratio is not found simply but *proportionabiliter* in its significates, principally in one and through attribution in the others. In his fourth thesis, Soto turned to God and creatures, stating that '*ens*' is also said analogically of them, even though the case is not strictly comparable to that of substance and accidents. Indeed, he remarked, we can understand why Aquinas said different things in different places if we realize that theological analogy, as Alain de Libera has called it, (47) involves both similarity to and difference from philosophical analogy. On the one hand, there is a similarity to analogy because of the dependence relation between God and creatures. This is why Aquinas, in *Summa theologiae* la q.13 a.5, compared '*ens*' said of God and creatures with '*sanum*'. As urine is a sign of an animal's health, so the perfections of creatures are nothing other than expressions of perfections in God. On the other hand, there is a difference from analogy in that ens is said simpliciter of both God and creatures, and this is why in *De Veritate* q.2 a. 11 Aquinas said that there was an analogy of proportionality between God and creatures. As God exists through the esse formally in him, so do creatures exist through the esse formally in them. In his conclusion, and without saying more about proportionality, Soto remarked that the analogy of being between God and creatures is called univocation because it is nearer to univocation than is the analogy of being between substance and accidents.

4. *Conclusion.*

Soto's four theses point the way to the subtle and intensive analysis of ens given by Suarez in his *Disputationes Metaphysicae*. While Suarez's doctrine is not precisely that of

Soto, there are clear parallels between the two great Spaniards, and Suarez cites Soto's commentary on the *Categories* a number of times. A more precise account of how Suarez made use of Soto's arguments, and how Soto ranks in comparison to Suarez's other sources will, however, have to await another occasion."

(1) I shall use the facsimile edition of the 1587 edition: Domingo de Soto, *In Praedicamentorum*, in Soto, *In Porphyrii Isagogen, Aristotelis Categorias, librosque de Demonstratione Absolutissima Commentaria*, Venice 1587 /reprinted 1967 Frankfurt: Minerva).

(39) Antonius Coronel, *Magistri Antonii coronel Secobiensis super librum Predicamentorum Aristotelis secundum utriusque vie realium scilicet et nominalium principia commentaria*. Parrhisiis. 1518, fol. ii va.

(40) Dominic of Flanders, *In D. Thomae Aquinatis Commentaria super Libres Posteriorum Analyticorum Aristotelis, nec non et in eiusdem Fallaciarum opus. Quaestiones Perutiles, Pauli quoque Soncinatis eiusdem ordinis, lucida et subtilis Expositio in Porphyrii Isagogen, et Aristotelis Praedicamenta, cum suis quaestionibus in unaquaque expositione Militer disputatis*. Venetiis 1600, p. 177B; 1499 sig. i 3vb. On sig. i 3va he writes "*analogum debet significare unam principaliter et aliud secundaria, una impositione ex parte ipsius imponentis*." (I have corrected the text slightly.) Soto 1587, p. 119a-b.

(46) Soto 1587, pp. 129a-133a.

(47) Alain de Libera, *Albert le Grand et la philosophie*, Paris: J. Vrin 1990, p. 96.

2. ———. 1996. "Autour des Obligationes de Roger Swyneshed: la *Nova responsio*." *Etudes Philosophiques* (3):341-360.

"D'aprés l'opinion reçue, les *Obligationes* de Roger Swyneshed, redigées entre 1330 et 1335, signalent deux nouvelles directions dans les debats sur les règies qu'on est oblige de suivre dans un certain type de dispute logique, la dispute obligationnelle (1). D'un côté, ils nous offrent une analyse des diverses formes de

reflexivité beaucoup plus approfondie que celle de Gauthier Burley, dont les *Obligationes* de 1302 sont caracteristiques de la théorie standard (2). De l'autre côté, ils donnent une *nova responsio* sous la forme de deux règles assez surprenantes du point de vue de la logique: 1 /On peut nier une proposition conjonctive après avoir concedé ses deux parties. 2 /On peut conceder une proposition disjonctive avant de nier ses deux parties (3).

Récemment, Angel D'Ors, tout en acceptant l'originalité de Swyneshed à propos des formes de reflexivité, s'est proposé de détruire le mythe de la *nova responsio* de Swyneshed (4). Il pretend que, malgré les apparences, Swyneshead suivait Burley, et qu'il n'y avait qu'une théorie des obligationes durant le XIVe siècle (5).

D'Ors est surtout motivé par son incapacité de comprendre pourquoi Swyneshed aurait présenté une *nova responsio* aussi dépourvue de sens logique (6). Donc, au lieu de chercher une explication des deux règles, il cherche plutôt une explication du fait qu'on attribue ces règles à Swyneshed. Dans ses récents articles, il se concentre sur deux textes auxquels Spade, entre autres, a fait appel afin d'expliquer Swyneshed. Tout d'abord, il prétend que les *Obligationes* de Richard Lavenham (mort après 1399) (7) ont été mal comprises par ses récents lecteurs. Au lieu de suivre la supposée *nova responsio* de Swyneshed, Lavenham s'intéresse à la différence entre le dialogue d'une dispute obligationnelle et le métadialogue dans lequel on discute les raisons pour lesquelles les réponses étaient ou bonnes ou mauvaises, et les règles auxquelles on aurait dû faire appel (8). En ce qui concerne Robert Fland, un autre Anglais qui a écrit entre 1335 et 1370 (9), D'Ors et son collaborateur, Miguel Garcia-Clavel, admettent qu'il parle d'une *nova responsio*, mais ils prétendent que Fland a inventé cette réponse à cause d'un malentendu, et que personne n'a jamais adopté cette réponse (10). Tout comme les lecteurs de Lavenham, Fland n'a pas réussi à comprendre que Swyneshed parle à deux niveaux, le niveau du dialogue de base, et le niveau du métadialogue.

L'hypothèse de la nature mythique de la *nova responsio* est audacieuse et provocatrice. Malheureusement, quand on la regarde de plus près, elle se révèle fausse, le fruit d'un malentendu de la part de D'Ors lui-même (11). Dans cet article, je vais expliquer pourquoi Fland n'a rien inventé, et pourquoi il est possible de considérer Lavenham comme un disciple de Swyneshed.

Mon article se divise en quatre parties. Premièrement, j'aborderai le problème des textes eux-mêmes. Je suis entièrement d'accord avec D'Ors quand il dit que le texte de Fland (qui existe dans un seul manuscrit) est souvent peu fiable, et qu'il y a plusieurs façons de lire le texte de Lavenham. En général, les textes qui traitent des *obligationes* ne sont pas faciles à comprendre. Il y a trop de détails que nous ignorons; les auteurs écrivaient trop vite, sans donner des explications en profondeur; les copistes y ont ajouté trop d'erreurs. C'est précisément à cause de ces problèmes qu'il faut s'appuyer sur une base textuelle aussi étendue que possible, sans se limiter à deux ou trois œuvres. Je montrerai qu'il y avait d'autres auteurs que Fland et Lavenham qui parlaient d'une *nova responsio*, et qui discutaient des deux règles de Swyneshed. Deuxièmement, je donnerai un bref aperçu de la théorie standard des *obligationes*, et je ferai une comparaison entre cette théorie et celle de Swyneshed telle qu'elle est présentée par au moins dix auteurs, à part Fland et Lavenham. En troisième lieu, j'examinerai de plus près les définitions alternatives de la notion clef de propositions non pertinentes, et les différentes règles qui gouvernaient les réponses à ces propositions. Pour terminer, j'expliquerai le rapport entre les règles de Swyneshed et la théorie d'inférence que nous offre un auteur anonyme. C'est ici que l'on trouve enfin le raisonnement qui mena Swyneshed à adopter sa *nova responsio*." (pp. 341-343)

(...)

"Conclusion.

En somme, il faut accepter l'opinion reçue à propos de Swyneshed. Il y avait une *nova responsio* qui se basait sur une théorie d'inférence très restreinte. Malheureusement pour ceux

qui aimeraient interpréter les *obligationes* en fonction des contre factuels ou des mondes possibles, cette théorie restreinte a ses racines dans un manque de compréhension des arguments que l'on retrouve chez Burley. Les enjeux étaient moins intéressants qu'on aurait voulu croire." (pp. 359-360)

(1) Paul Vincent Spade, Roger Swyneshed's Obligationes: Edition and Comments, *Archives d'histoire doctrinale et littéraire du Moyen Age*, 44 (1977), p. 243-285. Pour une bibliographie complète, voir E. J. Ashworth, *Obligationes* Treatises: A Catalogue of Manuscripts, Editions and Studies, *Bulletin de philosophie médiévale*, 36 (1994), p. 118-147.

(2) Romuald Green, *The Logical Treatise «De Obligationibus »: An Introduction with Critical Texts of William of Sherwood and Walter Burley*, dissertation présentée pour l'obtention du grade de docteur en philosophie, Université de Louvain, 1963.

(3) Swyneshed, p. 257 §32: « Propter concessionem partium copulativae non est copulativa concedenda nec propter concessionem disjunctivae est aliqua pars ejus concedenda ».

(4) Angel D'Ors, Sobre las Obligationes de Richard Lavenham, *Archives d'histoire doctrinale et littéraire du Moyen Age*, 58 (1991), p. 253-278 (pour l'opinion reçue, voir p. 255); Angel D'Ors, Sortes non currit vel Sortes movetur (Roger Swyneshed, Obligationes, § 137-138), *Archives d'histoire doctrinale et littéraire du Moyen Age*, 60 (1993), p. 165-172 (pour l'opinion reçue, voir p. 165); Angel d'Ors y Manuel Garcla-Clavel, Sobre las Obligationes de Robert Fland, Antiqua et nova responsio, *Revista de Filosofia*, 7 (1994), p. 51-88 (pour l'opinion reçue, voir p. 51).

(5) Ici, je laisse de côté les problèmes présentés par les *Sophismata* de Richard Kilvington et le texte anonyme de Merton College ms. 306. Pour discussion et références, voir Mikko Yrjönsuuri, Obligationes, 14th Century Logic of Disputational Duties, *Acta Philosophieca Fennica,* vol. 55 (Helsinki, Societas Philosophies Fennica, 1994), un excellent guide aux obligationes jusqu'en 1335. Yrjönsuuri pense que le

texte anonyme date de 1321 environ, et que son auteur critique Burley plutôt que Swyneshed: voir p. 77.

(6) D'Ors y Garcia-Clavel, op. cit., p. 55: «... la nova responsio en la forma en que Fland nos la présenta: no parece obedecer a ninguna razôn, no parece que pueda encontrarse una razôn que explique tal propuesta de cambio », cf. p. 56.

(7) Paul Vincent Spade, *Richard Lavenham's Obligationes*. (Edition and Comments by Paul Vincent Spade), *Rivista critica di storia della filosofia*, 33 (1978), p. 225-242.

(8) D'Ors, Sobre las Obligationes de Richard Lavenham, p. 274-278; D'Ors y Garcia-Clavel, op. cit., p. 84-85, 87.

(9) Paul Vincent Spade, Robert Fland's Obligationes. An Edition, *Mediaeval Studies*, 42 (1980), p. 41-60.

(10) D'Ors y Garcia-Clavel, op. cit., p. 53: «... la obra de Fland no puede servir como guiâ para la interpretaciôn del auténtico sentido de la doctrina de Swyneshed ; o lo que es lo mismo, que la nova responsio de la que nos habla Fland, como tal, no ha existido nunca, es decir, que no se corresponde con ninguna doctrina que alguien, sea éste quien sea, haya alguna vez realmente defendido, sino que es simplemente el fruto de una mala interpretaciôn de la doctrina cuyo mis ilustre représentante es Swyneshed», cf. p. 69.

(11) Bien que je ne sois pas d'accord avec D'Ors en ce qui concerne Swyneshed, j'ai néanmoins beaucoup appris de lui et de ses œuvres.

3. ———. 1997. "Petrus Fonseca on Objective Concepts and the Analogy of Being." In *Logic and the Workings of the Mind. The Logic of Ideas and Faculty Psychology in Early Modern Philosophy*, edited by Easton, Patricia A., 47-63. Atascadero: Ridgeview.

   "Petrus Fonseca was a Portuguese Jesuit who lived from 1528 to 1599. He was one of those responsible for drawing up the Jesuit *Ratio Studiorum* which set the curriculum for Jesuit schools across Europe, and he was also responsible for initiating the production of the Coimbra commentaries on

Aristotle, or Conimbricenses, which served as texts for many schools and universities in the seventeenth century.(1) He was himself the author of two popular texts, an introduction to logic, and a commentary on Aristotle's Metaphysics. (2) His logic text was one of two alternatives prescribed by the *Ratio Studiorum* of 1599, and may have been used at La Flèche; (3) his *Metaphysics* commentary was used at many Jesuit schools, and may also have been used at La Flèche. (4) In short, Fonseca was a leading figure in the Scholastic Aristotelian tradition of the late sixteenth century, a tradition which lies behind many of the developments in early modern philosophy, and which in many ways is more important than the humanist tradition represented by Petrus Ramus. (5)

I have chosen to discuss Fonseca on objective concepts and the analogy of being both because an examination of these issues will help us to understand how logic came to be bound up with the philosophy of mind and because the history of how these issues were treated helps solve a small problem about Descartes's sources. My paper has four parts. I shall begin by giving a historical outline of treatments of analogy and their relevance to Descartes. (6) Secondly, I shall discuss late medieval theories of signification, particularly as they appear in Fonseca, in order to show how logicians turned away from spoken language to inner, mental language. Thirdly, I shall explain how it was that analogy, as a theory of one kind of language use, was particularly bound up with the discussion of concepts. Finally, I shall look at the distinctions Fonseca made while discussing the concepts associated with analogical terms.

1 Historical Outline: From Scotus to Descartes

In *Meditation* 3, Descartes uses a distinction between formal and objective reality with respect to ideas in order to prove the existence of God. In the secondary literature this distinction is invariably linked with a distinction between formal and objective concepts found in Suarez, whose *Metaphysical Disputations* (published in 1597) was cited by Descartes on one occasion. (7) However, as the literature acknowledges, it is not clear where the distinction originated, or how Descartes came

to know of it. The earliest paper I know of, published by Dalbiez in 1929, looked in two directions.(8) Dalbiez quite accurately traced the distinction back to Duns Scotus and his discussion of the kind of being creatures had in God's mind prior to creation, (9) but Dalbiez thought it improbable that Descartes would have read Duns Scotus. He then suggested that the notion is more likely to have come from Suarez and another near-contemporary, Vasquez, both of whom used the notion in a theological dispute about the views of the fourteenth-century theologian Durandus of Saint Pourçain (d. 1334) on the nature of truth. (10) Little new light has been shed since 1929. (11) In recent papers, Norman Wells still privileges both Suarez and the debate about Scotus on divine ideas. (12) In a paper entitled "Meaning and Objective Being: Descartes and His Sources," Calvin Normore first discusses Duns Scotus and William of Alnwick on objective being in the context of God's ideas; and he then shows how the notion was used by Peter Aureol, William Ockham, and Walter Chatton in a variety of contexts. However, Normore acknowledges that there is a gap between about 1340 and the beginning of the seventeenth century. In his conclusion, he writes that his examination "suggests a Descartes firmly rooted in a Scholastic tradition which is deeply in debt to Duns Scotus and closely allied with fourteenth-century developments in epistemology and in the theory of meaning. This makes the problem of Descartes' immediate sources and the question of his originality even more puzzling." (13)

My own recent work on analogy as a theory of one kind of language use shows that at least one historical path between Scotus and the early seventeenth century can be traced through the Thomistic tradition, though we must remember that late medieval and Renaissance Thomism embraced a variety of different approaches and doctrines. What Thomists had in common was a kind of moderate realism with respect to common natures that differentiated them from the nominalists on the one hand and the Scotists on the other. Nonetheless, Thomists embraced many theses put forward by nominalists, especially Pierre d'Ailly (d. 1420/1); and much of their agenda

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"Conclusion.

I don't want to claim that I can point to precise passages in Fonseca which have influenced Descartes, or Mersenne, or Arnauld, or any other early modern philosopher. On the other hand, I do want to claim that this is the style of discussion, and these are the types of distinctions, with which early modern philosophers, at least up to and including Locke, would have been familiar through the scholastic texts by which they were educated." (p. 63)

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5. ———. 1997. "L'analogie de l'être et les homonymes. *Categories*, 1 dans la "*Guide de l'étudiant*"." In *L'enseignement de la philosophie au XIII siècle. Autour du "Guide de l'étudiant" du ms. Ripoll 109. Actes du Colloque International*, edited by Lafleur, Claude and Carrier, Joanne, 281-295. Turnhout: Brepols.

"C’est par trois définitions que s'ouvrent les *Catégories* d'Aristote (1). Dans la traduction d'Yvan Pelletier, Aristote écrit: «On dit homonymes les êtres dont le nom seul est commun, tandis que la définition de l'essence signifiée par ce nom est différente. Par exemple, l'animal, c'est à la fois l'homme et son image peinte [...]. Par ailleurs, on dit synonymes les êtres dont le nom est commun et pour lesquels, de plus, la définition de l’essence signifiée par ce nom est la même. Par exemple, l'animal, c'est aussi bien l'homme que le bœuf [...]. Enfin, on dit paronymes tous les êtres qui, tout en différant d'un autre par leur cas, reçoivent leur appellation d'après son nom. Ainsi dénomme-t-on, d'après la grammaire, le grammairien et, d'après le courage, le courageux » (2).

Ces trois définitions courtes et sèches nous donnent un point de départ pour examiner les rapports entre la théorie des catégories et la théorie de l'analogie, ou plutôt les théories de l'analogie, chez les logiciens du XIIIe siècle. J’ai dit «les théories de l’analogie», parce qu'il y en a au moins deux. D'un côté, il y a l'analogie comme théorie du langage; d’un autre côté, il y a l'analogie comme théorie métaphysique des rapports hiérarchiques entre substance et accident, Dieu et créature. Dans son analyse approfondie des sources gréco-arabes de la théorie médiévale de l'analogie de l'être, Alain de Libéra parle de divers textes et problématiques, soit sémantiques, soit théologiques, qui sont à l'origine de cette théorie. Pourtant, en

soulignant l'importance primordiale des textes aristotéliciens, il dit: «La théorie médiévale de l'analogie de l'être est principalement issue de la rencontre de *Cat*., I, 1, *Eth. Nic*., 1, 4 et *Métaph.,* IV, 2», pour ajouter ensuite : « Avant cette synthèse, la notion d'analogie a été utilisée en dehors de toute préoccupation métaphysique, comme concept sémantique lié à l'interprétation des deux problèmes logiques standards de l'homonymie: l'élucidation de la distinction entre homonymes et synonymes dans *Cat*., I, 1 ; l'analyse des mécanismes sémantiques de la *fallacia aequivocationis* dans *Ref. soph*., 17» (3).

De Libera a raison quand il dit que l'on trouve l'analogie comme théorie du langage ou théorie sémantique dans les manuels de logique plutôt que l'analogie de l'être, et que, pour comprendre l'analogie de l'être, il faut faire tout particulièrement attention à la *Métaphysique* d'Aristote et à ses commentateurs arabes. Néanmoins, pour des raisons que j'essaierai d'expliquer dans ce travail, il y a des liens étroits entre les *Catégories* et l'étude de l'être comme tel, et il me semble que dans le «Guide de l'étudiant» et dans les autres sources contemporaines que j'ai examinées, nous trouvons la préhistoire de l'analogie de l'être, une préhistoire fondée sur une lecture strictement ontologique des *Catégories* d'Aristote. En même temps, étant donné les problèmes causés par une telle lecture, on peut très facilement comprendre pourquoi les logiciens de la fin du XIIIe siècle et du début du XIVe siècle préféraient, soit une interprétation linguistique, soit une interprétation conceptualiste des catégories elles-mêmes et des notions liées d'analogie et d'homonymie.

Les textes sur lesquels repose mon interprétation sont tout d'abord le «Guide de l'étudiant» et le *De communibus artium liberalium*, édités par Claude Lafleur avec la collaboration de Joanne Carrier (4). À part les commentaires sur les *Catégories* de Boèce et du Pseudo-Augustin (5), j'utilise le commentaire de Jean le Page, écrit entre 1231 et 1235, le commentaire de Robert Kilwardby, écrit vers 1240, et les *Tractatus* écrits entre 1230 et 1245 (6). Tous ces textes sont à peu près contemporains du «Guide de l'étudiant». En plus, j'utilise les *Summule dialectices*

de Roger Bacon, écrites vers 1250, la *Summa* de Lambert de Lagny, dont la première rédaction date de 1250-1255, ainsi que le commentaire sur les *Catégories* d'Albert le Grand, écrit vers 1260 (7). Ces trois textes sont à peu près contemporains du *De communibus artium liberalium*. Enfin, pour donner une idée des développements doctrinaux dans la dernière partie du XIIIe siècle, je ferai référence aux commentaires de Pierre d'Auvergne, de l'Anonyme de Madrid, de Simon de Faversham et de Martin de Dacie, tous écrits entre 1270 et 1300 (8).

Mon étude se divise en trois parties. En premier lieu, comme introduction à mon thème principal, je donnerai un bref aperçu de l'analogie dans les manuels de logique et dans les commentaires sur Aristote. Ensuite, je traiterai du sujet de la logique aristotélicienne en général et du sujet des Catégories en particulier. Mon but ici est de montrer l'importance de l'être, surtout dans le contexte de deux questions: y a-t-il une science unique des catégories, et quels sont les rapports entre la logique et la métaphysique ? Pour terminer, j'aborderai les rapports entre homonymes, synonymes et paronymes, interprétés comme des réalités et non pas comme des mots, dans le contexte de la question: pourquoi Aristote a-t-il placé les homonymes avant les synonymes et les paronymes?" (pp. 281-283)

(...)

"Avant de terminer, je voudrais examiner les paronymes de plus près. Rappelons la définition aristotélicienne: «on dit paronymes tous les êtres qui, tout en différant d'un autre par leur cas, reçoivent leur appellation d'après son nom». L'expression «par leur cas» («solo casu» en latin) suggère une variation de forme purement linguistique, mais l'auteur du «Guide de l'étudiant» réussit à trouver une interprétation ontologique. Il dit que «solo casu» veut dire «par une inclinaison ou une contraction ou une agrégation relative à un sujet» («inclinatione uel contractione uel concretione ad subiectum», § 539), et on peut lier ce passage à celui dans la section sur la grammaire (§ 224) où il dit que le logicien s'occupe de la relation entre les accidents et la substance

(«logicus intendit de compara-tione quam habent accidentia ad substantiam»). À première vue, Kilwardby semble donner une interprétation voisine de celle de notre auteur. Il dit que les termes dénominatifs signifient cum casu car ils signifient un accident en fonction de sa relation à un sujet, et que le mot principal signifie *sine casu*, c'est-à-dire sans une relation au sujet (61). Cependant, quand il nous offre ses précisions sur l'expression « sola cadencia ad materiam a principali» comme explication de «différant solo casu», il parle de la matière des *voces*. Roger Bacon nous offre trois interprétations de l'expression «solo casu», dont deux sont linguistiques (62). En premier lieu, le cas peut être une simple variation de forme, et on trouve cette interprétation chez Albert le Grand (63). En deuxième lieu, le cas peut être une variation de forme relevant de la dérivation lexicale, et ici il emploie l'expression «sola cadentia unius ab alio, sive formatione». On trouve cette interprétation chez Lambert de Lagny (64). En troisième lieu, le cas peut être la chute d'une forme vers la matière et le sujet, et ici il emploie l'expression «sola cadentia formae ad materiam et ad subiectum». Cette dernière interprétation est la plus proche de celle de notre auteur." (pp. 294-295)

Voilà donc un bref aperçu de la façon dont l'auteur du «Guide de Vétudiant» et ses contemporains traitent de la problématique de l'être dans le contexte des Catégories. Je suis persuadée qu'une étude plus approfondie et plus longue que la mienne nous aidera à mieux comprendre l'apparition de l'analogie de l'être chez les philosophes et théologiens du XIIIe siècle.

(1) Aristote, *Catégories*, I (la 1-15).

(2) *Les Attributions (Catégories). Le texte aristotélicien et les prolégomènes d'Ammonios d'Hermeias*, présentés, traduits et annotés par Y. Pelletier, Montréal: Bellarmin/Paris: Les Belles Lettres, 1983, p. 23 (Collection d'études anciennes publiée sous le patronage de l'Association Guillaume Budé. Collection Noêsis publiée par le Laboratoire de recherches sur la pensée antique d'Ottawa).

(3) A. De Libera, Les sources gréco-arabes de la théorie médiévale de l'analogie de l'être, dans *Les études philosophiques* 3/4 (1989), p. 321.

(4) Cl. Lafleur, avec la collaboration de J. Carrier, *Le « Guide de l'étudiant » d'un maître anonyme de la Faculté des arts de Paris au XIIIe siècle. Édition critique provisoire du ms. Barcelona, Arxiu de la Corona d'Aragô, Ripoll 109, fol. 134ra-158va*, Québec, 1992 (Publications du Laboratoire de philosophie ancienne et médiévale de la Faculté de philosophie de l'Université Laval, I): j'utilise ici cette prépublication dont la division du document en paragraphes demeurera inchangée dans l'édition révisée à paraître chez Brepols, dans la *Continuatio mediaevalis du Corpus Christianorum*; *Id., Un instrument de révision destiné aux candidats à la licence de la Faculté des arts de Paris, le «De communibus artium liberalium» (vers 1250?),* dans *Documenti e studi sulla tradizione fllosofica medievale* 5, 3 (1994), pp. 129-203.

(5) Boèce, *In Categorias Aristotelis libri quatuor*, PL 64, col. 159-294. Pour les *Categoriae decem* du Pseudo-Augustin, longtemps attribuées à Augustin mais aujourd'hui éditées sous le titre de *Paraphrasis Themistiana*, voir *Categoriae vel Praedicamenta, translatio Boethii [...] Pseudo-Augustini Paraphrasis Themistiana*, éd. L. Minio-Paluello, Bruges-Paris, Desclée de Brouwer, 1961, pp. 133-175 (AL, I, 1-5).

(6) Pour Jean le Page, avec extraits de son texte, voir E. Franceschini, *Giovanni Pago: le sue «Rationes super Predicamenta Aristotelis» e la loro posizione nel movimento aristotelico del secolo XIII*, dans *Sophia* 2 (1934), pp. 172-182, 329-350, 476-486. Pour une discussion de Robert Kilwardby avec une édition partielle (pp. 367-378) de ses *Notule super librum Predicamentorum*, voir P.O. Lewry, *Robert Kilwardby's Writings on the «Logica Vêtus» Studied with Regard to Their Teaching and Method*, Oxford, 1978 (thèse inédite). Pierre d'Espagne (Petrus Hispanus Portugaliensis), *Tractatus Called afterwards Summule Logicales*, éd. L.M. De Rijk, Assen, Van Gorcum, 1972 (Philosophical Texts and Studies, XXII).

(7) Pour l'édition de l'ouvrage de Roger Bacon, voir A. de Libéra, *Les «Summulae dialectices» de Roger Bacon: I - II. De termino, De enuntiatione*, dans AHDLMA 53 (1986), pp. 139-289; Lambert d'Auxerre (= Lambert de Lagny), *Logica (Summa Lamberti)*, éd. Fr. Alessio, Firenze, La Nuova Italia Editrice, 1971; Albert Le Grand, *Liber de praedicamentis*, dans *B. Alberti Magni, Ratisbonensis episcopi, Ordinis Praedicatorum, Opera omnia,* éd. A. Borgnet, Paris, Vivès, 1890, t. I, pp. 149-304.

(8) Pour Pierre D'Auvergne, voir R. Andrews, *Petrus de Alvernia, « Quaestiones super Praedicamentis»: An Edition*, dans CIMAGL 55 (1987), pp. 3-84; Martin de Dacie, *Quaestiones super librum Praedicamentorum*, dans *Martini de Dacia Opera*, éd. H. Roos, Hauniae, Gad, 1961, pp. 153-231 (Corpus Philosophorum Danicorum Medii Aevi, II); Simon de Faversham, *Quaestiones super libro Praedicamentorum*, dans *Magistri Simonis Anglici sive de Faverisham Opera omnia, volumen primum: Opera logica*, t. Ior, éd. P. Mazzarella, Padova, CEDAM, 1957, pp. 69-148 ; pour l'Anonyme de Madrid voir R. Andrews, *Anonymus Matritensis, « Quaestiones super librum Praedicamentorum»: An Edition*, dans CIMAGL 56 (1988), pp. 117-192.

(61) Robert Kilwardby, *Notule super librum Predicamentorum*, éd. Lewry, pp. 376-377. Cf. Pierre d'Espagne, *Tractatus, III*, 1, éd. De Rijk, p. 27,1. 3-4: «Differunt solo casu, idest sola cadentia que est a parte rei [...]».

(62) Roger Bacon, *Summule dialectices*, 1,2, éd. De Libera, pp. 190-191.

(63) Albert le Grand, *Liber de praedicamentis*, tract. I, cap. 4, éd. Borgnet, p. 158a: «Et quod subdicitur solo casu differentia, dicitur hic casus quaecumque inflexio nominis secundum finem nominis sive dictionis».

(64) Lambert d'Auxerre (Lambert de Lagny), *Logica*, III (*De predicamentis*), éd. Alessio, p. 64: «Differant enim solo casu, id est sola cadentia, quia unum cadit ab alio, id est derivatur, ut a

grammatica grammaticus et sic de aliis». Cf. Ibid., III (*De predicamentis*), p. 66.

6. ———. 1998. "Analogy and Equivocation in Thomas Sutton O.P." In *Vestigia, Imagines, Verba. Semiotics and Logic in Medieval Theological Texts (XIIth-XIVth Century). Acts of the XIth Symposium on Medieval Logic and Semantics. San Marino, 24-28 May 1994*, edited by Marmo, Costantino, 289-303. Turnhout: Brepols.

   "One of the most obvious places where theology and logic meet is in the diuscussion of the divine names. From the 1240s on, the standard way for theologians to handle the problem of religious language involved an appeal to the theory of analogy, (1) a theory which was worked out in the logic textbooks in the context of equivocal and univocal terms (cfr. Ashworth, "Analogy and Equivocation in Thirteenth-Century Logic. Aquinas in Context", *Mediaeval Studies* 54, 1992, pp. 94-135). The problem of religious language can be put roughly like this. Words such as ‘good’, ‘just’, and ‘wise’ do not seem to have exactly the same sense when used of God as they do when used of human beings. That is, they are not univocal. On the other hand, they cannot be used with a completely different sense if religious discourse it to have any point. That is, they cannot be equivocal. If they are neither univocal nor equivocal, they must be used with some related sense,that is, analogically. But what is the appropriate model for analogical usage? If the model is that of the word *sanum* (healthy), which can be applied in an extended sense to a diet on the grounds that the diet is causally related to the animal which is called healthy in the primary sense, then we have what Cajetan later called the analogy of attribution. (2) On the other hand, if the model is that of the word *principium* (principle), which is applied both to a point and to a source on the grounds that the source is related to a river in the way that a point is related to a line, we have what Cajetan later called the analogy of proportionality. The first type of analogy, the analogy of attribution, involves just one relationship whereas the second type, the analogy of proportionality, involves a comparison between two relationships. As is well known, Thomas Aquinas appealed to

the analogy of proportionality in *De veritate* q. 2, a. 11, but more usually appealed to the analogy of attribution. Cajetan, on the other hand, claimed that the analogy of proportionality was the only true analogy, and that it should be employed in metaphysics and theology.

Thomas Sutton, an Oxford Dominican who lived from about 1250 to 1315 or 1320, has attracted some attention because he employed the analogy of proportionality in his *Quaestiones ordinariae*, written in the first decade of the fourteenth century. (3) Insofar as he did so, he was described by Montagnes (1963, p. 124) as a precursor of Cajetan who moed away from Aquinas. Schneider (1977), in his introduction to the *Quaestiones* tried to modify Montagnes's judgment, by suggesting that there was no real break with Aquinas; (4) but none of those who have discussed Sutton in the literature have done other than suggest that he appealed to analogy of proportionality to resolve problems of linguistic use, whereas the analogy of attribution had to do with those relations of things that ground our language. In an early article on Sutton, Przezdziecki (1959) presented Question 32 as showing that *ens* is an analogical term, but turned to Question 33's account of proportionality for an explanation of what type pf analogy was involved, completely ignoring the discussion of attribution in the earlier question. (5) In a recent book, Riva (1989) noted the presence of the two types of analogy in Sutton's work, but argued that the tension between them is resolved by the distinction between words and things. (6) He claims that for Sutton proportionality has to do with terms, while attribution concerns the relations among things on which talk about proportionality is based.

In this paper I intend to look at the details of Sutton's theory of analogy in relation both to the authors with whom he is debating, and to the basic logical distinctions he employed. In the first section I shall give a brief outline of what the logicians had to say. In the second section Ishall discuss the word *ens*, beginning with three views that Sutton rejected before going on to examine his own views about *ens* in metaphysics in theology. In the final section, I shall consider Sutton's discussion of the

divine names proper, namely perfection words such as ‘good', 'wise' and ‘just’. I shall show that although Sutton appeals to proportionality in this last case, he uses the analogy of attribution in his discussion of how the word *ens* is applied to substance and accident. Moreover, he is just as much concerned with language in the one case as he is in the other. As a result his overall view is a lot more flexible than Cajetan’s." (pp. 289-290)

(...)

"Despite Montagnes’s description of Sutton as a precursor of Cajetan, I think that he is in many ways quite different. While holding that the analogy of proportionality is analogy in the strictest sense, he makes no attempt to apply it to metaphysical problems in general or to link it with the distinction between intrinsic and extrinsic denomination. The real importance of the distinction between the analogy of attribution and the analogy of proportion is not that one is in fact linguistically more proper than the other; nor is it that one deals with intrinsic denomination whereas the other deals with extrinsic denomination, for both involve at least some cases of intrinsic denomination. Rather, the real importance of the distinction has to do with the areas of discourse in which the two types of analogy function. The analogy of attribution works at the level of (non-theological) metaphysics and the discussion of created beings; the analogy of proportionality is necessary in theology given the doctrine that an infinite God creates beings which, while finite and infinitely distant from their creator, nonetheless participate in his being and goodness, imitating him as far as they are able." (p. 298)

(1) See, e.g., Alexander of Hales, *Summa theologica*, 4 vols, Ad Claras Aquas (Quaracchi), Collegium S. Bonaventurae, 1924-1948, I, p. 544b: “nomina [...] ut iustus, bonus et huiusmodi, non dicuntur aequivoce nec univoce, quia non penitus secundum aliam rationem nec tarnen secundum eamdem, sed dicuntur analogice secundum prius et posterius”. (This passage is continued in note 31.)

(2) For Cajetan, whose *De nominum analogia* was published in 1498, see Bruno Pinchard, *Métaphysique et sémantique. Autour de Cajetan*, Etude [texte] et traduction du "De nominum analogia", Paris, Vrin, 1987.

(3) For recent references concerning Sutton's life and works, see Alessandro D. Conti, "La composizione metafisica dell'ente finito corporeo nell'ontologia di Sutton", *Documenti e studi sulla tradizione filosofica medievale* 2/2, 1991, pp. 317-60 (317-18, note 1). It should be noted that Sutton does not use the word *proportionalitas*, but speaks of *aequivoca secundum proportionem*, see, e.g., p. 918.247.

(4) Cf. Johannes Schneider, "Introduction", in Thomas Sutton, *Quaestiones ordinariae,* Bayerische Akademie der Wissenschaften 1977, pp. 241*-262*, especially pp. 257*-258* and p. 261*.

(5) Przezdziecki, Thomas of Sutton's critique on the doctrine of univocity", in *An Etienne Gilson tribute*, ed. C. J. O'Neil, Milwaukee, Marquette University Press 1959, pp. 189-208. In this article, Schneider's Question 32 A is referred to as Question 33 and Schneider's Question 33 is referred to as Question 34.

7. ———. 1998. "Aquinas on Significant Utterance: Interjection, Blasphemy, Prayer." In *Aquinas's Moral Theory: Essays in Honor of Norman Kretzmann*, edited by MacDonald, Scott and Stump, Eleonore, 207-234. Ithaca: Cornell University Press.

"It may seem perverse to turn to Aquinas's moral philosophy for light on his philosophy of language, but I argue that his study of human actions forced him to modify the intellectualism prevalent in much thirteenth-century logic and grammar. This intellectualism had three components. First, it privileged the notion of language as a rational, rule-governed system which could be studied in isolation from context and speaker intention.(2) Second, it focused on propositions as the linguistic units which conveyed the information necessary for *scientia* and rejected other forms of discourse as irrelevant. Third, it described individual words as the signs of concepts and ignored utterances which express passions of one sort and another. These components, particularly the second and third,

do indeed characterize Aquinas's considered approach to language as expressed particularly in his commentary on Aristotle's *De interpretatione*. Nonetheless, his recognition that human beings are animals with passions, together with his recognition that utterances are themselves a kind of action subject to moral assessment, forced him to take a different direction in other places.(3)

I proceed as follows. In sections 1 and 2, I set forth the intellectualist components of Aquinas's theory, paying particular attention to the manifestation of truth and to the senses in which conventionally significant utterances could also be said to be naturally significant. In sections 3, 4, and 5, I explore the relationships between animal noises and human utterances, paying particular attention to the role of the imagination and to interjections. In sections 6 and 7, I consider the role of human passions and human intentions in the understanding and production of conventional utterances, especially sinful ones. In sections 8 and 9, I look at two aspects of language production which can serve to mitigate sin: slips of the tongue, and linguistic incontinence, or breaking out into ill-considered words. In the last section, I turn to the situation in which we recite and appropriate the words of others, particularly in prayer. Throughout, I examine not only Aquinas's own doctrines but also those of grammarians and logicians contemporary with him." (pp. 207-208)

(2) For discussion of this approach in the *modistae*, and for full information about grammarians who adopted an alternative approach, which she has dubbed intentionalist because of its focus on the *intentio proferentis*, sec the papers by Irène Rosier cited throughout, all of which contain further references. See esp. Irène Rosier. “La distinction entre *actus exercitus* et *actus significatus* dans les sophismes grammaticaux du MS BN lat. 16618 et autres textes apparentés,“ in *Medieval Logic and Grammar*, ed. Stephen Read (Dordrecht: Kluwer Academic Publishers, 1992}, pp. 257-59; and her book (published after this paper was written), *La parole comme acte: Sur la grammaire et la sémantique au xiiie siècle* (Paris: J. Vrin, 1994). Rosier's work is particularly important for its

demonstration that the modistic paradigm does not apply to much thirteenth-century grammar. I would like to take this opportunity of thanking Irène Rosier for the generous way in which she has shared her as yet unpublished research with me; this e&sav owes much to her work.

(3) Rosier has shown that in his discussion of the sacraments Aquinas was far closer to the intentionalist grammarians than he was to the modistae. See Irène Rosier, "Signes et sacrements: Thomas d'Aquin et la grammaire spéculative", *Revue des sciences philosophiques et théologiques* 74 (1990): 431-32. She writes (p. 394): "Les particularités linguistiques des formules sacramentaires, et du sacrement comme signe non seulement cognitif, mais opératif, l'importance accordée à l'intention du locuteur et du récepteur, la conjonction de ces divers éléments dans un acte à chaque fois singulier, nous situent d'emblée dans la dimension 'pragmatique' du langage, devéloppée, à la même époque, en ce milieu du Xllle siècle, par les grammairiens 'intentionalistes.' " Both here and later (p. 433) she speaks of the encounter between grammarians and theologians, but she refuses to speculate about whose influence was primary (pp. 432-33).

8. ———. 1998. "Antonius Rubius on Objective Being and Analogy: One of the Routes from Early Fourteenth-Century Discussions to Descartes's *Third Meditation*." In *Meetings of the Minds. The Relation between Medieval and Classical Modern European Philosophy*, edited by Brown, Stephen F., 43-62. Turnhout: Brepols.

   "In this paper I shall use Rubius's tract on analogy to show how a rich medieval tradition survived into the seventeenth century and to shed some light on the problem of Descartes's sources for the notion of an idea's objective reality. I shall proceed as follows. First, I shall state the problem as it has been set out in recent secondary literature. Second, I shall trace the distinction between formal and objective concepts from the early fourteenth century to the early seventeenth century in the context of the discussion of analogical terms. Third, I shall examine the analogical use of terms as it was presented by Rubius. Fourth, I shall explain why a theory of language use

and a theory of concepts carne to be linked together. Finally, I shall discuss what Rubius had to say about formal and objective concepts, and I shall suggest a relationship between this account and Descartes's own attitude towards mental contents and simple natures."

9. ———. 1999. "Text-Books: A Case Study - Logic." In *The Cambridge History of the Book in Britain (vol. 3)*, edited by Trapp, Joseph Burney and Hellinga, Lotte, 380-386. Cambridge: Cambridge University Press.

   "This book covers the years 1400 to 1557. In such a long period, we would expect great changes in the logic text-books used at Oxford and Cambridge. Indeed, there were great changes, but their timing is some what unexpected. If one considers just books written by Englishmen and copied or printed in England, then there is hardly any change at all between 1400 and 1530, the year in which the last surviving edition of the compilation text-book known as *Libellus Sophistarum* was printed. A period of fifteen years follows in which no surviving logic text was either written or printed, and then suddenly in 1545 we are confronted with the *Dialectica* of John Seton, a work which was to go through fourteen editions by the end of the sixteenth century, and which represents a completely different type of logic.(1) In what follows, I shall focus on the *fortuna* of just one type of logic text in use between 1400 and 1530, namely the treatises devoted to *obligationes*, or the rules prescribing what one was obliged to accept and reject in a certain kind of logical disputation.

   It is necessary first to consider the place of logic in the curriculum and the type of instruction which was offered, then to say something about fourteenth-century logicians and the *obligationes* texts used in the fifteenth century, and finally to examine the *Libelli Sophistarum* and other early printed texts in relation to fifteenth-century manuscript collections." (p. 380)

   (1) A useful chronological list of logic books printed in England before 1620 is in Schmitt 1983b [*John Case and Aristotelianism in Renaissance England*, Kingston and

Montreal] pp. 225-9. For English logic during the sixteenth century: Ashworth 1985b *[Introduction* to Robert Sanderson. *Logicae artis compendium,* Bologna], especially pp. XXIII-XXXIII; 1991; Giard 1985 [La production logique de l'Angleterre au 16e siècle, *Les Études philosophiques,* 3, 303-324]; Jardine 1974 [The place of dialectic teaching in sixteenth century Cambridge, *Studies in the Renaissance*, 21, 31-62]. No attention should be paid to Howell 1956 [*Logic and rhetoric in England*, *1500-1700*, Princeton] whose account of developments in logic, particularly during the medieval period, is wildly inaccurate, and this vitiates his judgements about the texts described.

10. ———. 2000. "Domingo de Soto on *Obligationes*: His Use of *Dubie positio*." In *Medieval and Renaissance Logic in Spain. Acts of the 12th European Symposium on Medieval Logic and Semantics*, edited by Angelelli, Ignacio and Perez-Ilzarbe, Paloma, 291-307. Hildesheim: Georg Olms.

    "Soto's *Opusculum obligationum* was published in 1529 as the last treatise in his *Summulae*. (1) I have chosen to discuss it in this paper both because it is one of the very last serious discussions of the medieval doctrine of *obligationes*, and because it sheds some light on the history of *dubie positio* as a type of obligational dispute. This is important, beeause *dubie positio* is one of the areas pertinent to medieval epistemie logic, and the material found in *obligationes* treatises has not yet been the subject of much investigation. (2) In what follows, I shall first discuss the nature of *dubie positio* and its relation to other types of obligational disputation. I shall then describe the rules which were used. Third, I shall take up a particular problem concerning apparently indubitable propositions, such as 'I exist'. Finally, I shall discuss a sophisma in which the response 'I am in doubt about it' seemed to cause problems for one of the standard obligational rules.

    (1) Domingo de Soto, *Opusculum obligationum in Summulae* (Burgos, 1529), ff. cl ra-cliii vb; Domingo de Soto, *De obligationibus* in *Summulae* (Salamanca 1554-1555: reprinted Hildesheim, New York: Georg Olms, 1980), ff 156 ra-159 vb. The latter is a reproduction of the third edition which, as Dr.

Angel d'Ors has shown, modifies the second edition in certain respects: see Angel d'Ors, "Las "Summulae" de Domingo de Soto", *Anuario Filosôfico (Universidad de Navarra)* 16 (1983), p. 212. All my references are to the 1529 edition unless otherwise specified.

(2) For a good discussion of some other sources, see Ivan Boh, *Epistemic Logic in the Later Middle Ages*, (London and New York: Routledge, 1993). See also William Heytesbury, 'The Compounded and Divided Senses' (pp. 413-434), and "The Verbs 'Know' and 'Doubt" [chapter 2 of the *Regulae*] (pp. 435-479) in Norman Kretzmann and Eleonore Stump, trans., *Logic and the Philosophy of Language*, vol. 1 of *The Cambridge Translations of Medieval Philosophical Texts*, (Cambridge: Cambridge University Press, 1988)."

11. ———. 2003. "L'equivocité, l'univocité et les noms propres." In *La tradition médiévale des catégories (XIIe-XVe siècles). Actes du XIII Symposium européen de logique et de sémantique médiévales (Avignon, 6-10 juin 2000)*, edited by Biard, Joël and Rosier-Catach, Irène, 127-140. Louvain: Peeters Publishers.

"Dans ses *Quaestiones in artem veterem*, Albert de Saxe commence la section consacrée aux *Catégories* d'Aristote en posant la question « Est-ce que le même terme peut être équivoque et univoque ? » (1). Un peu plus tard, Marsile d'Inghen reprend cette question, légèrement reformulée, dans ses propres *Questiones libri predicamentorum* (2); et en 1428, Paul de Venise consacre une partie de son *Commentaire sur les Catégories* à la même question (3). De plus, on retrouve une discussion approfondie des rapports entre les équivoques et les univoques dans le *Compendium totius logice Joannis Buridani* de Jean Dorp, qui date probablement de la dernière décennie du xive siècle (4). Certes, la question posée par Albert de Saxe n'était pas nouvelle, ayant son origine dans les commentaires de Boèce et de Simplicius, mais les réponses à cette question introduisent deux thèmes nouveaux, l'univocité des noms propres, et l'équivocité des termes mentaux. Ces deux thèmes sont importants, étant donné que depuis l'Antiquité classique le nom propre est l'exemple standard d'un mot équivoque par

hasard (*a casu*), et étant donné la présupposition que le langage mental est un langage clair, donc univoque.

Mon étude se divise en trois parties. En premier lieu, je donnerai un bref aperçu de la doctrine des noms propres, telle qu'on la retrouve chez les grammairiens et les logiciens. Ensuite, je ferai quelques remarques sur les définitions avec lesquelles s'ouvrent les *Catégories* d'Aristote. Finalement, j'aborderai la question principale, celle des rapports entre les équivoques et les univoques, surtout en ce qui concerne les noms propres et les termes mentaux.

Avant d'aller plus loin, je dois préciser que je vais laisser de côté la question, pourtant très intéressante, de l'équivocité du nom propre appliqué au vivant et au mort. Je me concentrerai sur le cas que l'on trouve dans les premières sections des commentaires sur les *Catégories*, celui d'un nom propre appliqué à deux personnes différentes." (pp. 127-128)

(...)

"Conclusion.

Les discussions que nous venons d'examiner montrent comment les logiciens du XIVe et XVe siècles ont essayé de concilier les catégories du nom offertes par Aristote, c'est-à-dire les noms équivoques et les noms univoques, avec les catégories du nom offerts par Priscien, c'est-à-dire les noms propres et les noms communs. En même temps, elles montrent comment les commentateurs des *Catégories* d'Aristote ont absorbé la nouvelle épistémologie qui reconnaissait les concepts singuliers et la nouvelle sémantique qui utilisait la terminologie de la grammaire et celle de la logique pour parler de ces concepts." (p. 140)

(1) Albert de Saxe, *Quaestiones in Artem Veterem*, éd. et trad. esp. A. Munoz Garcia, Maracaibo, 1988, p. 292. Pour plus d'informations sur l'équivocité et l'univocité, voir E.J. Ashworth, « 'Nulla propositio est distinguenda' : la notion d'equivocatio chez Albert de Saxe » dans Joël Biard (éd.), *Itinéraires d'Albert de Saxe: Paris-Vienne au XIV siècle*, Paris, 1991, pp. 149-160 ; et E.J. Ashworth, « Equivocation and

Analogy in Fourteenth Century Logic : Ockham, Burley and Buridan », dans Burkhard Mojsisch et Olaf Pluta (éds.), *Historia philosophiae medii aevi: Studien zur Geschichte der Philosophie des Mittelalters*, Philadelphia, Amsterdam, 1991, vol. 1, pp. 23-43.

(2) Marsile d'Inghen, *Questiones libri predicamentorum Aristotelis*, Bodleian Library, Oxford: MS Canon, misc. 381, fos 16 ra-17 ra et fo 8 rb-va.

(3) Paul de Venise, *In Praedicamenta*, Bodleian Library, Oxford: MS Canon, misc. 452, f°s 81va-83vb, et MS Canon. Lat. Class. 286, fos 68ra-70vb. Je cite le premier manuscrit dans ce qui suit.

(4) Jean Dorp, tract. III, *De predicamentis*, dans *Johannes Buridanus, Compendium totius Logicae*, Venise, 1499 ; repr. Frankfurt/Main, 1965, sign, e 5 vb - sign, e 6 ra. Pour plus d'informations sur Jean Dorp, voir E. P. Bos, « Die Rezeption der Suppositions des Marsilius von Inghen in Paris (Johannes Dorp) und Prag (ein anonymer Sophistria-Traktat) um 1400 », dans M.J.F.M. Hoenen et P.J.J.M. Bakker (éds), *Philosophie und Theologie des ausgehenden Mittelalters. Marsilius von Inghen und das Denken seiner Zeit*, Leiden-Boston-Köln, 2000, pp. 213-230.

12. ———. 2003. "Language and Logic." In *The Cambridge Companion to Medieval Philosophy*, edited by McGrade, Arthur Stephen, 73-96. Cambridge: Cambridge University Press.

    "I survey the texts used and the developments from Augustine onwards, and discuss views of the purpose and nature of language and logic, emphasizing their cognitive orientation. I examine the basic semantic notion of signification, the distinction between conventional and natural language, and the notion of mental language. I discuss extended uses of language, especially paronymy and analogy, and theories of reference, especially supposition theory. Finally, I consider various types of paradox: "There is no truth" in proofs for the existence of God, the Liar paradox, and the paradoxes of strict implication as treated in theories of inference."

13. ———. 2004. "Singular Terms and Singular Concepts: From Buridan to the Early Sixteenth Century." In *John Buridan and Beyond. Topics in the Language Sciences 1300-1700*, edited by Ebbesen, Sten and Friedman, Russell L., 121-151. Copenhagen: C. A. Reitzel.

    "This article considers medieval treatments of proper names and demonstrative phrases in relation to the question of when and how we are able to form singular concepts. The logical and grammatical background provided by the authoritative texts of Porphyry and Priscian is examined, but the main focus is on John Buridan and his successors at Paris, from John Dorp to Domingo de Soto. Buridan is linked to contemporary philosophers of language through his suggestion that, although the name 'Aristotle' is a genuine proper name only for those who have the appropriate singular concept caused by acquaintance with Aristotle, it can be properly treated as a singular tem by subsequent users because of their beliefs about the original imposition of the name."

14. ———. 2004. "Singular Terms and Predication in some Late Fifteenth and Sixteenth Century Thomistic Logicians." In *Medieval Theories on Assertive and Non-Assertive Language: Acts of the 14th European Symposium on Medieval Logic and Semantics. Rome, June 11-15, 2002*, edited by Maierù, Alfonso and Valente, Luisa, 517-536. Florence: Olschki.

    "In an influential paper, Frege made a sharp distinction between the ‘is’ of identity and the ‘is’ of predication. He wrote «The concept (as I understand the word) is predicative. On the other hand, a name of an object, a proper name, is quite incapable of being used as a grammatical predicate. This admittedly needs elucidation, otherwise it might appear false. Surely one can just as well assert of a thing that it is Alexander the Great, or is the number four, or is the planet Venus, as that it is green or is a mammal? If anybody thinks this, he is not distinguishing the usages of the word ‘is’».(1)

    (...)

"It is very tempting to apply Fregean distinctions to medieval discussions, and Hermann Weidemann for one suggests that this is justifiable. He cites Aquinas's use of «praedicatio per identitatem» to support the claim that «Aquinas is well aware of the difference between the 'is' of predication and the 'is' of identity(2) and he reads the distinction into a passage from the *Summa theologiae* (*ST* la.13.12c) when he writes: «That is to say to make explicit what Aquinas seems to be implying - that, just as the *predicative statement* that Socrates is white states the inherence in Socrates of the property of whiteness as the identity of Socrates with something while, the *identity statement* that Socrates is Socrates states the identity ol Socrates with himself as the inherence in Socrates of the property of being Socrates».(3) We should note that there are two issues here. The first is whether one can distinguish an 'is' of identity from an 'is' of predication. The second has to do with the identity and inherence interpretations of statements containing the so-called 'is' of predication. Is it the case that a predication is true if and only if the referents of subject and predicate are identical, or is it the case that a predication is true if and only if the form signified by the predicate inheres in the subject? Weidemann's remarks draw our attention to an important feature of medieval discussions, namely the various ways in which questions of reference and questions of predicattion were brought together. Just as medieval logicians did not make a sharp, once and for all, distinction between the 'is' of identity and the 'is' ol predication, or between subjects and predicates, so Thomists at least did not make a sharp distinction between identity and inherence interpretations of statements containing the 'is' of predication.

In this paper I shall attempt to show how some medieval authors approached these issues by considering some Thomistic views about the predication of proper names and by exploring various uses of the phrases 'praedicatio per identitatem' and 'praedicatio identica'. The two authors that I shall focus on are Thomas de Vio, Cardinal Cajetan (1468-1534), whose commentaries on Porphyry's *Isagoge* and Aristotle's *Categories* were written by 1498 but not published

until 1506, and Domingo de Soto (1494-1560), whose commentaries on the same two works were first published in 1543. I shall also make some use of commentaries by the later Jesuit author, Francisco de Toledo (1533-1596). My paper has five sections. I shall begin by considering the authoritative texts that caused the debate about whether proper names and perhaps individual things themselves can be predicated. Next, I shall consider some non-Thomistic solutions to the problem. Third, I shall make some remarks about the Thomistic theory of predication in relation to the central case of true, affirmative, present-tense, unquantified propositions whose subject terms are not intended to be taken with either simple or material supposition. Fourth, I shall explore the notion of «praedicatio per identitatem». Finally, I shall consider the distinctions made by Cajetan and Soto." (pp. 516-519, some motes omitted)

(1) G. Frege, *On Concept and Object*, [1892] in *Translatons from the Philosophical Wrings of Gottlob Frege*, ed P. Geach ad M. Black, Oxford, Basil Blackwell,1960, p. 42-55: 43.

(2) 2 H. Weidemann, *The Logic of Being in Thomas Aquinas*, in *The Logic of Being: Historical Studies*, ed. S. Knuuttila and J. Hintikka, Dordrecht, Reidel, 1986, p. 181-200:183.

(3) Weidemann, *The Logic of Being* cit., p. 188 [emphasis added].

15. ———. 2005. "Ockham et la distinction entre les termes abstraits et concrets." *Philosophiques* no. 32:427-434.

"Quand j'ai lu l'ouvrage magistral de Claude Panaccio (*), je me suis rendu compte que j'aurais de la difficulté à en discuter, parce que je suis d'accord avec tout ce dit l'auteur, surtout en ce qui concerne les problèmes du langage. Je trouve en particulier décisif les arguments qu'il présente contre les thèses de Paul Spade. Ce dernier a argumenté, en se basant sur trois prémisses, qu'il n'y a pas de terme connotatif simple dans le langage mental. Premièrement, chaque terme connotatif a une définition nominale qui, en principe, ne contient que des termes absolus. Deuxièmement, un terme connotatif est synonyme de sa définition.

Troisièmement, il n'y a pas de synonymie dans le langage mental. Il s'ensuit que, dans le langage mental, un terme connotatif sera remplacé par une séquence de termes absolus qui, selon Ockham, réfèrent aux substances et qualités individuelles d'une manière directe. En opposition à Spade, Panaccio a montré qu'il est impossible d'éliminer les concepts connotatifs simples du langage mental et que les termes connotatifs simples ne sont pas synonymes de leurs définitions nominales. Il est vrai que par ses analyses du langage Ockham voulait montrer que l'on pouvait parler du monde sans multiplier les entités, mais on peut atteindre cet objectif tout en admettant une certaine complexité au niveau des concepts simples. En outre, Panaccio a établi deux thèses importantes. D'abord, Ockham ne s'intéresse pas à la construction d'un langage mental idéal mais plutôt au fonctionnement idéal de notre esprit. En deuxième lieu, l'étude de ce fonctionnement idéal ne nous donne pas toutes les solutions aux problèmes de signification parce que, pour comprendre l'acception des termes, il faut connaître les intentions des impositeurs, ceux qui ont donné leur signification primordiale aux termes oraux. Selon Panaccio, Ockham présente une théorie externaliste de la signification du langage." (p. 427)

(*) *Ockham on Concepts*, Aldershot: Ashgate, 2004.

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History of Logic

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Writings of E. J. Ashworth on the History of Logic. Sixth Part: Articles from 2006 to 2021

Articles 2006-2021

1. Ashworth, Earline Jennifer. 2006. "Logic Teaching at the University of Prague around 1400 A. D." In *History of Universities. Vol. XXI/1*, edited by Feingold, Mordechai, 211-221. New York: Oxford University Press.

   Review of: *Logica modernorum in Prague about 1400. The Sophistria disputation 'Quoniam quatuor' (MS Cracow, Jagiellonian Library 686, ff. 1ra-79rb), with a partial reconstruction of Thomas of Cleves' Logica* - Edition with an Introduction and Appendices by Egbert P. Bos, Leiden, Brill, 2004.

   "This book is largely (45-432) an edition of a *Sophistria* text that represents logic teaching at the University of Prague around 1400 A.D. While the anonymous author shows few signs of intellectual distinction, both the topics chosen for discussion and the large number of direct references to other logicians make the work a valuable source for those interested in the undergraduate curriculum of the late middle ages. The editor, E.P. Bos, has done an excellent job of presenting the Latin text in as perspicuous a fashion as possible, and has provided the reader with an analysis (8-10) of the somewhat haphazard way in which the Prague master presented his sequences of arguments. However, in order to understand the text, or to glean from it anything about university teaching, one

needs a good deal more than that. While Bos does provide some basic information about the logicians referred to (11-21), he tells the reader very little about Prague or its curriculum, and his brief list (28-32) of some of the views expressed in the text sheds little light. On page 28 he writes, 'I shall discuss these views in more detail later in the introduction', but unfortunately the promised amplification is never provided. Nor is it clear why some of the views were listed. For instance, the division of singular terms into three types (29-30), including the vague individual (*individuum vagum*), such as 'this human being', is merely the standard interpretation, found in Albert the Great and many later commentators, of a remark by Porphyry in his *lsagoge*. In what follows, I shall provide some context for the *Sophistria* text, before attempting to resolve the issue of its nature and purpose." (p. 211)

2. ———. 2007. "Metaphor and the Logicians from Aristotle to Cajetan." *Vivarium* no. 45:311-327.

   "In this paper I shall sketch an answer to a series of questions about the treatment of metaphor by medieval logicians. One question is linguistic: are the words “translatio” and “transumptio” synonyms of the word “metaphora”?

   Three other questions concern analogy and equivocation. First, is metaphor a type of equivocation? Second, is metaphor a type of analogy and if so, what type? Is it linked with analogy in the Greek sense of a similarity between two proportions or relations, or with analogy in the new medieval sense of being said secundum prius et posterius because of some attribution? Third, how many acts of imposition are required for the production of analogical terms and metaphors? This last issue is particularly important, given that words are said to be used proprie only when used in accordance with an act of imposition, and that metaphors are normally said to be taken improprie. I will take up these questions in the context of three sets of texts. I will start with some remarks about the texts of Aristotle and their reception in the Middle Ages.

   Secondly, I will look at translatio and transumptio in ancient grammar and rhetoric. Finally, I will look at medieval logic

texts, especially commentaries on the *Sophistical Refutations*.

My study will show how ancient traditions in logic, grammar and rhetoric were interwoven and used to tackle specifically medieval problems. Aristotle played a prominent role in the story, but not primarily because of his explicit discussions of metaphor in his *Poetics* and *Rhetoric*. Stoic thinkers contributed the theory of tropes or figures of speech; and Neoplatonic commentators such as Porphyry influenced Boethius's discussion of equivocation and metaphor.

The thirteenth century theory of analogy itself grew out of the interweaving of problems in Christian theology, Aristotelian metaphysics and Aristotelian logic, but was enriched by the long Greek and Arabic tradition of analysing ambiguous terms as being said secundum prius et posterius. The resulting syntheses, especially in late thirteenth and early fourteenth century British logicians, show a skilful use of whatever parts of ancient traditions seemed relevant to the particular interests and doctrines of the author in question." (pp. 311-312)

3. ———. 2008. "Developments in the Fifteenth and Sixteenth Centuries." In *Mediaeval and Renaissance Logic*, edited by Gabbay, Dov and Woods, John, 609-644. Amsterdam: Elsevier.

   Handbook of the history of logic: Vol. 2.

   "To understand the significance of these developments for the logician, we have to consider three questions. First, how much of the medieval logic described in the previous chapters survived? Second, insofar as medieval logic survived, were there any interesting new development in tit? Third, does humanist logic offer an interesting alternative to medieval logic?

   In Part One of this chapter I shall consider the first two questions in the context of a historical overview in which I trace developments in logic from the later middle ages thorough to 1606, the year in which the Jesuits of Coimbra published their great commentary on Aristotle's logical works, the *Commentarii Conimbricenses in Dialecticam Aristotelis*. I shall begin by considering the Aristotelian logical corpus, the six

books of the *Organon*, and the production of commentaries on this work. I shall the examine the fate of the specifically medieval contributions to logic. Finally, I shall discuss the textbook tradition, and the ways in which textbooks changes and developed during the sixteenth century. I shall argue that the medieval tradition in logic co-existed for some time with the new humanism, that sixteenth century is dominated by Aristotelianism, and that what emerged at the end of the sixteenth century was not so much a humanist logic as a simplified Aristotelian logic.

In Part Two of this chapter, I shall ask whether the claims made about humanist logic and its novel contributions to probabilistic and informal logic have nay foundation. I shall argue that insofar as there is any principled discussion of such matters, it is to be found among writers in the Aristotelian tradition." (p. 610)

4. ———. 2009. "Le syllogisme topique au XVI siècle: Nifo, Melanchthon et Fonseca." In *Les lieux de l'argumentation. Histoire du syllogisme topique d'Aristote à Leibniz*, edited by Biard, Joël and Mariani Zini, Fosca, 409-423. Turnhout: Brepols.

   "Examiner l'argumentation topique, les règles de validité du syllogisme topique, les rapports entre l'analytique, la dialectique et la rhétorique soulève deux problèmes. Tout d'abord, il y a une difficulté de vocabulaire. Dans son *Introductio in dialecticam Aristotelis* de 1560, le jésuite Francisco de Toledo parle du *syllogismus dialecticus seu topicus*, mais en général les logiciens des XVe et XVIe siècles parlaient du syllogisme dialectique et non du syllogisme topique (1). Ensuite, il y a une divergence entre d'un côté l'argumentation, le syllogisme, et les règles de validité auxquels s'intéressent les logiciens, d'un autre côté les arguments informels, les techniques de la persuasion et les stratégies non-déductives auxquels s'intéressent les rhétoriciens (2). Afin d'étudier les rapports entre ces deux groupes, et la place des arguments informels dans la logique, s'il y en a, nous devrons aborder la notion de forme logique, non par le biais d'un examen du syllogisme dialectique, mais par le biais d'un

examen des notions de conséquence, d'argumentation, et de syllogisme en général. Nous allons découvrir que, pour comprendre les rapports entre la logique et la rhétorique, l'enthymème est beaucoup plus important que le syllogisme dialectique.

Les auteurs de petits manuels humanistes et ramistes ne nous offrent pas de discussion approfondie et détaillée de ces notions. Seuls les aristotéliciens s'en occupaient, et pour cette raison, nous allons examiner trois auteurs qui étaient certes influencés par l'humanisme, mais qui travaillaient dans un cadre aristotélicien enrichi par la logique médiévale. L'italien Agostino Nifo (ca. 1470-1538) a publié sa *Dialectica ludicra* en 1520 (3). Il connaissait très bien la logique médiévale, mais il connaissait aussi bien les commentateurs grecs, et je ferai référence à ses propres commentaires sur les *Premiers Analytiques* et sur les *Topiques* d'Aristote (4). L'allemand Philippe Melanchthon (1497-1560) a publié son premier manuel de logique, Compendiaria dialectices ratio en 1520, et son dernier, *Erotemata dialectices* en 1547 (5). Il manifeste l'influence de l'humanisme par ses exemples et ses simplifications. Le jésuite portugais Pedro da Fonseca (1528-1599) a publié ses *Institutiones dialecticae* en 1564 (6). Chez lui aussi l'influence humaniste est manifeste, surtout par ses références aux commentateurs grecs et son vocabulaire plus classique que médiéval.

Mon exposé se divisera en deux moments. À titre d'introduction, nous examinerons les trois notions clés de conséquence, d'argumentation, et de syllogisme. Ensuite, nous examinerons les textes de Nifo, Melanchthon et Fonseca à la lumière de ces trois notions. (7)" (pp. 409-410)

(1) Francisco de Toledo [Franciscus Toletus], *Introductio in dialecticam Aristotelis*, dans *Opera omnia philosophica I-III*, Cologne 1615-1616 ; réimpr. Hildesheim, Georg Olms, 1985, p. 74b. Dans une édition de Jean Versor [Johannes Versor], *Petrus Hispanus. Summulae logicales cum Versorii Parisiensis clarissima expositione*, Venise, 1572, réimpr. Hildesheim, New York, Georg Olms, 1981, f° 138 v, on trouve le titre "De

syllogismo Topico seu probabili", mais dans le texte Versor parle du syllogisme dialectique. Voir aussi Robert Sanderson, *Logicae artis Compendium*, ed. E. J. Ashworth, Bologna, Editrice CLUEB, 1985, p. 179: "Syllogismus Topicus, qui & Dialecticus stricte, est qui ex probabilibus vel quasi probabilibus parit probabilem opinionem conclusionis". Pour deux sources médiévales, voir Gilles de Rome [Aegidius Romanus], *Super libros Posteriorum Analyticorum*, Venise, 1488; réimpr. Frankfurt, Minerva G.M.B.H., 1967, sign. a 5rb : "sillogismus topicus [...] non est necessarius, sed est ut in pluribus"; et Guillaume d'Ockham, *Summa logicae*, ed. P. Boehner, G. Gal et S. Brown, St. Bonaventure, N.Y., St. Bonaventure University, 1974, p. 359: "Syllogismus topicus est syllogismus ex probabilibus".

(2) Pour plus de détails, voir E. Jennifer Ashworth, "Developments in the Fifteenth and Sixteenth Centuries", in D. M. Gabbay & J. Woods (eds.), *Handbook of the History of Logic 2. Mediaeval and Renaissance Logic*, Amsterdam-Boston, Elsevier, 2008, p. 609-643.

(3) Agostino Nifo [Augustinus Niphus], *Dialectica ludicra tyrunculis atque veteranis utillima peripatheticis consona : iunioribus sophisticanribus contraria,* Venetiis, 1521.

(4) Agostino Nifo [Augustinus Niphus], *Super libros Priorum Aristotelis*, Venetiis, 1554; et Agostino Nifo [Augustinus Niphus], *Commentaria in octo libros Topicorum Aristotelis*, Parisiis, 1542.

(5) Philippe Melanchthon, *Compendiaria dialectices ratio*, dans *Opera. Corpus reformatorum XX,* Brunsvigae, 1854; réimpr. New York et Frankfurt am Main, 1963; Philippe Melanchthon, *Erotemata dialectices*, dans *Opera. Corpus reformatorum XIII,* Halis Saxonum, 1846; réimpr. New York et Frankfurt am Main, 1963.

(6) edro da Fonseca [Petrus Fonseca], *Instituiçoes dialécticas. Institutionum dialecticarum libri octo*, ed. J. Ferreira Gomes, Universidade de Coimbra, 1964.

(7) Pour quelques textes, voir l'annexe. [pp. 424-430]

5. ———. 2009. "The Problem of Religious Language: What Can we Learn from Twelfth-Century Discussions?" *Paradigmi.Rivista di Critica Filosofica* no. 27:141-152.

   "This paper discusses a recent book by Luisa Valente, *Logique et théologie: Les écoles parisiennes entre 1150 et 1220*, [Paris: Vrin, 2008] in which she gives a rich account of how twelfth and early thirteenth-century Parisian theologians attempted to solve the problems of religious language by appeal to the notions of propriety and translatio. Words had a proper signification when used in accordance with their original meaning, whereas translatio involved a semantic shift from the proper sense to a new extended sense. However, words used in this way were equivocal, and towards the end of the period theologians tried to save the univocity of at least some of the words we apply to both God and creatures. Their efforts form the background to the new thirteenth-century theory of analogy, a theory to which some contemporary philosophers of religion have returned."

6. ———. 2010. "Terminist Logic." In *The Cambridge History of Medieval Philosophy*. *Vol I*, edited by Pasnau, Robert and Dyke, Christina van, 146-158. Cambridge: Cambridge University Press.

   "Terminist logic is a specifically medieval development.(1) It is named from its focus on terms as the basic unit of logical analysis, and so it includes both supposition theory, together with its ramifications,(2) and the treatment of syncategorematic terms. It also includes other areas of investigation not directly linked with Aristotelian texts, notably obligations, consequences, and insolubles (see Chapters to, 13, and 14).

   Logic was at the heart of the arts curriculum, for it provided the techniques of analysis and much of the vocabulary found in philosophical, scientific, and theological writing. Moreover, it trained students for participation in the disputations that were a central feature of medieval instruction, and whose structure, with arguments for and against a thesis, followed by a resolution, is reflected in many written works. This practical

application affected the way in which logic developed. While medieval thinkers had a clear idea of argumentation as involving formal structures, they were not interested in the development of formal systems, and they did not see logic as in any way akin to mathematics.

Logic involved the study of natural language, albeit a natural language (Latin) that was often regimented to make formal points, and it had a straightforwardly cognitive orientation. The purpose of logic was to separate the true from the false by means of argument, and to lead from known premises to a previously unknown conclusion. In this process, the avoidance of error was crucial, so there was a heavy emphasis on the making of distinctions and on the detection of fallacies. The procedures involved often have the appearance of being ad hoc, and modern attempts to draw precise parallels between medieval theories as a whole and the results of contemporary symbolic logic are generally doomed to failure, even though there are many fruitful partial correlations.

The core of the logic curriculum was provided by the works of Aristotle with supplements from Boethius, Porphyry, and the anonymous author of the *Liber sex principiorum* (about the last six categories), once attributed to Gilbert of Poitiers. The *logica vetus,* or Old Logic, included Porphyry's *Isagoge,* Aristotle's *Categories* and *De interpretatione,* and the *Liber sex principiorum*. During the twelfth century the *logica nova,* or New Logic, was rediscovered. It included the rest of the Organon, namely Aristotle's *Topics, Sophistical Refutations, Prior Analytics* and *Posterior Analytics*. Boethius's discussion of Topics, or ways of finding material for arguments, was also part of the curriculum, though in the fourteenth century his *De differentiis topicis* was largely replaced by the account of Topics given by Peter of Spain in his *Tractatus*. Together these works provided a basis for the study of types of predication, the analysis of simple categorical propositions and their relations of inference and equivalence, the analysis of modal propositions, categorical and modal syllogisms, fallacies, dialectical Topics, and scientific reasoning as captured in the demonstrative syllogism. The texts were lectured on and were

the subject of detailed commentaries. Nonetheless, a need was felt for simplified introductions to the material and for the discussion of issues that were at best only hinted at by Aristotle." (pp. 146-147).

(1) Most of the literature dealing with terminist logic is in the form of articles and book chapters. 'Two bibliographical guides are E. J. Ashworth, *The Tradition of Medieval Logic and Speculative Grammar from Anselm to the End of the Seventeenth Century. A Bibliography from 1836 Onwards* (Toronto: Pontifical Institute of Mediaeval Studies, 1978), and Fabienne Pironet, *The Tradition of Medieval Logic and Speculative Grammar from Anselm to the End of the Seventeenth Century*. A Bibliography (1977-1994) (Turnhout: Brepols, 1997). The classic source of material is L. M. de Rijk, *Logica Modernorum A Contribution to the History of Early Terminist Logic* (Assen: Van Gorcum, 1962-7) vol. I: *On Twelfth-Century Theories of Fallacy*, and vol. II: The *Origin and Early Development of the Theory of Supposition*. Translations of various texts are found in N. Kretzmann and E. Stump (eds.) : *Cambridge Translations of Medieval Philosophical Texts*, vol. I: *Logic and the Philosophy of Language* (Cambridge: Cambridge University Press, 1988). Useful discussions are provided by P. Osmund Lewry, "Grammar, Logic and Rhetoric 1220-1320," in J. Catto, (ed.) *The History of University of Oxford*, vol. I: *The Early Oxford Schools* (Oxford: Clarendon Press: 1984) 401-33, and by N. Kretzmann et al. (eds.) The Cambridge History of Later Medieval Philosophy: From the Rediscovery of Aristotle to the Disintegration of Scholasticism. 1100-1600 (Cambridge: Cambridge University Press, 1982).

(2) Not all of these ramifications will be discussed below. I shall omit the discussions of non-referring terms and of relations.

7. ———. 2011. "The Scope of Logic: Soto and Fonseca on Dialectic and Informal Arguments." In *Methods and Methodologies. Aristotelian Logic East and West, 500-1500*, edited by Cameron, Margaret and Marenbon, John, 127-147. Leiden: Brill.

"...I have chosen to examine two sixteenth-century Iberian scholastics, the Spaniard Domingo de Soto (1494-1560) and the Portuguese Petrus Fonseca (1528-1599), in order to see whether the changes in logical method brought about by the supposed influence of humanism are apparent. For Soto, I shall use the second edition of his *Summulae,* printed in 1539/40, because this was the version that was reprinted in Salamanca eight times, and that most successfully introduced Spaniards to earlier sixteenth-century Parisian teachings.(4) Soto's preface (f. ii r-v) shows that he had responded to humanism by simplifying and reorganizing the text of the first edition, and by removing many sophismata. However, he retained much medieval material including supposition, consequences, *exponibilia, insolubilia* and *obligationes*. For Fonseca, I shall use his popular *Institutionum dialecticarum libri octo,* which was first published in Lisbon in 1564.(5) The last of its fifty three editions appeared in Lyon in 1625. It follows Aristotle's *Organon,* taking up material from the *Categories, Perihermenias, Prior* and *Posterior Analytics, Topics* and *Sophistici Elenchi* in turn, but as well as many classical references, it also contains some material about *exponibilia,* consequences and supposition." (pp. 127-128)

(4) Domingo de Soto, *Aeditio Secunda Summularum,* Salamanca, 1539-1540.

Note that the foliation is often inaccurate. I am grateful to Angel d'Ors for providing me with photographs of this edition.

(5) Petrus Fonseca, *Instituções Dialécticas. Institutionum dialecticarum libri octo*, Introdução, estabelecimento do texto, tradução e notas de Joaquim Ferreira Gomes, 2 vols, Coimbra, Universidade de Coimbra, 1964.

(6) For further discussion of both textbooks, see Ashworth, *Changes in logic textbooks from 1500 to 1650: the new Aristotelianism*, 1988, esp. 81-84.

8. ———. 2013. "Analogy and Metaphor from Thomas Aquinas to Duns Scotus and Walter Burley." In *Later Medieval Metaphysics. Ontology, Language, and Logic*, edited by

Bolyard, Charles and Keele, Rondo, 223-248. Bronx, NY: Fordham University Press.

"In the history of Aristotelianism and Thomism people often speak about *analogia entis*, the analogy of being, (1) or what, following Giorgio Pini and Silvia Donati, I shall call metaphysical analogy. (2) In fact, this notion was foreign to Aristotle, and for Thomas Aquinas analogy, under that name, was semantic analogy. (3) It belonged to the theory of language, since it was regarded as a type of equivocation, the medieval name for homonymy. Metaphor too was closely related to equivocation, although, unlike analogy, it was an improper use of language, and produced by usage rather than imposition. In the second half of the thirteenth century logicians began to worry about how semantic analogy could be produced by imposition, and how analogical terms could be related to concepts. If a single term is used in different but related senses, does this come about through one original act of imposition, or through two related acts? If there are two acts, can we speak of a single term? If there is just one act, what of the concept or concepts to which that term is subordinated? Can there be a single concept which conveys related senses, and if not, how can the relationship between two concepts be captured by a single act of imposition? As a result of such worries some thinkers, especially John Duns Scotus, abandoned semantic analogy. What was called analogy was now metaphysical analogy, and, at the linguistic level, metaphor replaced semantic analogy. It is the history of these developments that I shall discuss in this essay, and in so doing, I shall show something of the interplay between logic, metaphysics, and philosophy of mind." (p. 223)

(1) For the analogy of being see Pierre Aubenque, "Sur la naissance de la doctrine pseudo-aristotélicienne de l'analogie de l'être," *Les études philosophiques* 3/4 (1989): 291-304; Alain de Libera, "Les sources gréco-arabes de la théorie médiévale de l'analogie de l'être," *Les études philosophiques* 3/4 (1989): 319-45; and E. Jennifer Ashworth, "L'analogie de l'être et les homonymes: *Catégories*, 1 dans le *Guide de l'étudiant*" in *L'enseignement de la philosophie au xiiie siècle. Autour du*

«Guide de l'étudiant» du ms. Ripoll 109, ed. Claude Lafleur with the collaboration of Joanne Carrier *(Studia Artistarum* 5. Tumhout, Belgium: Brepols, 1997), pp. 281-95. For a general discussion of analogy, see E. Jennifer Ashworth, *Les théories de l'analogie du Xlle au XVIe siècle* (Paris: J. Vrin, 2008).

(2) Silvia Donati, "La discussione sull'unità del concetto di ente nella tradizione di commento della *Fisica*: commenti parigini degli anni 1270-1315 ca." in *Die Logik des Transzendentalen. Festschrift für fan A. Aertsen zum 65. Geburtstag*, ed. Martin Pickavé (*Miscellanea Mediaevalia* 30. Berlin, New York: Walter de Gruyter, 2003), pp. 60-139; and Giorgio Pini, *Scoto e l'analogia. Logica e metafisica nei commenti aristotelici* (Pisa: Scuola Normale Superiore, 2002).

(3) For discussion of Aquinas see E. Jennifer Ashworth, "Signification and Modes of Signifying in Thirteenth-Century Logic: A Preface to Aquinas on Analogy," *Medieval Philosophy and Theology* 1 (1991): 39-67; E. Jennifer Ashworth, "Analogy and Equivocation in Thirteenth-Century Logic: Aquinas in Context," *Mediaeval Studies* 54 (1992): 94-135; Joël Lonfat, "Archéologie de la notion d'analogie d'Aristote à saint Thomas d'Aquin," *Archives d'histoire doctrinale et littéraire du moyen âge* 71 (2004): 35-107; and Seung-Chan Park, *Die Rezeption der mittelalterlichen Sprachphilosophie in der Theologie des Thomas von Aquin. Mit besondere Berücksichtigung der Analogie* (*Studien und Texte zur Geistesgeschichte des Mittalters* 65. Leiden, Boston, Köln: Brill, 1999).

9. ———. 2013. "Aquinas, Scotus and Others on Naming, Knowing and the Origin of Language " In *Logic and Language in the Middle Ages: A Volume in Honour of Sten Ebbesen*, edited by Fink, Jakob Leth, Hansen, Heine and Mora-Márquez, Ana María, 257-272. Leiden: Brill.

   "Many medieval discussions start from the fruitful intersection of two apparently opposed texts. My two texts are Adam's naming of the animals in *Genesis* and Aristotle's remark (in Latin translation) that spoken language is *ad placitum*, and I shall use them to discuss three problems, the originof language,

our ability to name God, and our ability to name animal species.

I shall refer to various texts by Aquinas, the commentaries on *Genesis* written by Henry of Ghent and Peter John Olivi, article 73 of Henry of Ghent's *Summa Quaestionum Ordinariarum*, and the treatment of *Sentences* 1, distinction 22 by John Duns Scotus in the five different versions of his commentary. The first version is the *Lectura,* written in Oxford before 1300. The second version is the *Ordinatio*, begun in Oxford as a revision

of the *Lectura*, but never completed. The third version is the *Reportatio Parisiensis*, produced in Paris where Scotus lectured ca. 1302–4. Alternative *Reportationes* are found in Reportatio I-A (the *Reportatio examinata*), and *Appendix A* to the edited version of the *Ordinatio* (pp. 383–93). *Reportatio I-A* and *Appendix A* are different, though *Appendix A* is often wrongly called *Reportatio I-A* in the secondary literature, and it is not complete. In addition to these versions, there are extensive *adnotationes*, found in the edited version of the *Ordinatio* (pp. 339–47). (pp. 257-258, notes omitted)

10. ———. 2013. "Being and Analogy." In *A Companion to Walter Burley. Late Medieval Logician and Metaphysician*, edited by Conti, Alessandro, 135-165. Leiden: Brill.

"Burley's discussion of being *(ens*) and analogy is notable for his thesis that the word "being" corresponds to a single analogical concept. Moreover, he was part of a movement, begun in the later 13th century, which explicitly opposed semantic analogy, a doctrine of language, to metaphysical analogy, the doctrine that just as creatures are beings analogically through their relationship to God, the first cause, whose very essence is being, so accidents are beings analogically through their relationship to the substance, a being *per se*, on which they depend. Obviously, what is new here is not the doctrine itself, but the fact that the relations between God and creatures, substance and accident, were described as analogical. Unlike John Duns Scotus, who insisted that no single word could express a real relation between things ordered in accordance with priority and posteriority, and that

no single concept could capture such a relation, Burley retained the link between semantic analogy and metaphysical analogy, for he believed that our words and our concepts can mirror the world. On the other hand, he broke the link between semantics and ontology for other terms traditionally regarded as analogical, such as “healthy", by construing these as metaphorical in their secondary senses.

In what follows I shall begin by surveying the sources in which Burley’s views are expressed. I shall then consider some basic notions in the medieval theory of language, including analogy, but also signification, imposition, and metaphor. Next I shall discuss the standard divisions of equivocation and how these related to both analogy and metaphor in Burley’s writings. Finally, I will discuss how Burley deals with ens, first from the point of view of semantics, and then from the point of view of metaphysics." (p. 135).

11. ———. 2013. "Descent and Ascent from Ockham to Domingo de Soto: An Answer to Paul Spade." In *Medieval Supposition Theory Revisited. Studies in Memory of L. M. de Rijk*, edited by Bos, Egbert Peter, 385-410. Leiden: Brill.

    Also published as Volume 51, 1-4 (2013) of *Vivarium*.

    Acts of the XVIIth European Symposium for Medieval Logic and Semantics, held the University of Leiden, 2nd, 7th June. 2008.

    "Paul Spade has attacked the theory of the modes of personal supposition as found in Ockham and Buridan, partly on the grounds that the details of the theory are incompatible with the equivalence between propositions and their descended forms which is implied by the appeal to suppositional descent and ascent. I trace the development of the doctrines of ascent and descent from the mid-fourteenth century to the early sixteenth century, and I investigate Domingo de Soto's elaborate account of how descent and ascent actually worked. I show that although Soto himself shared some of Spade's doubts, including those about the use of merely confused supposition, he had a way of reducing at least some propositions containing terms with such supposition to equivalent disjunctions and

conjunctions of singular propositions. Moreover, he gave explicit instructions on how to avoid the supposed problem of O-propositions." (p. 385)

12. ———. 2013. "Domingo de Soto on the *Categories*: Words, Things, and Denominatives." In *Aristotle's Categories in the Byzantine, Arabic and Latin Traditions*, edited by Ebbesen, Sten, Marenbon, John and Thom, Paul, 263-284. Copenhagen: The Royal Danish Academy of Sciences and Letters.

    "Despite humanist attacks, notably by Petrus Ramus, Porphyry's *Isagoge* and Aristotle's *Categories* retained their place in university education throughout the sixteenth century and into the seventeenth century. Indeed, as late as the 1660s the logic notes in John Locke's early manuscripts are largely devoted to predication, the five predicables, and the ten categories, (1) and in his *Essay concerning human understanding* Locke found it necessary to complain about those "bred up in the Peripatetick Philosophy" who "think the Ten Names, under which are ranked the Ten Predicaments, to be exactly conformable lo the Nature of Things". (2) Original and sustained discussion of these matters is, however, harder to find. Most textbooks cover the issues only in a summary fashion, and such a leading commentator as Agostino Nifo wrote no commentary on Porphyry's *Isagoge* or on the *Categories*. Domingo de Soto is one exception. His substantial commentary on the *Categories*, combined with commentaries on Porphyry's *Isagoge* and Aristotle's *Posterior Analytics*, was published 18 times between 1543 and 1598, mainly in Salamanca, but with one edition in Louvain and five in Venice. (3)

    In his commentary, Soto addresses the main questions faced by medieval and Renaissance thinkers, namely does the work deal with words or things, and why is it classified as an introduction to logic? He then takes up a number of subsidiary questions, two of which I shall discuss below. First, why does the work begin with the discussion of equivocals, univocals and denominatives? Second, are denominatives really like equivocals and univocals in relevant respects? In what follows I shall begin by sketching Soto's main conclusions about the

nature and purpose of Aristotle's *Categories* as a whole. This will lead me into a discussion of predication, and what it is that we predicate. I shall then turn to the subsidiary questions about why the work opens as it does, and about the status of denominatives." (pp. 263-264)

(...)

"Conclusion.

To conclude, what I find striking about Soto's discussion of the parts of the *Categories* that I have chosen to focus on is not only that he provides a coherent and thoughtful discussion, but that he displays the strong influence of the tradition of Oxford realism found in Walter Burley and Paul of Venice. It is easy to think of Soto as a Renaissance Thomist, but in fact, he was a well-read eclectic." (p. 280)

(1) See Ashworth 'Locke and Scholasticism', in M. Stuart (ed.), *A Companion to Locke*, Blackwell: Oxford, forthcoming [December 2015].

(2) Locke, *Essay*, III.x.14, p. 497.

(3) Lohr 1988: 431. For a general summary of Soto's position, see Bos 2000. For a useful introduction to medieval views, see Pini 200a. For Soto on equivocation, see Ashworth 1996. Bos and Ashworth give different dates for Soto's birth, but Angel d'Ors (in private correspondence) supported the view that 1494 is the correct date. I owe much to Angel d'Ors (d. 2012) for his useful comments on an earlier version of this paper.

13. ———. 2013. "Logic." In *The Cambridge History of Science. Volume 2: Medieval Science*, edited by Lindberg, David C. and Shank, Michael H., 532-547. Cambridge: Cambridge University Press.

"Medieval logic is crucial to the understanding of medieval science for several reasons.(1) At the practical level, every educated person was trained in logic, which provided not only a technical vocabulary and techniques of analysis that permeate philosophical, scientific, and theological writing but also the training necessary for participation in the disputations that

were a central feature of medieval instruction. At the theoretical level, medieval logicians made several contributions. First, they discussed logic itself, its status as a science, its relation to other sciences, and the nature of its objects.

Here it is important to note that medieval thinkers took a science (*scientia*) to be an organized body of certain knowledge that might include theology, logic, and grammar as well as mathematics and physics. Second, they discussed the nature of a demonstrative science and scientific method in general. Third, they provided a semantics that allows one to sort out the ontological commitments carried by nouns and adjectives. The discussion of connotative terms is particularly important here since it allowed logicians

to analyze such terms as “motion” without postulating the existence of anything other than ordinary objects and their qualities. Fourth, they provided particular logical strategies that allow one to sort out the truth-conditions for scientific claims. Particularly important here are supposition theory, the distinction between compounded and divided senses, and the analysis of propositions containing such syncategorematic terms as "begins" and "ceases"." (pp. 532-533)

(1) For full information about medieval logic, see Catarina Dutilh Novaes, *Formalizing Medieval Logical Theories: Suppositio, Consequentiae and Obligationes* (Dordrecht: Springer, 2007); Dov M. Gabbay and John Woods, eds., *Handbook of the History of Logic 2: Mediaeval and Renaissance Logic* (Amsterdam: Elsevier/North-Holland, 2008); Klaus Jacobi, ed., *Argumentationstheorie: Scholastische Forschungen zu den logischen und semantischen Regeln korrekten Folgerns* (Leiden: Brill, 1993); Norman Kretzmann, Anthony Kenny, and Jan Pinborg, eds., *The Cambridge History of Later Medieval Philosophy* (Cambridge: Cambridge University Press, 1982); Norman Kretzmann and Eleonore Stump, trans., *The Cambridge Translations of Medieval Philosophical Texts, vol. 1: Logic and the Philosophy of Language* (Cambridge: Cambridge University Press, 1988);

and Mikko Yrjonsuuri, ed., *Medieval Formal Logic: Obligations, Insolubles and Consequences* (Dordrecht: Kluwer Academic Publishers, 2001).

14. ———. 2014. "Aquinas on Analogy." In *Debates in Medieval Philosophy. Essential Readings and Contemporary Responses*, edited by Hause, Jeffrey, 232-242. New York: Routledge.

"In this short chapter, I hope to demonstrate the importance of pay close attention to the historical context of the theory of analogy, and to the way in which technical terms were actually used when explicating Aquinas' theory of analogy. In addition, I intend to argue that McInerny gets Aquinas' theory wrong partly because he places too little emphasis on the fact that Aquinas was principally concerned with the names we use of God.

Introduction

Analogy is a notion with various uses. In epistemology one can speak of coming to know something new on the basis of an analogy or likeness between two things and such analogies can form the basis for analogical arguments, including the argument from design for the existence of God. In ontology, the so-called analogy of being refers to the doctrine that reality is divided horizontally into the very different realities of substances and accidents, (1) and vertically into the very different realities of God and creatures, and that these different realities are related by some kind of likeness. However, for the purposes of this discussion, we are primarily concerned with analogy as a doctrine belonging to the philosophy of language and most especially as a solution to the problem of religious language.

Aquinas has been hailed through the centuries as making a particularly important contribution, and recent philosophers of religion have taken the doctrines seriously (e.g. Swinburne 1977, Alston 1993). But there are various problems, many stemming from the fact that nowhere does Aquinas give a sustained account of analogy, but rather he employs the notion on an ad hoc basis to settle the issues under discussion in a particular place. One problem, which I shall touch on briefly

below, is whether his account of analogy changed over the years. Two other problems have been discussed fairly extensively by McInerny. One is the question of whether it is a theory of language at all, or whether Aquinas was more concerned with the analogy of being; another concerns the truth of the long-held belief that Cardinal Cajetan's book on analogy, published in 1506, though written in 1498, gave an accurate account of Aquinas. Mclnerny has successfully argued that Aquinas was indeed concerned with analogical terms, even though his account had certain metaphysical views as its basis, and that Cajetan is not a good interpreter of Aquinas. (2) In what follows, I shall focus on another aspect of Aquinas: how his theory is embedded in specifically medieval semantics. It is here that the fourth chapter of Mclnerny's book (*Analogous Names,* chapter 13, this volume) offers a useful object lesson in the importance of getting such matters straight. Aquinas wrote in a specific context, and he used terminology with an established meaning that his readers would have known. It is a mistake to read a thirteenth-century author (or any other, for that matter) as if he wrote in a vacuum, and as if his views were only related to thinkers such as Boethius, Cajetan, and John of St. Thomas, who were all far removed from him in time. The only author contemporary with Aquinas cited by McInerny is Albert the Great, and the references are not always helpful." (pp. 232-233)

(1) Editor's note: Aquinas explains that, in contrast to a substance, an accident's mode of being is to exist in something else. For instance, a horse is a substance, but its size, color, are accidents because their nature is to exist in something else.

(2) While Mclnerny successfully dismisses Cajetan as an interpreter, he does not recognize that much of Cajetan's discussion is directed towards some fifteenth-century authors rather than Aquinas himself.

References

William P. Alston, "Aquinas on Theological Predication: A Look Backward and a Look Forward." In *Reasoned Faith: Essays in Philosophical Theology in Honor of Norman Kretzmann*, ed.

Eleonore Stump. Ithaca and London: Cornell University Press, 1993, pp. 145-178.

Ralph McInerny, *Aquinas and Analogy*, Washington, D.C.: The Catholic University of America Press, 1996.

Richard Swinburne, *The Coherence of Theism*, Oxford: Clarendon Press, 1977.

15. ———. 2015. "Medieval Theories of Signification to John Locke." In *Linguistic Content. New Essays on the History of Philosophy of Language*, edited by Cameron, Margaret and Stainton, Robert J., 156-175. New York: Oxford University Press.

"Locke wrote that "*Words*… came to be made use of by Men, as the *Signs of* their *Ideas*… The use then of Words, is to be sensible Marks of *Ideas*; and the *Ideas* they stand for, are their proper and immediate Signification" (*Essay*, 3.2.1). (1) Behind this brief and controversial passage lies a long development of interrelated discussions of the Aristotelian semantic triangle: the discussion of spoken words as signs, both of things and of concepts; the discussion of whether the things signified are natures (whatever their ontological status) or individual existents; and the discussion of ordering: do words signify things or concepts primarily? In this chapter I hope to do three things: (i) trace the history of developments from the thirteenth to the seventeenth century; (ii) throw some light on the issue of whether the theory of signification is a theory of meaning; (iii) illuminate the immediate background to Locke on language. (2)

My treatment is partly synoptic, partly chronological. Given the long period I am dealing with, and the complicated doctrinal history involved, I shall simplify my account by tracing just a few influential doctrines and focusing on just a few authors, though I shall make occasional references to other figures. The main path I intend to follow starts with Thomas Aquinas (1224/5-74), for, although he was not a logician, he had many things to say about language, and his views, particularly as found in his unfinished commentary on Aristotle's *Peri hermeneias*, were influential in the sixteenth and seventeenth centuries. (3) I shall then turn to the two fourteenth-century

nominalists, William of Ockham (c. 1287—1347) and John Buridan (1295/1300-1358/ 61). (4) Both men were very influential at the University of Paris in the late fifteenth and early sixteenth centuries, though Thomism also had a role to play there. For my purposes, the most important product of the Parisian schools is the Dominican, Domingo de Soto (1494-1560), who, while absorbing many features of nominalist logic, is more properly described as an eclectic Thomist. He published his popular logical works after his return to Spain, where he retained a strong influence into the seventeenth century. Another important Iberian was the Portuguese Jesuit Petrus Fonseca (1528-99), whose work inspired the Conimbricenses, commentaries on Aristotle's works produced by the Jesuits at Coimbra. The volume on Aristotle's *Organon* was first published in 1606. Other significant Jesuit authors include the two Spaniards Franciscus Toletus (1533-96) and Antonius Rubius (1548-1615) and the Polish logician Martinus Smiglecius (1564-1618). The importance of these late Scholastic authors is twofold. First, they were all moderate realists in the Thomistic tradition, although they were well acquainted with nominalism and Scotism. Second, they were read throughout Europe and, in particular, were used at the University of Oxford. Descartes told Mersenne that he recalled reading the Conimbricenses, Toletus, and Rubius (AT III, 185), (5) and, when Locke was teaching at Christ Church, Oxford, he recorded in a notebook that his students bought works by Smiglecius (Ashworth 1981: 304)." (pp. 156-157)

(1) Quotations are taken from Locke, *An Essay Concerning Human Understanding*, edited by Peter H. Nidditch, New York: Oxford University Press, 1975, but references will be given in standard format so that other editions can also be used.

(2) See Ashworth (1981, 1984, 1987) for discussion of the sixteenth- and seventeenth-century background.

(3) For a wider perspective on the earlier period, see Rosier, *La Parole comme acte: Sur la grammaire et la sémantique au XIIIe siècle*, Paris: Vrin 1994 and Rosier-Catach, *La Parole*

efficace: Signe, rituel, sacré, Paris: Editions du Seuil 2004. For more on Aquinas, sec Ashworth (1999). References to Aquinas will be given in standard format, since there are many editions (and some translations) of his works.

(4) For nominalism, See Biard, *Logique et théorie du signe au XlVe siècle,* Paris: Vrin 1989, Panaccio, *Ockham on Concepts,* Aldershot and Burlington, VT: Ashgate 2004 and Klima, *John Buridan*, Oxford: Oxford University Press 2009.

(5) I give standard references to the Adam and Tannery edition (Descartes 1897-1913).

16. ———. 2015. "Richard Billingham and the Oxford *Obligationes* Texts: Restrictions on *positio*." *Vivarium* no. 53:372-390.

"The study of Oxford *Obligationes* texts in the 14th century owes much to the work of Angel d'Ors.(1) Fittingly, it is also a subject linked with Spain through the work attributed to Juan de Pastrana, the publication of the Oxford *Sophistrie* in 1503, and the presence of texts by Richard Billingham and others in Spanish libraries. (2) In this paper, I intend to focus on one aspect of a group of texts associated with the University of Oxford, namely the restrictions placed on the very first rule of the type of obligations called *positio*, and their relation to the sophismata introduced to illustrate the very difficulties that these restrictions were intended to counter. One of my intentions here is to show what was said in a series of rather modest texts that must have been used in actual teaching.

First, however, it is necessary to say something about the Obligationes treatises themselves and what they were about." (p. 372)

(1) See especially Angel d'Ors, 'Sobre las *Obligationes* de Richard Lavenham', *Archives d'histoire doctrinale et littéraire du moyen âge* 58 (1991), 253-78; Angel d'Ors, 'Sortes non currit vel Sortes movetur (Roger Swyneshed, *Obligationes*, § 137-138)', *Archives d'histoire doctrinale et littéraire du moyen âge* 60 (1993), 165-72; Angel d'Ors and Manuel García-Clavel, 'Sobre las *Obligationes* de Robert Fland. *Antiqua et nova responsio*', *Revista de Filosofía* 7 (1994), 51-8. For some

discussion, see E.J. Ashworth, ‘Autour des Obligationes de Roger Swyneshed: la *nova responsio*’, *Les études philosophiques* 3 (1996), 341-60.

(2) See below for details.

17. ———. 2015. "Logic teaching at the University of Oxford from the Sixteenth to the early Eighteenth Century." *Noctua* no. 2 (1-2):24-62.

"The title of the conference for which this paper was written was «From commentary to manual: the teaching of philosophy in the modern period», but where logic teaching at the University of Oxford is concerned, this title needs to be glossed, because the significant changes that took place involve the types of commentary and manual rather than the replacement of one by the other1. At the beginning of the sixteenth century, university-wide lectures on logic presented the content of the central Aristotelian texts orally with or without detailed commentary, depending on the level of instruction, but students also worked with brief texts devoted to such medieval developments as obligationes, insolubilia and consequences, which had been gathered together in printed manuals, especially the Libellus Sophistarum ad Usum Oxoniensium which was published in England six times between 1499 and 1530, as well as on the European continent2. If we jump to the beginning of the eighteenth century, we find that teaching now took place within the colleges and the halls, which, unlike colleges, were not permanent property-owning, self-governing institutions, but which otherwise functioned in the same way. University-wide lectures had virtually disappeared, as had discussion of nearly all the specifically medieval developments, and, while commentaries were still read, students began, and often ended, their study of logic with succinct manuals that summarized Aristotelian logic, especially the Logicae Artis Compendium by Robert Sanderson, first published in 1615, and the Artis Logicae Compendium by Henry Aldrich, two slightly different versions of which were first published in 1691.

A long and complicated history lies behind these changes, and to un-derstand what happened I shall start by considering the

wider changes that took place in the organization of university teaching as well as more general-ly in English society. I will then consider humanism and the new Aristoteli-anism, and I will conclude with an overview of the most important logic manuals.

(1) For some general discussion of changes in textbooks, see Ashworth 1988(1), and for some general discussion of seventeenth-century Oxford, see Ashworth 1988(2).

(2) For details of the editions and their contents see Ashworth 1979 and Ashworth 1999, 385–386.

References

Ashworth 1979 = «The “Libelli Sophistarum” and the Use of Medieval Logic Texts at Oxford and Cambridge in the Early Sixteenth Century», *Vivarium* 17 (1979), 134-158.

Ashworth 1988(1) = «Changes in Logic Textbooks from 1500 to 1650: The New Aristotelianism», in Eckhart Kessler, Charles H. Lohr, Walter Sparn, (eds.), *Aristotelismus und Renaissance. In Memoriam Charles B. Schmitt*, Wiesbaden, in kommission bei Otto Harrossowitz 1988 (Wolfenbütteler Forschungen Band 40), 75-87.

Ashworth 1988(2) = «§1. Die philosophischen Lehrstätten. 1. Oxford», in Schobinger, Jean-Pierre (ed.), *Die Philosophie des 17. Jahrhunderts*. Band 3/1. England, Basel, Schwabe & Co. 1988 (Grundriss der Geschichte der Philosophie), 6-9, 26-27.

Ashworth 1999 = «Text-books: a case study – logic», in Lotte Hellinga, Joseph Burney Trapp, (eds), *The Cambridge History of the Book in Britain. Vol. III: 1400-1557*, Cambridge, Cambridge University Press 1999, 380-386.

18. ———. 2016. "Locke and Scholasticism." In *A Companion to Locke*, edited by Stuart, Matthew, 82-99. Malden: Wiley-Blackwell.

"*Introduction*. Locke’s public attitude to scholasticism is well known. Many are the disparaging references to the schoolmen, their reliance on disputational success rather than the search for truth, and their obscure jargon. In the *Essay Concerning*

Human Understanding, he writes that “the Schoolmen” found the “very useless Skill” of disputing “a good Expedient to cover their Ignorance, with a curious and unexplicable Web of perplexed Words” (3.10.8). Yet public attitudes can be misleading. Descartes professed to be making a new start, yet historians of philosophy have become increasingly aware of how much he took for granted of what he had learned from the Jesuits at La Flèche. Moreover, philosophers often turn out to be in dialogue with their predecessors even if they do not make this explicit. We have to ask whether the same is true of Locke. Did he enter into a secret dialogue with any scholastics? Are there features of his thought that can be explained in terms of scholastic assumptions?

In order to answer these questions, we need to look at who the schoolmen referred to by Locke were, and what he might have learned from them, particularly with respect to topics in metaphysics, logic, and language. First, however, we must consider the Oxford curriculum which provided the framework for Locke’s years of study and teaching there, as there is little reason to believe that he enriched his acquaintance with the schoolmen in his later career." (p. 82)

19. ———. 2016. "The Post-Medieval Period." In *The Cambridge Companion to Medieval Logic*, edited by Novaes, Catarina Dutilh and Read, Stephen, 166-191. Cambridge: Cambridge University Press.

"This chapter has two main parts. The first part discusses the effects that historical events and movements had on educational systems and the logical studies thought to be suitable for undergraduates.

The Western reception of the printing press in the middle of the fifteenth century was perhaps the most important event, for it accentuated the impact of the other events and movements. Suddenly it became possible to produce books cheaply, in relatively large numbers, and without the differences between one copy and another that often make work with manuscripts so difficult. By the end of the fifteenth century, many university towns had presses able to print the textbooks needed by the

faculty of Arts, and teachers could disseminate their own works. Moreover, publishers, especially in Italy, were able to print the works required for serious scholarship, such as Aristotle's *Organon* in Greek and the newly discovered Greek commentaries on Aristotle, while in the sixteenth century, the writings of the Protestant reformers and their Roman Catholic opponents could be widely circulated.

The second main part looks at some specific doctrines, including supposition theory and consequences, in order to show that medieval doctrines were developed in interesting ways before they are finally abandoned, and to highlight some of the important changes that took place." (pp. 166-167)

20. ———. 2016. "How Natural is Natural Language? Some Postmedieval discussions." In *Formal Approaches and Natural Language in Medieval Logic*, edited by Cesalli, Laurent, Goubier, Frédéric and de Libera, Alain, 485-500. Barcelona - Roma: Fédération Internationale des Instituts d'Études Médiévales.

"The title of the Geneva symposium held in 2012 was «Formal approaches and natural language in medieval logic», and on the face of it this title suggests the distinction made by twenty-first century logicians between natural or ordinary languages and the formal language-systems of symbolic logic and mathematics (1). However, the modern sense of «natural» was not that used by late medieval and post-medieval logicians. As we will see, various senses appear in their writings, but for our purposes the most important sense involves their distinction between natural signification and *ad placitum* signification, and only words with the latter kind of signification belong to such spoken languages as English and French.

Accordingly, in this paper I shall discuss the distinction between natural and ad placitum signification and how it relates to views about the nature and origin of human language, in order to see how far these views would allow for the construction of a fully-fledged formal language, such as firstorder quantificational logic. What power did logicians think we have over the languages we use? How far can we stipulate a

signification for a term, and could the notion of an uninterpreted system have a role to play? In order to find some answers to these questions, I shall focus on selected post-medieval logicians, starting with Johannes Versor († after 1482), an eclectic author who drew on both Aquinas and Albertus Magnus (2). From the first decades of the sixteenth century, I shall consider a group of men who studied and taught at the University of Paris, including Gaspar Lax (1487-1560), his pupil Juan Dolz del Castellar (M.A. 1509), Fernando de Enzinas († 1523), Juan de Celaya (ca. 1490-1558), John Major (1467-1550), and Domingo de Soto (1494-1560). The latter, whose *Summulae* was first published in 1529 (3), had a strong influence on a later group of authors in the scholastic tradition, including the Jesuits Sebastianus de Couto (1567-1639), Antonius Rubius (1548-1615) and Martinus Smiglecius (1564-1618). Couto was the author of the Coimbra commentary on Aristotle's *Organon* published in 1606, and as such was particularly influential throughout the seventeenth century."

(1) For a very useful analysis of various senses of «formal», see C. Dutilh Novaes, «The Different Ways in which Logic is (said to be) Formal», *History and Philosophy of Logic*, 32 (2011) 303-332.

(2) See P. Rutten, «"Secundum processum et mentem Versoris": John Versor and His Relation to the Schools of Thought Reconsidered», *Vivarium*, 43 (2005) 292-336.

3 Domingo de Soto, *Summulae*, Burgis 1529. Later editions were considerably changed.

21. ———. 2017. "Philosophy of Language: Words, Concepts, Things, and Non-Things." In *The Routledge Companion to Sixteenth-Century Philosophy*, edited by Lagerlund, Henrik and Hill, Benjamin, 350-372. New York: Routledge.

"One of the big questions raised by the philosophy of language is how our words relate to the world we live in. Some of the words we use seem to be names of the things around us: 'Socrates' seems to name an actual person, and 'smiling' seems to name something that he does. Similarly, 'dog' and 'horse' seem to name ordinary examples of types of living thing, but do

they also name common natures that have a status of their own, apart from individuals? What about such words as ‘blindness’ and ‘nonbeing,’ or the names of fictional entities such as ‘chimera’? What about so-called analogical words such as ‘being,’ which seems to encompass both substances and accidents, both God and creatures? And what about words in particular contexts, such as ‘Some men are dead’ or ‘The meadows are smiling’? In this chapter, I shall first say something about the general background to sixteenth-century philosophies of language, and I shall then explore the views of two particular groups of philosopher on how it is that our words relate to the world, ending with a detailed examination of doctrines of analogy." (p. 350)

22. ———. 2017. "Was Buridan a ‘Psychologist’ in His Logic?" In *Questions on the Soul by John Buridan and Others. A Companion to John Buridan’s Philosophy of Mind*, edited by Klima, Gyula, 239-260. Dordrecht: Springer.

    "If we look back at Gottlob Frege, and all that has stemmed from his work, it may seem easy to accuse John Buridan of a grossly misconceived psychological approach to logic."

    (…)

    "In order to discover whether Buridan’s approach to logic lays him open to Fregean accusations of failing to separate the psychological from the logical, of failing to distinguish taking something to be true from proving it to be true, and of falling into the supposed trap of asking for the meaning of words in isolation rather than in the context of a proposition, I shall start by considering Buridan’s account of signification and the role played by concepts in the Buridanian sense of that word. I shall then consider the relationship between spoken language and what may be called mental language, before going on to discuss the truth of propositions and the nature of argumentation." (pp. 240-241)

23. ———. 2017. "Burley, Ockham, and English Logicians on *Impositio* as a Type of *Obligatio*." In *The Language of Thought in Late Medieval Philosophy: Essays in Honor of Claude*

Panaccio, edited by Pelletier, Jenny and Roques, Magali, 233-245. Dordrecht: Springer.

Abstract: "This is a study of how the doctrine of impositio, the endowing of terms and propositions with a new signification, was treated in English obligationes texts from Walter Burley to the end of the fourteenth century. I show that in Burley and Ockham the rules for impositio were closely linked to the solution of insolubilia, but that this emphasis disappeared. I also show that Burley's doctrines were more honoured on the European continent than in England. I then examine the different doctrines of subsequent English logicians and how they were applied to selected sophismata. Here Roger Swyneshed and Richard Brinkley are particularly important, the first because of his nova responsio, and the second because of his doctrine that speakers can change imposition at will."

24. ———. 2017. "Buridan and His Successors on "ex impossibili sequitur quodlibet"." In *Miroir de l'amitié. Mélanges offerts à Joël Biard à l'occasion de ses 65 ans*, edited by Grellard, Christophe, 243-252. Paris: Vrin.

25. ———. 2018. "Exponibilia, Proofs of Terms, and the Oxford-Paris Split 1340-1530." In *Sujet libre: pour Alain de Libera*, edited by Brenet, Jean-Baptiste and Cesalli, Laurent, 15-20. Paris: Vrin.

    "In the first years of his long and distinguished career Alain de Libera published a number of articles and text editions relating to two themes in thirteenth-century logic."

    (...)

    "These discussions have led me to ask two questions about what happened in Oxford and Paris after the first decades of the fourteenth century. First, were there continued differences between the two institutions? Second, did these differences relate mainly to the topics already mentioned, whether to supposition theory and its offshoots or to the group of texts on *sophismata*, *syncategoremata* and *abstractiones*? My answers are that there were indeed specific kinds of text that typified the divergence between Oxford and Paris, though not between

Oxford and other European universities, such as Prague and Padua. These were the texts

on proofs of terms and the texts devoted to *exponibilia*. Both of these seem to have grown out of the texts on *sophismata*, *syncategoremata*, and *abstractiones*, whose importance diminished during the period under consideration. Treatises on *sophismata* were still produced, such as the treatise by the Parisian Albert of Saxony, but it seems that no new texts on *abstractiones* appeared, and treatises devoted to *syncategoremata* declined in popularity, though Peter of Spain's text continued to be used in Paris, and near the end of the fourteenth century in Oxford Richard Lavenham did produce a very short work which was later to be printed." (pp. 15-16)

26. ———. 2019. "Jesuit Logic." In *Jesuit Philosophy on the Eve of Modernity*, edited by Casalini, Cristiano, 95-114. Leiden: Brill.

    "In what follows, I focus on a small group of authors, notable for the number of editions their works received well into the first half of the seventeenth century.(5) In chronological order, these are the Portuguese Pedro da Fonseca, the guiding spirit behind the Conimbricenses, that is, the Coimbra commentaries on Aristotle; the Spaniard Francisco de Toledo, who taught at the Collegio Romano; the Spaniard Antonio Rubio or Ruvio (Antonius Rubius [1548–1615]), who taught in Mexico; the Polish Marcin Śmiglecki (Martinus Smiglecius [1564–1618]); and the Portuguese Sebastião do Couto (Sebastianus de Couto) of Aristotle was to be followed in logic and other areas.(2) Students were to start with an overview. In the version of 1586, the *Summula* of Pedro da Fonseca (Petrus Fonseca [1528–99]) was recommended, as being broader, clearer, and closer to Aristotle, and without the useless perplexities (*tricae*) that deter beginners.

    In the 1599 version, the recommendation was to use either Francisco de Toledo (Franciscus Toletus [1533–96]) or Fonseca to explain what was most necessary.(3) The next step was the study of Aristotle's *Organon*, and here some material had to be excluded, or treated only briefly.(4) As an introduction, the

student would consider the nature of logic, whether it was a science, and what its subject was, before considering second intentions. The main discussion of universals would be left to metaphysics. In other words, consideration of the *Isagoge* by Porphyry (c. 233–309) was to be curtailed. Only the easier parts of the *Categories* were to be considered, though attention should be paid to analogy and relations, since these issues frequently came up in disputations. The second book of *De interpretatione* and both books of the *Prior Analytics* were to be gone over briefly, except for the first eight or nine chapters of the first book of the *Prior Analytics* (that is, those dealing with basic syllogistic). Questions arising from these chapters were to be expounded, though future contingents were to be treated briefly, and the problem of free will was not to be discussed.

So far as the *Topics* and *Sophistical Refutations* were concerned, their material was better left to the orderly treatment found in the Summulae. At the end of the first year, more time was to be devoted to matters that formed the prolegomena to the study of physics."

(5) For bibliographical and biographical information about all those mentioned, see Charles H. Lohr, *Latin Aristotle Commentaries: ii; Renaissance Authors* (Florence: Leo S. Olschki, 1988).

(2) G.M. [Georg Michael] Pachtler, ed., R*atio studiorum et institutiones Societatis Jesu*: Tomus ii (Berlin: A Hoffman & Co., 1887), 129–30 (1586 version).

(3) Ibid., 131 (1586), 332 (1599).

(4) Ibid., 332–34.

27. ———. 2020. "Changes in British Logic Teaching During the Sixteenth and Seventeenth Centuries." *History and Philosophy of Logic* no. 41:309-330.

Absstract: "British logic teaching in the sixteenth and seventeenth centuries was provided in England by Oxford and Cambridge, both medieval foundations, and in Scotland by the universities of St Andrews and Aberdeen, both founded in the

fifteenth century, and Edinburgh, founded in 1582. Wales had no university, and high schools in England did not teach logic. This paper explores the effect that the invention of printing, along with organizational, political, and sociological changes, had on the teaching of these institutions as they affected the logic textbooks that were used and the ways in which the material was presented to students. The disappearance of important medieval developments such as supposition theory along with changes in the treatment of Aristotle's logic are discussed in relation to selected logicians from the period under discussion. In particular, attention is paid to the Cambridge logician John Seton (d. 1567), whose popular *Dialectica* was published in 1545, the Frenchman Peter Ramus (d. 1572), whose influence in both England and Scotland was less than has been supposed, and the Oxford logician Robert Sanderson (d. 1662/3) whose *Logicae artis compendium* was reprinted as late as 1841."

28. ———. 2021. "Aquinas on Truth, Logic, and Sinning in Speech." In *Ad placitum. Pour Irène Rosier-Catach*, edited by Cesalli, Laurent, Goubier, Frédéric, Grondeux, Anne, Robert, Aurélien and Valente, Luisa, 41-48. Roma: Aracne.

29. ———. 2021. "Signs and Signification as treated by Iberian Logicians from Domingo de Soto to John of St Thomas." In *Sémiotique, Grammaire et Logique. De la scolastique tardive à la philosophie austro-allemande*, edited by Leblanc, Hélène and Majolino, Claudio. Basel: Schwabe.

    Abstract: "In the sixteenth and early seventeenth centuries there was a noteworthy flowering of logic among Spanish and Portuguese logicians. One of their chief interests was in signs and signification, for the study of language was the main starting point for logicians, and an important subject of discussion was how the signs necessary for signification should be classified, whether these were the linguistic signs produced by humans or the non-linguistic signs produced by animals. This discussion was closely linked with the issue of the semantic triangle that linked words, concepts and things. I consider how these topics were treated by some prominent Iberian logicians, starting with Domingo de Soto, whose

Summulae was first published in 1529, and ending with John of St Thomas, whose discussion in his *Ars Logica* of 1631–2, shows continuity with that of Soto."

Brief articles

Two articles in *Handbook of Ontology and Metaphysics* edited by H. Burkhardt and B. Smith (Munich: Philosophia Verlag, 1991):

Joachim Jungius,

Post-Medieval Logic.

Seven articles in The Cambridge Dictionary of Philosophy, edited by Robert Audi (Cambridge University Press, 1995), Second edition, 1999:

Giordano Bruno,

Tommaso Campanella,

Marsilio Ficino,

Pedro da Fonseca,

Jean Gerson,

Paracelsus,

Giovanni Pico della Mirandola.

Nine articles in the *Routledge Encyclopedia of Philosophy*, (edited by Edward Craig) London & New York: Routledge 1998:

Giordano Bruno,

Language,

Renaissance Philosophy of,

Lipsius, Justus (1547-1606),

Logic, Medieval,

Logic, Renaissance,

Paracelsus (Philippus Aureolus Theophrastus Bombastus von Hohenheim) (1493-1541),

Patrizi da Cherso, Francesco (1529-1597),

Paul of Venice (1369/72-1429),

Renaissance Philosophy.

"Logic." in *The Classical Tradition*, Anthony Grafton, edited by Glenn W. Most and Salvatore Settis, pp. 540B–543B. Cambridge, Mass., London, England: The Belknap Press of Harvard University Press, 2010.

"Q. 3, § 3: Analysis of Langton's Arguments" in Stephen Langton, *Quaestiones theologiae liber I*, edited by Riccardo Quinto & Magdalena Bieniak, pp. 217–222. Printed for the British Academy by the Oxford University Press, 2014.

Digital Quadrivium Project



History of Logic

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Annotated Bibliography of Lambertus Marie de Rijk. First Part: from 1950 to 1975

Introduction

L. M. de Rijk, (Hilversum, November, 6 1924 - Maastricht June, 30 2012) was Professor of Ancient and Medieval Philosophy at the University of Leiden, and Honorary Professor at the University of Maastricht.

A complete bibliography of his writings up to 1999 is available in: Maria Kardaun and Joke Spruyt (eds.) - *The winged chariot. Collected essays on Plato and Platonism in honour of L. M. de Rijk* - Leiden, Brill, 2000. pp. XV-XXVI. I made some corrections, updated the bibliography and omitted the publications in Dutch.

"The present volume is dedicated to De Rijk on the occasion of his 65th birthday and his retirement as a professor in Ancient and Medieval philosophy at the University of Leiden. It contains fourteen of De Rijk's philosophical studies (articles) on medieval logic and semantics. Research on manuscripts and editions of texts have not been included. As the table of contents shows, the studies cover the period from Boethius (6th century) to William of Ockham (ca. 1285 - 1347) and have been ordered according to centuries.

Now some remarks on the main lines of De Rijk's interpretations of mediaeval semantics and metaphysics, as found in the studies collected here. The title of the volume, first, indicates De Rijk's interest in Mediaeval thinkers' views on reality. These views were influenced by theology (see esp. study I). However, medieval

semantic views (i.e. the philosophical theories on how terms signify) were basic as the starting point in ontological speculation. Man expresses his views on reality by way of language. De Rijk's aim is to understand how the Medieval philosophers and theologians interpreted reality according to their own semantic views.

De Rijk distinguishes between the use of a name in its name-giving function as opposed to statemental predication, where a term acts as the predicate term of a proposition. The contextual position of a name (in syntax) affects the semantic value. De Rijk gives as examples of these syntactical contexts: first of all, the proposition (in its general form: subject - predicate); further on, intensional contexts (where verbs like 'to know' influence what is said in the proposition) and modal contexts (with modal terms like 'possible' etcetera). De Rijk's analysis of an intensional contest can be seen most clearly in his studies on Peter Abailard (1079 - 1142) (studies II - VI). Universals or general names occur in contexts with verbs which denote an act of the mind, viz. abstraction. According to De Rijk, Abailard interprets universals as the intrinsic objects of the acts of understanding (see especially study III, p. 145). If someone conceives of the general name 'man', there is, in De Rijk's line of interpretation, an act of 'man-understanding'.

(...)

Word order is considered a 'rendez-vous' of logic and ontology (see especially study VIII). In asinus cuiuslibet hominis currit (which means, in an awkward litteral rendering: 'everybody's ass is running') the subject term 'ass' which (in the Latin text) precedes the distributive sign 'everybody's' is not affected by it and, accordingly, refers to one particular individual which is the common property of everybody. On the other hand, in cuiuslibet hominis asinus currit ('each man's ass is running'), in following the sign the term 'ass' is prevented from pursuing its primary inclination to refer to some individual and stands 'opaquely' for a multitude of individuals.

The verb esse ('to be') and its related forms - e.g. ens ('being'), as well as connected terms such as existentia ('existence') - are pivotal terms in medieval metaphysics, ontology and theology. The first formal object of metaphysics in the Middle Ages is either the highest spiritual substances - God and the angels (this interpretation is

ascribed to the Arab Averroes) - or 'being in general' (in the interpretation given by the Arab Avicenna). In the Latin Middle Ages both views are advocated, as well as a combination. Whichever view is taken, the semantics of esse is crucially important (see especially studies I and V)."

From the *Preface* by Egbert P. Bos to: E. P. Bos (ed.), *Through Language to Reality. Studies in Medieval Semantics and Metaphysics*-, Northampton: Variorum Reprints 1989.

L. M. de Rijk was on of the founder of the review *VIVARIUM. An International Journal for the Philosophy and Intellectual Life of the Middle Ages and Renaissance*.

The Editorial of the first number of Vivarium (1963):

"Issuing a new journal needs some justification. The editors of VIVARIUM do not intend to found a journal for mediaeval philosophy tout court. The philosophical systems of the Middle Ages can be approached from more than one point of view. They can be - and frequently are - studied in their relation to mediaeval theology. The present journal, however, will be devoted in particular to mediaeval philosophy in its relations to the whole of profane thought and learning and the vast field of the Liberal Arts.

The editors of VIVARIUM are of opinion that this approach of mediaeval philosophy deserves some more attention than usually is paid to it. While fully aware of the merits of the existing journals concerned with mediaeval philosophy, they only wish to create a more appropriate forum for what might be called the profane side of the intellectual life. They hope to stimulate the achievements of an increasing number of scholars in their country and abroad, likely to have an active interest in this field of research.

Cassiodorus' monastery is more than a name. It embodies the scientific and didactic program of one of the important centres of culture 'in early Western Europe. Therefore the name VIVARIUM has been chosen for this journal.

C. J. de Vogel, L. M. de Rijk, J. Engels."

Bibliography

1. Rijk, Lambertus Marie de. 1950. "Some notes on Aristotle, *Metaphysics* A 4, 985b9." *Mnemosyne* no. 4:314-318.

   "In *Metaph*. A 4, 985b4 ff. Aristotle speaks about the atomists Leucippus and Democritus. For they, he says, the void is by no means less than the full. (...) W, Jaeger (*Hermes*, 52, 1917 pp. 486 f.) is right in maintaining the reading of all the manuscripts." (p. 314)

2. ———. 1951. "The authenticity of Aristotle's *Categories*." *Mnemosyne* no. 4:129-159.

   "Most scholars either deny Aristotle's authorship of the first treatise of the Organon, or else consider the problem of authorship to be insoluble. I maintain, however, that such judgements are wrong and that the treatise is of genuine Aristotelian authorship, and of considerable importance for our knowledge both of Aristotle's own development, and also that of later Platonism. I shall try to show the authenticity of the treatise in the following study, and shall divide my investigation into the following main divisions:

   A. The view of the ancient commentators concerning the authenticity of *Categories* Chs. 1-9;

   B. Modern criticism of the authenticity of *Categories* Chs. 1-9;

   C. The authenticity of *Categories* Chs. 10-15." (p. 129)

   [See also the following note to *Ancient and mediaeval semantics and metaphysics* (Second part), *Vivarium*, November, 1978, p. 85: "Unlike some 30 years ago (see my papers published in *Mnemosyne* 1951), the present author has his serious doubts, now, on the authenticity of the first treatise of the *Organon*"].

3. ———. 1952. *The Place of the Categories of Being in Aristotle's Philosophy*. Assen: Van Gorcum.

   Ph.D. thesis, Utrecht University.

   Contents: Bibliography I-III; Introduction 1-7; Chapter I. Aristotle's doctrine of truth 8-35; Chapter II. The distinction of essential and accidental being pp. 31-43; Chapter III. Logical

and ontological accident 44-52; Chapter IV. The nature of the categories in the *Metaphysics* 53-66; Chapter V. The doctrine of the categories in the first treatise of the *Organon* 67-75; Chapter VI. The use of the categories in the work of Aristotle 76-88; Appendix. The names of the categories 89-92; Index locorum 93-96.

From the Introduction: "It seems to be the fatal mistake of philology that it always failed to get rid of Kantian influences as to the question of the relation of logic and ontology. Many modern mathematical logicians have shown that the logical and the ontological aspect not only are inseparable but also that in many cases it either lacks good sense or is even impossible to distinguish them. Accordingly, the distinction of logical and ontological truth (especially of propositional truth and term-truth), that of logical and ontological accident and that of logical and ontological categories, has not the same meaning for modem logic as it seems to have for 'traditional' logic (for instance the logic of most Schoolmen).

I hope to show in this study that the distinction of a logical and an ontological aspect (especially that of logical and ontological categories) can be applied to the Aristotelian doctrine only with the greatest reserve. A sharp distinction carried through rigorously turns out to be unsuitable when being applied to Aristotelian logic. For both aspects are, for Aristotle, not only mutually connected but even interwoven, and this in such a way that the ontological aspect seems to prevail, the logical being only an aspect emerging more or less in Aristotle's generally ontological way of thinking." (pp. 6-7)

4. Petrus, Abaelardus. 1956. *Dialectica*. Assen: Van Gorcum.

   First complete edition by L. M. de Rijk of the Parisian manuscript with an introduction; second revised edition 1970.

   From the Introduction: "§ 3. The task of logic according to Abailard.

   Abailard understands 'logica' or 'dialectica' as the art which aims at distinguishing valid arguments from invalid ones. We find a clear exposition of his opinion on this matter in the

prologue to the treatise Logica Nostrorum petitioni. Abailard here points to the fact that logic is not a theory of thought, which teaches us how we ought to think and dispute: its only function is to distinguish valid arguments from invalid ones and to state why (*quare*) they are valid or not:

est autem logica Tullii auctoritate diligens ratio disserendi, idest discretio argumentorum per quae disseritur, idest disputatur. non enim est logica scientia utendi argumentis sive componendi ea, sed discernendi et diiudicandi veraciter de eis, quare scilicet haec valeant, illa infirma lint. (*Log. Nostr. petit.*, 506, 24-28).

This distinction is made, as a matter of course, on rational grounds. The 'quare haec valeant, illa infirma sint' finds its answer in the presence (c.q. absence) of conclusive force (vis inferentiae, vis argumenti, vis sermonis). It sometimes rests on the pure form of reasoning (ipsa complesso terminorum): in this case we speak of complexional arguments; the other case is, if the matter of the argument contributes to its conclusive force: we speak, then, of topical arguments:

argumentationes quaedam sunt locales, quaedam vero complexionales quidem sunt quae ex ipsa complexione, idest ex ipsorum terminorum dispositione, firmitudinem contrahunt; locales vero sunt quibus convenienter potest assignari locus, idest evidentia conferri ex aliquo eventu rerum vel proprietate sermonis. (*Log. Nostr. petit.*, 508 9-15).

Since complexional and topical arguments borrow their conclusive force from respectively the arrangement of the terms (dispositio terminorum), and the state of affairs (eventus rerum) or the properties of speech (proprietas sermonis), their valuation requires some insight into the structure of proposition and into the properties of speech, the state of affairs being only secondarily the object of logic. The author elsewhere (Dial. III, 286 31-34) states that the scope of logic is to inquire into the use of speech, in the full sense of the word; inquiring into the nature of things (res) belongs to the domain of physics:

in scribenda Logica hic ordo est necessarius: cum logica sit discretio argumentorum, argumentationes vero ex propositionibus coniungantur, propositiones ex dictionibus, cum qui perfecte Logicam scribit, primum naturas s i m p l i c i u m sermonum, deinde compositorum necesse est investigare et tandem in argumentationibus finem Logicae consummare. (*Log. Nostr. petit.*, 508 4-9).

..... hoc autem logicae disciplinae proprium relinquitur, ut scilicet vocum impositiones pensando, quantum unaquaque proponatur oratione sive dictione, discutiat; physicae vero proprium est inquirere utrum rei natura consentiat enuntiationi (*Dial.* III, 286 31-34)

Aristotle deals with the use of speech, Abailard says (*Log. Nostr. petit.*, 508,32 -- 509,8), in his *Categories, De Interpretatione* and Topics, and with argumentations in his *Prior* and *Posterior Analytics*: Porphyry wrote an introduction to the first-mentioned treatise. Thus, the scheme of his own *Dialectica* is obvious: he first treats of the parts of speech (partes orationis) tractatus I; next the categorical propositions and syllogisms are dealt with: tractatus II; the treatment of the hypothetical propositions and syllogisms (tractatus IV) is preceded by that of the topics (tractatus IIII); the author ends his work with a treatise on division and definition: tractatus V." (pp. XXIII-XXV, notes omitted).

5. Rijk, Lambertus Marie de, ed. 1959. *Garlandus Compotista. Dialectica*. Assen: Van Gorcum.

   First edition of the manuscripts with an introduction on the life and works of the author and on the contents of the work.

   From the Introduction: " The author himself says in the preface to his work that the treatise has been meant as a first introduction to dilectics for tyroes:

   Nec illos (sc. libros) scribere proposuimus introductis, sed rudibus desiderantibus pervenire ad precepta supradictorum, Boetii scilicet et Aristotilis.

   It makes the impression of being a note-book, as appears from the words (III, 74, 26) *cras finiemus Periermeneias*. The

preface shows that Garland

himself subdivided the work into six Books. The first Book deals with the *praedicabilia* and *praedicamenta;* the second with *propositio;* the third with *nomen, verbum, oratio,* and the kinds of proposition; the fourth treats of the topical 'ingredients', such as *propositio, quaestio, conclusio, argumentum,* and *argumentatio* and of the *loci communes;* the fifth Book deals with categorical syllogism and the sixth with hypothetical syllogism. The expositions are illustrated by a great number of sophisms and their solutions.

Boethius' translations and commentaries of Aristotle's logical works and his logical monographies were without any doubt the direct source of the treatise. Garland explicitly says in his preface that he founds his expositions of logic on Aristotle and Boethius. (See Dial. Im 1, 2-9).

The work turns out to be an adaptation of the *logica vetus, i.e.* that part of Aristotelian logic the Latin translations of which were known before 1150 A. D. The sources of the *logica vetus* were Boethius' translations, commentaries and his monographies on logic:

(1) *In Isag. Porhyrii Commenta* (two editions)

(2) *In Categ. Arist. Libri IV* (two editions)

(3) *In Librum Arist. De Interpr.*

(4) *Introductio ad categ. syll.*

(5) *De syllogisimis categoricis*

(6) *De syllogismis hypoteticis*

(7) *De differentiis topicis*

(8) *De divisionibus*

It is a striking fact that Garland neither uses nor mention the treatise *De Divisionibus*; neither division nor definition are dealt with explicitly by him. For the rest Boethius is mentioned many times. Garland nowhere calls his own masters by their

names, though he asserts, to have adopted several explanations from them."

(pp. XLV - XLVI, notes omitted).

6. ———. 1962. *Logica Modernorum. A Contribution to the History of Early Terminist Logic. Vol. 1: On the Twelfth Century Theory of Fallacy*. Assen: Van Gorcum.

   Contents: Preface 11; 1. The specific character of the *Logica Modernorum* 13; 2. The theory of fallacy in the framework of the *Logica Vetus* 24; 3. The theory of fallacy in the great logical works of Peter Abailard 49; 4. The theory of fallacy in the School of the *Parvipontani* 62; 5. The earliest mediaeval commentaries on the *Sophistici Elenchi* 82; 6. The theory of fallacy in the later glosses on the *Perihemeneias* 113; 7. Two treatises on fallacy from the latter part of the twelfth century 127; 8. On the use of the doctrine of fallacy in twelfth century theology 153; Books and articles referred to 179; List of manuscripts used 181; Appendices: A. *Glose in Arist. Sophisticos Elencos* 187; B. *Summa Sophistorum Elencorum* 257; C. *Tractatus de dissimilitudine argumentorum* 459; D. *Fallacie Vindobonenses* 459; E. *Fallacie Parvipontane* 491; F. [Frustula Logicalia] 611; Indices: A. Index locorum 629; B. Index nominum 642; C. Index sophismatum et exemplorum 646; D. Index verborum et rerum 659-674.

   "In this work the author tries to show how the *Logica Modernorum,* - which, as is known, exerted, from the thirteenth century onwards, such a profound influence on the development of Mediaeval Philosophy -, had its origin in the twelfth century logical and grammatical theories which arose in the Western centers of studies, especially in Paris.

   The first volume deals with one of the two roots of this development: the twelfth century doctrine of fallacy; the second volume will treat of the *Logica Modernorum* in the grammatical theories of the twelfth century.

   The author thought it of great importance to edit in full the main treatises on which his studies are based; they are found in the *Appendices* A-E. *Appendix* F contains three passages from

twelfth century *Perihermeneias*-commentaries; in order to avoid the false suggestion that one has to do here with fragmentary remnants which have come down to us, I chose, despite its somewhat culinary sound, the term *'Frustula'* instead of the more usual *'Fragmenta'*. Some information on the manuscripts concerned is given in the course of this study; for the places, consult the *List of manuscripts used*.

As to the *ratio edendi* I refer to the preface of my edition of the *Dialectica* of Garlandus Compotista, published as part III in the same series.

The *Index nominum,* the *Index locorum* and the *Index sophismatum* aim at completeness. The *Index verborum et rerum* is not exhaustive: it only tries to give a number of words and phrases considered as important for the understanding of the conceptual and doctrinal contents of the edited treatises and to facilitate the reader's orientation in this study." (From the Preface, p. 11)

7. ———. 1963. "On the curriculum of the Arts of the Trivium at St. Gall from ca. 850 - ca. 1000." *Vivarium* no. 1:35-86.

   "From the hermitage founded about the year 613 by St. Gall, one of the companions of St. Columban, there arose at the beginning of the next century an abbey that has been one of the most famous centres of intellectual and spiritual life in Western Europe. (p. 35)

   (...)

   No doubt one of the most celebrated men of the School of St. Gall was Notched Label (c. 950-2022). Many works are attributed to this master or, at least, to the masters of St. Gall who lived about the year 1000. I confine myself to the works on the Trivium: grammar, dialectics, rhetoric." (p. 47)

8. ———. 1964. "On the chronology of Boethius' works on logic. Part I." *Vivarium* no. 2:1-49.

   "The chronological order of Boethius' works appears to be a rather difficult problem. Hence, it is not surprising that the numerous attempts to establish it led the scholars to results

which are neither all conclusive nor uniform. In this article I confine myself to Boethius' works on logic. Before giving my own contribution it would seem to be useful to summarize the results of preceding studies and to make some general remarks of a methodological nature. (p. 1)

(...)

My conclusion from this survey is that the best we can do in order to establish approximately the chronological order of Boethius' works on logic is to start a careful and detailed examination of all our data on this matter. In doing so an analysis of their contents seems to be quite indispensable, no less than a thorough examination of doctrinal and terminological differences." (p. 4)

9. ———. 1964. "On the chronology of Boethius' works on logic. Part II." *Vivarium* no. 2:125-162.

"We shall now sum up the results of our investigations. First some previous remarks. Our first table gives of nine of the works discussed the chronological interrelation, which can be established with a fair degree of certainty. The figures put after the works give the approximative date of their composition (the second one that of their edition); when printed in heavy types they are based on external data; the other ones are based on calculation.

Table 1

Boethius' birth about 480 A.D.

In Porphyrii Isagogen, editio prima about 504-505

In Syllogismis categoricis libri duo (= ? Institutio categorica) about 505-506

In Porphyrii Isagogen, editio secunda about 507-509

In Aristotelis Categorias (? editio prima) about 509-511

In Aristotelis Perhemeneias, editio prima not before 513

In Aristotelis Perhemeneias, editio secunda about 515-516

De syllogismis hypotheticis libri tres **between 516 and 522**

In Ciceronis Topica Commentaria before 522

De topicis differentiis libri quattuor before 523

Boethius' death 524

The rest of the works discussed cannot be inserted in this table without some qualification. (...)

We may establish the following table for the works not contained in out first table:

Table 2

Liber de divisione between 505 and 509

possible second edition of the *In Categorias* after 515-516

Translations of the *Topica (and Sophistici Elenchi*) and of the

Analytica Priora and *Analytica Posteriora* not after 520

Commentary on Aristotle's *Topica* before 523

the so-called *Introductio* (? = *In Priora Analytica Praedicanda*) certainly after 513; probably c. 523

Scholia on Aristotle's *Analytica Priora* first months of 523 at the latest"

(pp. 159-161, notes omitted).

10. ———. 1965. "'Εγκύκλιος παιδεία'. A Study of Its Original Meaning." *Vivarium* no. 3:24-93.

"No doubt, the term *Enkylios paideia* (of which the term *'Artes liberales' is* supposed to be the Latin equivalent) refers to one of the key-concepts in European culture and education. From as early as Late Antiquity the Liberal Arts were supposed to embrace the whole circuit of (human) knowledge and therefore to afford some kind of 'encyclopedical' wisdom. The sixteenth century *Grande Encyclopédie* was strongly aware of its origin: 'ce que les Anciens appelaient encyclopédie, c'était l'ensemble des connaissances générales que tout homme instruit devait posséder avant d'aborder la vie pratique ou de se consacrer à une étude spéciale' (quoted by H. Koller in his article *Enkylios*

paideia in *Glossa*, Zeitschrift für Griechische und Lateinische Sprache, 34, 1955, pp. 174-189)." (p. 24)

11. ———. 1966. "Some new evidence on twelfth century logic: Alberic and the School of Mont Ste Geneviève (Montani)." *Vivarium* no. 4:1-57.

    "It is well known that the art of logic (*logica* or *diale(c)tica*) knew a remarkable flourishing period during the twelfth century. In the first half of the century its main centres in Paris were: the School of Notre Dame, of St. Victor, of the Petit Pont and of Mont Ste Geneviève. The present paper aims to offer some new evidence from the manuscripts on the teaching of logic as given in the School of Mont Ste Geneviève (*Montani*). Part of these sources will be published in full in the second volume of my *Logica Modernorum*. This book, to be issued probably about the middle of 1967 will discuss the doctrinal and conceptual content of the treatises mentioned here." (p. 1)

12. ———. 1966. "Some notes on the medieval Tract '*De insolubilibus*' with an edition of a Tract dating from the end of the Twelfth century." *Vivarium* no. 4:83-115.

    "As is known, one of the important contributions made by the Megarian School (4th cent. B.C.) to the development of Western logic was the invention of a number of remarkable paradoxes. Among them there was the famous Liar: 'a man says that he is lying; is what he says true or false?'. Generally speaking, paradoxes of this type intend to show the oddity of making a statement say something about its own truth or falsity. So the Liar, being one of the many puzzles connected with the notions of truth and falsity, is one of the most important logical problems, since the fundamental notion of logic is validity, and this is definable in terms of truth and falsehood.

    Mediaeval logicians, too, devoted their attention and ingenuity to the Liar paradox and its variants. The twelfth century revisor of the *Ars disserendi* written by Adam of the Petit Pont in 1132 mentions as a current complicated question (*illud interrogabile multiplex*) the puzzle of the man who says that he is (only) lying." (p. 83)

(...)

"To turn, now, to the Mediaeval variants of the Liar paradox, the *sophismata* dealing with them attracted special attention from about 1200, if not as early as from the middle of the twelfth century, as may appear from the revision of Adam's *Ars disserendi* mentioned above. From the thirteenth century onwards many tracts have been handed down to us in which these variants and the logical problems they involved were discussed. These tracts went under the title *De insolubilibus*.

As we are told by the authors themselves in their prologues, this title is somewhat misleading. In fact they do not deal with which cannot be solved but rather with what is difficult to solve because of certain circumstances lying in some human act or some property of the speech used. The tracts discuss certain propositions that are self-falsifying since they contain elements which reflect on the propositions themselves of which they are parts.

The Mediaeval variant of the Liar had this basic form : *'what I am saying is false'* (*'ego dico falsum'*), provided I do not utter any proposition other than *'what I am saying is false'*.

In the beginning of the fifteenth century no fewer than fifteen different (or, at least, various) attempts were known to solve the puzzle, as we are told by Paul of Venice, who in his *Logica Magna* listed them industriously. From as early as the thirteenth century we know four different solutions of this kind of *insolubile*.

The aim of this paper is to present what is probably the oldest tract *De insolubilibus* that has come down to us and to bring out some evidence for its date and its place in the development of the Mediaeval *insolubilia* - literature. For this purpose I start from an examination of two later tracts on the subject: the *De insolubilibus* of Walter Burley written about 1302, and two tracts dating from the first half of the thirteenth century, the one of which was ascribed to William of Shyreswood (d. after 1267) by Grabmann, without plausible grounds, it seems, but

certainly belongs, just like the other tract, to the first half of the thirteenth century." (p. 86)

13. ———. 1967. "Some notes on the twelfth century topic of the three (four) human evils and of the science, virtue and techniques as their remedies." *Vivarium* no. 5:8-15.

    "In the first of the appendices added by Hugh of St. Victor to the text of the *Didascalicon,* which was composed in Paris in the late 1120's (*), the author gives a division of the contents of Philosophy (printed by Buttimer (**) as chapters 14 and 15 of Book VI). It opens with the contradistinction of the three evils of human nature and the three corresponding remedies:

    'There are three things to be considered now: wisdom, virtue, and need. Wisdom is the understanding of things as they are. Virtue is a habit of mind, a habit which is in harmony with reason in the way of a nature. A need is something without which we cannot live, but without which we would live more happily. These three things are as many remedies against the three evils to which human life is subject: wisdom against ignorance, virtue against vice, and need against life's weakness. In order to do away with these three evils, men have sought after those three remedies, and in order to find the three remedies, every art and every discipline was discovered.

    For the sake of wisdom the theoretical arts were discovered; for the sake of virtue the practical arts were discovered; for the sake of our needs the mechanical arts were discovered. These three were first in practice, but afterwards, for the sake of eloquence, logic was discovered. Logic, though fast to be discovered, ought to be the first learned.

    Four, then, are the principal sciences from which all the others descend; these are the theoretical, the practical, the mechanical, and the logical.' (ed. Buttimer pp. 130-131).

    Thus Hugh starts from ignorance *(ignorantia),* vice *(vitium),* and weakness *(infirmitas)* as the three fundamental evils to which human nature is supposed to be subject, and he opposes to them wisdom *(sapientia),* virtue *(virtus),* and need *(necessitas)* as their three remedies. The latter are said to have

caused the invention of theoretical science, practical science and mechanical science or techniques. Afterwards, for the sake of eloquence, logic was invented, but in Hugh's division of sciences it is apparently not opposed to some fourth evil of human nature.

As far as we know Hugh was the first to reduce the invention of arts and sciences to certain defects of human nature. We do not know whether this reduction is an invention of his own. This much is certain: his view is frequently found in twelfth century authors both in the Victorine School and in that of Chartres." (pp. 8-9)

(*) For this date, see Jerome Taylor, *The Didascalicon of Hugh of St. Victor. A* mediaeval Guide to the Arts, translated from the Latin with an introduction and notes, New York - London 1961 , p. 3.

(**) Hugonis de Sancto Victore *Didascalicon,* De studio legendi. A critical text by Brother Charles Henry Buttimer, Washington D.C. 1939.

14. ———. 1967. *Logica Modernorum. A Contribution to the History of Early Terminist Logic. Vol. 2, Part One: The Origin and Early Development of the Theory of Supposition*. Assen: Van Gorcum.

    Contents: Preface 9; Part One: 1. Introduction, analysis of the manuscripts concerned 11; 2. On the development of mediaeval grammar 95; 3. The increasing use of special textbooks of logic in the first half of the twelfth century 126; 4. The theory of signification in twelfth century logic up to about 1140 177; 5. On the theory of signification in twelfth century grammar 221; 6. The tract on logic contained in MS. Oxford, *Digby* 174, analysis of its content, its origin and date 264; 7. *Ars Meliduna*. On the theory of terms 292; 8. *Ars Meliduna*. On the denotation of the terms 306; 9. *Ars Meliduna*. The theory of proposition 319; 10. *Ars Meliduna*. The theory of the *enuntiabile* 357; 11. Some treatises on logic dating from about 1200 391; 12. The *Dialectica Monacensis* preserved in Munich, *C.L.M. 14, 763* 408; 13. Some early Oxford tracts on logic 416; 14. The *Summe Metenses* found in Paris, *B. N. Lat. 11, 412* 449; 15. The doctrine

of fallacy and the origin of the theories of supposition 491; 16. The grammatical origin and early development of the theory of Appellation (Supposition) 513; 17. The logical theory of the Properties of terms up to about 1200 555; Books and articles referred to 599; List of the manuscripts used 606; List of incipits 608-614.

"In this work it will be attempted to show how the *Logica Modernorum* had its origin, long before the thirteenth century, in the logical and grammatical theories current in the Western centers of studies: Paris, Oxford and presumably a school in Northern Italy.

The first volume dealt with what was considered as one of the two roots of this development: the twelfth century theories of' fallacy. The present volume discusses the other source: the development of Mediaeval grammar from an elementary discussion of (Latin) grammar to a linguistic-semantic theory of' (Latin) language. It was the latter contribution that was of extreme importance for the origin of the theory of supposition, and generally speaking, of terminist logic.

The purpose of this volume is to trace the details of the origin of the. theory of' supposition, including appellation and copulation, and to discuss the theory of the properties of terms as found about 1200. Besides, some historical evidence will be given for the origins of' the tracts dealing with the properties of syncategorematic terms and those discussing the other specific elements of the *Logica Modernorum*.

The author has thought it of some importance for further investigation in this field to edit in full the main treatises on which the present study is based. They will be found in the second part of' this book. They have been arranged chronologically, except for the *Quaestiones Victorinae,* which are to be considered as an extra.

The *Index nominum,* the *Index locorum* and the *Index sophismatum* aim at completeness. The *Index verborum et rerum* is not exhaustive: it only tries to give a number of words and phrases considered as important for our understanding of

the conceptual and doctrinal contents of the edited tracts, and to facilitate the reader's orientation in this study." (Preface, p. 9)

15. ———. 1967. *Logica Modernorum. A Contribution to the History of Early Terminist Logic. Vol. 2, Part Two: The Origin and Early Development of the Theory of Supposition. Text and Indices*. Assen: Van Gorcum.

    Edition of a number of tracts dating from c. 1130 up to c. 1220.

    Contents: I. *Introductiones Montane minores* 7; II. *Abbreviatio Montana* 73; III. *Excerpta Norimbergensia* 109; IV. *Ars Emmerana* 143; V. *Ars Burana* 175; VI. *Tractatus Anagnini* 215; VII. *Tractatus de univocatione Monacensis* 333; VIII. *Introductiones Parisienses* 353; IX. *Logica "Ut dicit"* 375; X. *Logica "Cum sit nostra"* 413; XI. *Dialectica Monacensis* 453; XII. *Fallacie Londinenses* 639; XIII. *Fallacie Magistri Willelmi* 679; XIV. *Tractatus de proprietatibus sermonum* 703; XV. *Quaestiones Victorinae* 731; Indices: a. Index locorum; B. Index nominum; C. Index verborum et rerum; D. Index sophismatum et exemplorum.

16. ———. 1968. "On the genuine text of Peter of Spain's' *Summule Logicales*'. Part I. General problems concerning possible interpolations in the manuscripts." *Vivarium* no. 6:1-34.

    "As is known, Peter of Spain, who afterwards became Pope under the name of John XXI, wrote a textbook on logic, which was to enjoy a high renown from the end of the thirteenth up to the seventeenth century as *Summule logicales magistri Petri Hispani* (1).

    Its fame appears from the noticeable number of manuscripts (more than 300) and of printed editions (about 160), the latter dating from 1474 up to 1639 (2). This number is tremendous indeed, especially for the future editor of the first critical edition of the Summule.

    However, the printed editions are of no use for the critical reconstruction of our text. As a matter of fact they all contain quite a number of interpolations.(3) Therefore an examination of their readings can properly be dismissed. As is easily seen,

the same holds good for the later manuscripts. They are most of them intended adaptations of the famous school-book by well-known masters of logic. Their very intention to emend the text *(tractatus duodecim iam emendati)* is bound to make the critical editor suspicious as to the reliability of their text as a source for the original version.

A first attempt to clear up the situation might be made in confining our attention to the earlier manuscripts, say those dating from Peter's lifetime up to about the first decades of the fourteenth century. However, the result appears to be rather disappointing indeed. Even the late thirteenth century manuscripts betray such divergencies as to confirm the supposition of rather early interpolations in a sufficient way." (p. 1)

(1) For Peter's authorship, see Joseph P. Mullally, The Summulae logicales of Peter of Spain, Notre Dame Indiana, 1945, pp. IX-XVIII.

(2) For a survey, see MuIlally, op. Cit., pp. 133-158: Bibliography of Editions of the Summulae logicales of Peter of Spain and the commentaries on the *Summulae logicales*.

(3) Cf. the introduction to Bochenski's edition (Petri Hispani Summulae logicales, quas e codice manuscripto Reg. Lat. 1205 edidit M. Bochenski O. P., Torino, Marietti, 1947) pp. XVI-XVIII.

17. ———. 1968. "On the genuine text of Peter of Spain's '*Summule Logicales*'. Part II. Simon Faversham (d. 1306) as a commentator of the Tract I-V of the *Summule*." *Vivarium* no. 6:69-101.

"Who was the author? Grabmann was of the opinion that the only logician bearing the name of *Simon* in the second part of the thirteenth century was Simon of Faversham, since master Simon of Dacia was a grammarian, known especially for his tract *Domus gramatice* (*). However, his being a grammarian does not at all exclude his possible authorship of logical works, as may appear from the case of the Modist Boetius of Dacia, who also wrote a commentary on Aristotle's Topics. However,

our author's apparent preference for Albert the Great and Avicenna as his sources seems to point to Simon of Faversham as the author of our commentary. Unfortunately his other works on logic do not offer any additional evidence for his authorship of the Summule-commentary, since the works to be considered (especially on *Perihermenias*) all have the form of selected *Questiones*. In his *Questiones super Universalia* as found in the manuscript Kassel, Landesbibliothek, *2° Philos.* nr. 30-6 (ff. 1r-9r) a question is read *utrum locus sit principium generationis* (f. 3r). (I could not find it in the Milan manuscript C. 161 *Inf.* which also contains *questiones super universalia* and has the same *incipit*)." (p. 72)

(*) It has been edited (together with his Questiones super 20 minoris voluminis Prisciani) by Alfred Otto in the Corpus Philosophorum Danicorum Medii Acvi, III Copenhague 1963.

18. ———. 1969. "On the genuine text of Peter of Spain's '*Summule Logicales*'. Part III. Two redactions of a commentary upon the *Summule* by Robertus Anglicus." *Vivarium* no. 7:8-61.

"The question must be answered mow whether the *Robertus Anglicus*, who is the author of *Tractatus quadrantis* and the commentary on John de Sacrobosco's *De sphera* may be also the author of the two redactions of the commentary on Peter of Spain's *Summule logicales* which we found in the Vatican and Todi manuscripts. Three arguments can be adduced in favour of the identity of our author with the teacher of Montpellier.

First, the remarkable similarity of the colophon in both the Rome and Todi redaction of the *Summule* commentary with that of the *De sphera* commentary as found in Paris, *B. N. Lot.* 7392 and Oxford, Bodleian Library, *Digby* 481. This correspondence is the more noticeable since this kind of colophon which is well-known, indeed, from works discussing *quadrivium* subjects, is very unusual in tracts on grammar or dialectics. If our surmise about the identity of our author and the teacher of Montpellier is correct, both conjectural corrections of the Vatican colophon (discussed above, p. 32) may be right, as both 1270 and 1277 fit in pretty well with the dates mentioned in the colophons of Robert's commentary on

De sphera (1271 and 1272). On palaeographical grounds the year 1270 *(septuagesimo* instead of *septimo)* seems to be the more preferable.

Secondly, the occurrence of several sets of medical, astronomical and meteorological notes added in the Todi manuscript by the same hand that wrote our Summule commentary, is a reliable clue for the scientific interest of the school where that commentary was written and used in class. Well, the first school to be considered in this regard is that of Montpellier, where one Robertus Anglicus is reported to have been a teacher in the 1270's.

Thirdly, an important hint for the place of origin of a commentary on the Summule is often to be found in the example its author gives in his discussion of *Exemplum* in the tract *De locis*. (...)

In conclusion, it may be said that it seems to be highly probable, indeed, the the commentary on Peter of Spain's *Summule logicales* which is extant in two redactions, was written by the same Robertus Anglicus whose *Tractatus quadrantis* and commentary on John of Sacrobosco's *De sphera* have been preserved in some manuscripts." (pp. 39-40)

19. ———. 1969. "On the genuine text of Peter of Spain's '*Summule Logicales*'. Part IV. The *Lectura Tractatum* by Guillelmus Arnaldi, Master of Arts at Toulouse (1235-1244). With a note on the date of Lambert of Auxerre' *Summule*." *Vivarium* no. 7:120-162.

"No doubt, this *Lectura Tractatuum* was written by a *Guillelmus,* or *Guillermus, Arnaldi* who taught the liberal arts at Toulouse. As a matter of fact I found a teacher of that name in a number of documents concerning the county of Toulouse." (p. 125)

(...)

"A number of resemblances found between the usual text of Peter of Spain's Summule and that of Lambert of Auxerre's treatise of the same title had frequently raised the question of the interdependence of these texts. As is known, Konstant

Michalski defended the thesis of the large dependence of Peter of Spain upon Lambert of Auxerre'. As a matter of fact Michalski had to work upon interpolated texts of both works and the textual resemblances alluded to by the Polish Mediaevalist disappear for the greater part when the authentic texts are considered. Grabmann held the inverse opinion and especially pointed to the opening words of Lambert's work: Ut novi artium auditores plenius intelligant *ea* que *in summulis edocentur* . . . etc. and saw an allusion to the title of Peter's *Summule logicales* in these words. (*) However, the original title of Peter's work was Tractatus, not Summule, as was frequently shown in our preceding articles. The question of whether or not Lambert was really influenced by Peter's work seems to be far more complicated. It will not be discussed here.

A different question is that of the chronologic order of Peter's and Lambert's works. Its solution is important for the problem of interdependence, even if it is not decisive, since priority of one work to the other does not imply the latter's dependence upon the former.

As to Peter's work, from the existence of a commentary on it which dates from as early as the 1240's (see our article on Guillelmus Arnaldi) the conclusion must be drawn that Peter of Spain cannot have written his Summule *logicales* (or better: *Tractatus*) after 1240.

(...)

So we have the following dates for Lambert's Summule. The work was written at Troyes (or Pamplona), not in Paris, between 1253 and 1257 when the king was anointed and is likely to have finished his studies. It was published afterwards in Paris, when Lambert was a member of the Dominican Convent there, before he became penitentiary of the Pope." (pp. 160-161)

(*) Martin Grabmann *Handschriftliche Forschungen und Funde zu den philosophischen Schriften des Petrus Hispanus, des späteren Papstes Johannes XXI (d.1277)* in:

Sitzunsgberichte der Bayerischen Akademie der Wissenschaft Phil.-Hist. Abt. 1936, Heft 9, pp. 41-42.

20. ———. 1969. "Significatio y suppositio en Pedro Hispano." *Pensamiento* no. 25:225-234.

    Translated in Spanish by Th. G. Sinnige.

    "En este modesto articulo me propongo hablar de la teoria de la suposición de Pedro Hispano en la forma en que esta expuesta en el Tratado No. VI (*de suppositionibus)*. A menudo encontramos la opinion de que la teoria terminística de la suposición en todos los casos haya tenido una base de Indole nominalista. Esta opinion está decididamente equivocada. Basta señalar a un autor como Gualterus Burlaeus para porter en claro que la teoría de la suposición podia muy bien ser interpretada en un sentido realista. Por otra parte se puede comprobar que la teoría de la suposición ya en sus orígenes iba vinculada estrechamente con la teoría de la significación. La evolución de la teoria de la suposición por consiguiente está mezclada Intimamente con las fluctuaciones que se producen en la teoría de la significacion.

    En lo que signe me propongo analizar:

    1) lo esencial de la teoría de la suposición, teoría que en su origen no era otra cosa sino una teoría sobre la interpretabilidad de un término dentro de la proposición;

    2) el estrecho vfnculo que existe entre la teoria de la suposición y la teoria de la significación. Como consecuencia de esto, a principios del siglo XIII et concepto de suposición tiende a extenderse hasta incluir también términos usados fuera del contexto de la proposición (*)" (pp. 226-227)

    (*) Para una más amplia información sobre las cosas que se tratan en estas páginas, véase el segundo volumen de mi obra *Logica Modernorum,* en especial las páginas 513-598.

21. ———. 1970. "On the genuine text of Peter of Spain's '*Summule Logicales*'. Part V. Some anonymous commentaries on the *Summule* dating from the Thirteenth century." *Vivarium* no. 8:10-55.

"Mgr. Grabmann found several commentaries on the *Summile logicales* dating from as early as the thirteenth century (*) Some of the are anonymous. This group will be discussed in this part of our study on the genuine text of Peter of Spain's famous text-book of logic." (p. 10)

(*) Martin Grabmann *Handschriftliche Forschungen und Funde zu den philosophischen Schriften des Petrus Hispanus, des späteren Papstes Johannes XXI (d.1277)* in: Sitzunsgberichte der Bayerischen Akademie der Wissenschaft Phil.-Hist. Abt. 1936, Heft 9, pp. 63-70

22. ———. 1970. "On the life of Peter of Spain, the author of the Tractatus, called afterwards *Summule logicales*." *Vivarium* no. 8:123-154.

"Before an attempt will be made to sketch the life of the author of the so-called *Summule*, a preliminary question of major importance should be answered: is the author identical with Peter of Spain (Peters Hispanics) who in 1276 became Pope under the name John XI?

An alternative question may be added whether, or not, the famous logician was a Black friar, as was sometimes maintained.

(...)

However, other strong evidence can be put forward in support of the traditional view that Peter Hispanus who afterwards bore the tiara was the author of the *Summule*. Since Pope John XXI certainly was a secular priest, the identification implies an absolute rejection of any member of a religious Order as the author of the work. (pp. 125-127, notes omitted).

23. ———. 1970. "Die Bedeutungslehre in der Logik des 13. Jahrunderts und ihr Gegenstück in der metaphysischen Spekulation." In *Methoden in Wissenschaft und Kunst des Mittelalters*, edited by Zimmermann, Albert, 1-22. Berlin: De Gruyter.

Miscellanea Mediaevalia, vol. 7.

Reprinted as chapter VII in: *Through Language to Reality. Studies in Medieval Semantics and Metaphysics*.

I. Einleintung: Bedeutungslehre und Methode; II. Die Suppositionstheorie als Bedeutungslhre im 13. Jahrhundert; III: Die Bedeutungslehre in der metaphysischen Spekulation im 13. Jahrhundert.

"Ich möchte jetzt meine Ergebnisse noch einmal ganz kurz zusammenfassen. Es hat sich zuerst, wie ich hoffe, die äußerste Wichtigkeit einer Bedeutungslehre nicht nur für die Logik, sondern auch im Interesse der metaphysischen Spekulation ergeben. Es hat sich herausgestellt, daß sich die immer mehr herausgearbeitete Bedeutungslehre der Suppositionslogik als Theorie der Interpretabilität des Terminus im Grunde genommen mit genau denselben Problemen befaßte, mit denen die Metaphysiker des 13. Jahrhunderts gekämpft haben. Hier wie dort galt es wesentlich, die fundamentalen Bedingungen des Seins („esse" oder „est") in der Reflexion über die menschliche Aussage ausfindig zu machen. Hier wie dort auch entsprachen sich die unterschiedlichen Betrachtungsweisen, je nachdem man entweder die „forma universalis" oder das konkrete Individuum zum Blickpunkt und somit zum Referenzpunkt seiner Spekulation zu machen versucht hat.

Man wird sich der Folgerung nicht entziehen können, daß namentlich dem 13. Jahrhundert eine folgerichtige Bedeutungslehre fehlte. Sie wurde geradezu nur gelegentlich und nebenbei angelegt. So findet man vielfach nebeneinander Elemente der Bedeutungslehren der Logiker, der Modisten und jene der metaphysischen Spekulation. Wirklich begründet wurde die Bedeutungslehre m. E. im Mittelalter nie.

Die jetzige Skizzierung aber könnte vielleicht immerhin als bescheidene Anregung dienen, die teils implizite Bedeutungslehre des 13. Jahrhunderts und besonders ihre Vorbedingungen gründlicher zu untersuchen. Das wäre eine Aufgabe, die bei weitem über das Interesse der Logikhistoriker und vielleicht sogar das historische Interesse überhaupt hinausgeht. Es war ja die philosophische Methode selbst im Spiel, und zwar in einem weitaus erheblicheren Maße, als es

den meisten Denkern des Mittelalters zum Bewußtsein kommen konnte." (p. 22)

24. ———. 1971. "The development of *suppositio naturalis* in medieval logic. Part I. Natural supposition as non-contextual supposition." *Vivarium* no. 9:71-107.

    Reprinted as chapter IX in: Through Language to Reality. Studies in Medieval Semantics and Metaphysics.

    "I had already discussed this matter [naural supposition] in the second volume of *Logica Modernorum* (Assen 1967; pp. 571-578) and in the paper *Significatio y suppositio en Pedro Hispano*.

    The aim of this paper is to elaborate and, partly, correct the view of natural supposition given there by a discussion of the most representative thirteenth century authors and of some fourteenth century logicians with whom natural supposition still played a rôle, such as John Buridan and Vincent Ferrer.

    The thirteenth century authors are Peter of Spain, William of Sherwood, the anonymous author of the *Tractatus de proprietatibus sermonum*, and Lambert of Auxerre. It should be remarked at the outset that there is no interdependence between these thirteenth century authors, apart from the rather vague relation effected by their standing in a common tradition of logic." (pp. 71-72)

25. Peter, of Spain. 1972. *Tractatus, called afterwards Summule logicales*. Assen: Van Gorcum.

    First critical edition from the manuscripts with an introduction by L. M. de Rijk.

    Contents: 1. Pope John XXI (Peter of Spain) as the author of the so-called *Summule logicales* IX; 2. Life and works of Peter of Spain XXIV; 3. The *Tractatus* called afterwards *Summule logicales*. Title, order and number of the tracts. Their date XLIII; 4. Sources. 'The Byzantine thesis'. Peter's possible masters of logic LXI; 5. Contents of the *Tractatus* LXXXVIII; 6. The early diffusion of the *Tractatus*. Commentaries and editions XCV; 7. The manuscripts used for this edition C; Books

and articles referred to CXI; List of manuscripts used CXVI; Index of names CXXI.

"Contents of the *Tractatus*.

As to the doctrinal contents, the *Tractatus* may be divided in two main parts: one (A) discussing doctrines found in the so-called *logica antiquorum* (=*logica vetus* and *logica nova*), the other (B) those commonly dealt with in the *logica modernorum* (the tracts discussing the so-called *proprietates terminorum*):

A: *De introductionibus* (Tract I), *De predicabilibus* (Tract II), *De predicamentis* ((Tract III), *De sillogismis* (Tract IV), *De locis* (Tract V), *De fallaciis* (Tract VII)

B: *De suppositionibus* (tract VI), *De relativis* (Tract VIII), *De ampliationibus* (Tract IX), *De appellationibus* (Tract X), *De restrictionibus* (Tract XI), *De distributionibus* (Tract XII)." (pp. LXXXVIII-LXXXIX, notes omitted)

26. Rijk, Lambertus Marie de. 1973. "The Development of Suppositio Naturalis in Mediaeval Logic. II. Fourteenth-Century Natural Supposition as Atemporal (Omnitemporal) Supposition." *Vivarium* no. 11:43-79.

    Reprinted as chapter X in: *Through Language to Reality. Studies in Medieval Semantics and Metaphysics*.

    "I - Status quaestionis.

    From the investigations in the first part of this article the conclusion was drawn that in the thirteenth century doctrine of supposition natural (or habitual, or absolute) supposition was considered the natural capacity of a term to stand for something partaking in the essence (or: universal nature) signified by that term; accidental supposition was the term's actual being taken for something in virtue of the term's combination with some other term in either a phrase or a proposition, or of its having a special meaning in a special social context. Briefly stated : natural supposition was decidedly non-contextual, whereas all kinds of accidental supposition were of the contextual type.

Two characteristics of the thirteenth century doctrine of supposition are to be noticed

(a) accidental supposition, being contextual, does not always imply a propositional context

(b) natural supposition, being something midway significatio and suppositio (as opposed to significatio), seems to enervate the clear-cut

distinction all thirteenth century logicians made between suppositio and significatio.

ad a Thirteenth century logicians turn out to consider the proposition as just one of the possible contexts of a term, not as the only one required for a term's having supposition.

ad b The introduction of natural supposition was due to the peculiar fact that those logicians apparently held it to be indispensable to distinguish between a word's having signification (viz. its representing some universal nature) and its capacity to stand for individuals partaking in this universal nature (c.q. the universal nature participated, taken as such), which capacity was the direct, or natural, counterpart of its having signification. This natural capacity must be seen as a reference to a *possible* context, which supplies an adjunct to limit, or restrict, the term's original capacity (c.q. which causes its having an unrestricted exercise of its natural capacity). (...)

As is well known, when studying the problems of signification fourteenth century logicians showed an increasing interest in the contextual approach to language. Their investigations were focussed on the *congruitas locutionis* and the *veritas propositionis* as the basic requirements *(exigentie)* for stating the actual meaning of terms. Their theories of supposition may be taken as an attempt to specify the truth conditions for (mostly affirmative) categorical propositions. Thus, the various kinds of supposition were characterized by fourteenth century logicians by means of implications *(consequentie)'*. Consequently, they were bound to lay the most explicit stress on the *proposition* as the only possible context in which a term could have supposition.

The most obvious conclusion from the theoretical point of view would be that natural supposition, being of the non-contextual type, had to disappear in fourteenth century logic. To my mind, it certainly had - as certainly as it never should have appeared. However, it *did* occur in those days, not only in the Realist tradition but with a logician as John Buridan as well.

It is the aim of this article to discuss the reinterpretation of natural supposition and the controversies it provoked, and is still provoking up to the present days." (pp. 43-44)

27. ———. 1973. "A note on Aganafat(?)'s '*Thesaurus Philosophorum*'." *Vivarium* no. 11:105-107.

"Some years ago I found in the Vatican Library (*Vat. Lat.* 4537, ff. 45ra-52ra, s. XIII) an incomplete copy of a tract on the *modus opponendi et respondendi*, the author of which calls himself *Aganafat* (or: Aganasat).

Further investigations have shown that this tract, called *Thesaurus philosophorum*, must have been the source of the well known *Tractatus de modo opponendi et respondendi* found in several manuscripts (Paris, *BN Lat.* 16.930, 16.617 and Montecassino 362 VV) and printed under Albert the Great's name. (See M. Grabmann, in Sitzungsberichte der bayer. Akad. d. Wiss., Phil-Hist. Abt. Jahrg. 1937, H. 10 (Munich 1937), 24 f.)

(...)

I hope to edit the *Thesaurus philosophorum* in full next year, together with the adaptations and a study on its place in the development of the *ars obligatoria et exercitativa*. At this moment I confine myself to edit the *argumentum* and the *prologus* in order to enable students of Arab (or Hebrew?) logic to get some impression of this work and its author. I should be very pleased if some information could be given on his identity." (p. 105)

28. ———. 1974. "Some Thirteenth century tracts on the Game of Obligation. Part I. Two separate tracts on '*falsi positio*' and '*impossibilis positio*'." *Vivarium* no. 12:94-123.

"In his thorough study on Sherwood's and Burley's tracts *De obligationibus*, Father Romuald Green (*) rightly describes the aim of these tracts as follows:

The purpose was to inculcate knowledge of logical rules by practice, to sharpen the pupil's mind to avoid contradiction -- the basis of any disputation ... it was a general introduction to a number of fundamental logical notions and their use in disputation'.

I give his succinct description of the general plan of the obligation:

'Briefly, the plan of an exercise de obligationibus is as follows. It is a disputation involving an opponens and a respondens. The opponens proposes a statement, which, for example, he wishes to be upheld. The respondens accepts the initial statement and binds himself (se obligat) to the wishes of the opponens, that is, in this case, to uphold it. This is the meaning of obligatio -- the opponens asks the respondens to take on the obligation, for example, of upholding a particular statement. Once the respondens has accepted the obligation, the opponens proposes a number of other statements which the respondens must concede or deny -- but always the respondens must maintain the initial statement according to the obligation accepted, and he must observe the logical rules of inference, if the various statements proposed are logically connected, at all times avoiding a contradiction. Precisely it is this last point -- contradiction -- which provides the key to the exercises in *De obligationibus*. The aim of the opponens is to involve the respondens in contradiction, and the respondens has to avoid it'. (*op. cit.* p. 18-19).

(...)

The aim of these articles will be to publish some tracts, found in Munich and in some other libraries, which seem to date from the first half of the thirteenth century, if not, in part, from the end of the twelfth." (pp. 94-96)

(*) Romuald Green O.F.M. *An Introduction to the Logical Treatise De obligationibus, with critical texts of William of*

Sherwood (?) and Walter Burley. vol. I: *Introduction*; vol. II: *Critical Texts of William of Sherwood (?) and Walter Burley*. Unfortunately, this Louvain thesis written in 1963 has not been published yet. As to Sherwood's authorship, Green seems to be a bit over-anxious in doubting it.

29. ———. 1975. "Some Thirteenth century tracts on the Game of Obligation. Part II. The *Obligationes Parisienses* found in Oxford, Canon. misc. 281." *Vivarium* no. 13:22-54.

    "In his description of the Oxford manuscript *Canon. misc.* 281 Coxe only mentions (*) anonymous glosses on Priscian's *De constructione* (Priscianus minor). However this manuscript contains also a tract of logic. " (p. 22)

    (...)

    The treatise as a whole has the following parts (the subdivisions printed in minuscules are mine)

    Prologus

    De obligatione einsque speciebus

    I DE POSITIONE

    De positione determinata

    De quibusdam regulis circa ponibile positum

    Sophisma

    Consimile sophisma

    Idem sophisma

    Aliud sophisma

    Aliud sophisma

    Aliud sophisma

    De positione indeterminata

    De indeterminate positionis duplici modo

    II DE DUBITATUR

    Utrum 'dubitatur' sit obligatio annon

De quibusdam regulis

Sophisma

III DE DEPOSITIONE

De eius diffinitione et regulis

De speciali depositione

Utrum non debeat esse obligatio

Sophisma." (p. 25)

(*) H. O. Coxe, *Catalogi codicum manuscriptorum Bibliothecae Bodleiane* pars tertia codices graecos et latinos canonicos complectens, Oxford 1854, col. 646.

30. ———. 1975. "*Logica Cantabrigiensis*. A fifteenth century Cambridge manual of logic." *Revue Internationale de Philosophie* no. 29:297-315.

    Special number in memory of Martin Grabmann.

    "The manuscript 182/215 of the important manuscript collection of the Library of Gonville and Caius College at Cambridge contains a number of tracts on logic which were probably written at Cambridge as notes of lectures. Part of them are also found in other manuscripts all over Europe. It seems rather difficult to discern the exact extent of this work, since in nearly all manuscripts the number and arrangement of the tracts is different and other logical works are mixed up with those treatises which doubtless belong to the Cambridge Logic." (p. 297)

31. ———. 1975. "*Quaestio de Ideis*. Some notes on an important chapter of Platonism." In *Kephalaion. Studies in Greek philosophy and its continuation, offered to professor C. J. de Vogel*, edited by de Rijk, Lambertus Marie and Mansfeld, Jaap, 204-213. Assen: Van Gorcum.

    "The opponents of Platonism as well as its adherents have to agree that there is a lot of truth in Whitehead's famous statement that the safest general characterization of the

European philosophical tradition is that it consists of a series of footnotes to Plato (*).

I think one of the everlasting items of that tradition is what has been termed since St. Augustine the *quaestio de Ideis*. Indeed, the status (either ontic or merely mental) of the Ideas has fascinated many philosophers, especially the Christian, who could not dispense with a statement concerning the relationship of the eternal and immutable Ideas to God. In this short contribution to the dedicatory volume for our academic teacher C. J. de Vogel, I shall confine myself to roughly sketch the development of the problem of that relationship from Plato's days down to some fourteenth century Franciscan thinkers." (p. 204)

(*) Alfred Nort Whitehead - *Process and reality. An essay in cosmology* - Gifford lectures delivered in the University of Edinburgh during the session 1927-28. Camvrdige, 1929, p. 53.

32. ———. 1975. "The place of Billingham's *Speculum puerorum* in Fourteenth and Fifteenth century logical tradition, with the edition of some alternative Tracts." *Studia Mediewistyczne* no. 16:97-151.

"From the second half of the fourteenth century onwards the Speculum puerorum (or iuvenum) compiled by the English logician Richard Billingham was very popular, especially in Southern and Central Europe. However, this popularity does not extend to his other works. The Speculum, which together with works such as those of Thomas Manlevelt, William of Heytesbury and Marsilius of Inghen, was a formidable competitor of Peter of Spain's Tractatus, is an introduction to what from about the 1330's onwards has been one of the cardinal items, if not the most characteristic one, of fourteenth century logic, rather than a Summule of the type of Peter of Spain's Tractatus, which contains all the topics of the Logica antiqua and moderna favoured in Peter's days. Generally speaking, fourteenth century philosophy focussed its attention on the search for certainty (certitudo and evidentia). That fourteenth century logic paid special attention to the procedures of proving a sentence, is evidenced by the numerous

tracts entitled De probationibus propositionum or De veritate ac falsitate propositionum which have been handed down to us in fourteenth and fifteenth century manuscripts.

Billingham's Speculum is one of them." (pp. 99-100, notes omitted).

33. ———. 1975. "La signification de la proposition (*dictum propositionis*) chez Abélard." In *Pierre Abélard - Pierre le Vénérable. Les courants philosophiques, littéraires et artistiques en Occident au milieu du XII siècle*, edited by Jolivet, Jean and Louis, René, 547-555. Paris: Éditions du Centre national de la recherche scientifique.

Published also in: *Studia Mediewistyczne* 16, 1975 pp. 155-161.

Reprinted as chapter IV in: *Through Language to Reality. Studies in Medieval Semantics and Metaphysics*.

"Cette communication se borne a un bref examen de la signification de la phrase complète (*propositio*) dans la logique de Pierre Abélard.

Il paraît utile de commencer par la définition du verbe signifier (*significare*) chez ce logicien.

'signifier' dit des mots (*dictiones*) c'est produire une intellection dans l'âme de l'auditeur (*Logica ingredientibus* 307, 30 ss.), tandis que le même verbe est également appliqué à la dénotàtion des choses extérieures (*ibid.*); dans ce dernier sens, le verbe est synonyme de *appellare, nominare, demonstrare, designare*.

'signifier' dit des phrases complètes (*propositiones*) c'est produire une intellection laquelle est formée par la liaison des intellections de ses parties (*dictiones*)." (p. 547)

"On peut conclure que selon Abélard le *dictum* n'est pas un objet qui serait indépendent de la pensée, mais plutôt le contenu de la pensée, c'est-à-dire une *intellection objectivée,* qui correspond soit à un état de choses réel, soit à un état de choses seulement possible *(Dial. II,* 205, 28-30: *id dicimus quod id quod dicit hec propositio 'Socrates est homo', est unum de his que natura patitur esse),* soit un état de choses tout à fait

impossible *(Dial. II,* 158, 7 -9: la proposition '*Socrates est lapis'* ne reflète pas *une inherentia* de Socrate et de pierre, ni '*Socrates non est lapis'* leur rémotion).

(...)

Ainsi, l'existence qu'établit la proposition en parlant, n'est pas une existence réelle, mais, pourrait-on dire, une existence *parlée*, ou plutôt, une existence *pensée* ou *logique*.

Employant la distinction bien connue du XIV siècles (presentée notamment par Jacques d'Ascoli, Thomas d'York, Pierre Thomae):

res: 1) extra animam (chose extérieure); 2) in anima: a) subiective (= *acte* de l'intellection comme tel) b) obiective *(contenu* de l'intellection).

on peut dire qu'Abélard a essayé, à sa façon, de montrer que le *dictum, de* la proposition, loin d'être une chose extérieure (*res extra animam*) est une chose qui doit son existence à l'âme ou a l'intellection (*res in anima*), mais qu'il faut en même temps bien le distinguer de l'acte de l'intellection pris comme tel (*res in anima subiective*), et reconnaître, sa propre identité dans le *contenu objectif* de l'intellection. Par là, le *dictum* du grand logicien du XII siècle semble être d'une nature logique par excellence." (pp. 554-555, notes omitted)

34. ———. 1975. "Review of: Thomas Erfurt. *Grammatica speculativa*. An edition with a translation and commentary by Geoffrey L. Bursill-Hall (London, 1972)." *Linguistics* no. 157:160-164.

35. ———. 1975. "Another *Speculum puerorum* attributed to Richard Billingham." *Medioevo* no. 1:203-235.

"Every student of Mediaeval logic knows the tract on the truth and falsity of the propositions by the hand of Richard Billingham.

It goes under the titles *Speculum puerorum, Speculum iuvenum,* and also *Terminus est in quern,* after the well known *incipit* borrowed from Aristotle's *Prior Analytics* (I I, 24b16-18) *Terminus est in quem resolvitur propositio ut predicatum et de*

quo predicator, apposito vel diviso esse vel non esse. In 1970 Dr. Alfonso Maierù published a very useful school edition of the work, (*) to the effect that the scholary world has now that text at its disposition which exerted a tremendous influence in fourteenth and fifteenth century logic, especially in the universities of Eastern and Southern Europe.

The text has come down to us in two different redactions, an English and a Central European one.(**) Elsewhere (***) I tried to show that Billingham's work is the most famous specimen of quite a number of similar tracts *De veritate et falsitate propositiomun,* but certainly not the oldest of them. It is the aim of this article to introduce and edit another treatise of this type, which like the well known treatise edited by Maierù goes under the title *Speculum puerorum* and is likewise attributed to Billingham. It is found in a late fourteenth century manuscript of the Archivo General de la Corona de Aragon at Barcelona, Spain, viz. Ripoll 141." (p. 203)

(*). A. Maierù, *Lo "Speculum puerorum sive Terminus est is quem" di Riccardo Billingham*. «Stud. Med.», 3 (1969), 297-397.

(**) See Maierù, *Introd*. 318 sqq. Maierù seems to be wrong in distinguishing a third class of manuscripts; in fact at least two of this class contain quite a different tract which also goes under the name *Terminus est is quem*. See L. M. de Rijk, *The Place of Billingham's* Speculum puerorum in *14th and 15th Century Logical Tradition, with the edition of some alternative tracts,* (1975).

(***) Study quoted in the previous note.

36. Rijk, Lambertus Marie de, and Mansfeld, Jaap, eds. 1975. *Kephalaion: Studies in Greek Philosophy and Its Continuation, Offered to Professor C. J. de Vogel*. Assen: Van Gorcum.

"This volume is offered to Professor C. J. de Vogel, who for more than twenty-five years held the chair of Ancient and Medieval (since 1968 of Ancient and Patristic) Philosophy in the University of Utrecht."

Contents: W. J. Verdenius: Heraclitus' conception of fire 1; René Schaere: Héraclite jugé par Platon 9; Jaap Mansfeld: Alcmaeon: '*Physikos*' or Physician? With some remarks on Calcidius' 'On vision' compared to Galen, Plac. Hipp. Plat. VII 26; E. de Strycker S. J.: The oracle given to Chaerephon about Socrates 39; G. J. de Vries: A general theory of literary composition in the Phaedrus 50; Pierre-Maxim Schuhl: Platon et la pureté de l'altitude 53; Enrico Berti: Logical and ontological priority among the genera of substance in Aristotle 55; Suzanne Mansion: Une passage obscur du deuxième livre de la Physique 70; G. Verbeke: Moral behaviour and tiem in Aristotle's Nicomachean Ethics 78; Olof Gigon: Phronesis und Sophia in der Nicomach. Ethik des Aristotle; B. L. Hijmans: Athenodorus on the Categories an a pun on Athenodorus 105; Heinrich Dörrie: Logos-Religion? Oder Noûs-Theologie? Die Hauptsächlichen Aspekte des kaiserzeitlichen Platonismus 115; Walter Burkert: Plotin, Plutarch un die platonisierende Interpretation von Heraklit und Empedokles 137; Theo Gerard Sinnige: Metaphysical and personal religion in Plotinus 147; A. H. Armstrong: Beauty and the discovery of divinity in the thought of Plotinus 155; Modestus van Straaten O. S. A.: On Plotinus IV, 7 [2], 8, 3 164; F. P. Hager: Proklos and Alexander von Aphrodisias über ein Problem der Lehre von der Vorsehung 171; Maria Timpanaro-Cardini: Two questions of Greek Geometrical terminology 183; Robert Joly: Remarques sur Dion Chrysostome et le Nouveau Testament 189; Cornelia W. Wolfskeel: Christliches und Neoplatonisches im denken Augustins 195; L. M. de Rijk: *Quaestio de Ideis*. Some notes on an important chapter of Platonism 204; Hans-Rudolf Schwyzer: The Intellect in Plotinus and the archetypes of C. G. Jung 214; Bibliography of C. J. de Vogel, compiled by J. van Heel 223; Tabula gratulatoria 231.

Digital Quadrivium Project



History of Logic

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Annotated Bibliography of Lambertus Marie de Rijk. Second Part: from 1975 to 1982

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1. Rijk, Lambertus Marie de. 1987. "The anatomy of the proposition. *Logos* and *Pragma* in Plato and Aristotle." In *Logos and Pragma: Essays on the Philosophy of Language in Honour of Professor Gabriel Nuchelmans*, edited by de Rijk, Lambertus Marie and Braakhuis, Henk A.G., 27-61. Nijmegen: Ingenium Publishers.

   "Introductory

   This study is written in honour of a scholar who, among many other things, has laid the solid basis for the study of what may be considered the kernel of the semantics of the statement-making utterance, viz. the definition of the bearers of truth and falsity.

   In the first section I present a survey of Plato's semantics of the statement-making expression and a number of key notions involved. Next, I explore Aristotle's views of the matter, starting with a discussion of Aristotle's notion of *pragma* including that of being *qua* truth and not-being *qua* falsehood. In search for the nature of Aristotle's *logos,* I discuss this notion as it occurs on the *onomazein* level as well as the way in which it acts on the *legein* level. Next, I investigate the important notions of *synthesis* and *dihaeresis* and the role of *einai* as a monadic functor and *qua* syncategorematic container of categorial being.

Finally, I attempt to present a characterization of Aristotle's statement-making utterance.

(...) p. 27

"Epilogue

We may summarize what we have found as follows:

1 For Plato,

1.1 a *logos* is a composite expression consisting of a name *(onoma)* and an attribute *(rhêma)* which as such is not yet a statement-making utterance

1.2 a logos represents a state of affairs *(pragma),* i.e. an actual combination of some participata *(dynameis)* in the outside world

1.3 a *logos eirêmenos is* a statement-making utterance; it asserts that the pragma represented by the logos is actually the case.

2 For Aristotle,

2.1 a *logos* is a composite expression consisting of an *onoma* and *a rhêma* which represents both a notional and an ontological state of affairs. It may be characterized as a 'statable complex'

2.2 a *pragma is* a state of affairs either *ontologically:* state of affairs being part of the outside world or *semantically:* state of affairs conceived of and expressed by a logos

2.3 a *logos apophantikos* ('statement-making utterance') is a logos actually stated (either asserted or denied)

2.4 a logos may as such be used either on the *onomazein* level or on the *legein* level (qua *logos apophantikos*). Similarly, *phasis* (*kataphasis, apophasis*) may be used on either of these levels

2.5 *synthesis* is either synthesis1, = the act of uniting an onoma and a rhêma into a logos (on the *onomazein* level) or synthesis2 = the assertion of such a union accomplished in *a logos*

apophantikos, (on the *legein* level), while *dihairesis* is always the denial of such a union (on the *legein* level)

2.6 the *esti* forming part of *a logos apophantikos is* not a copula, properly speaking. Rather, it is a sign of (it consignifies, to speak with *De interp*. 3,16b24-5) synthesis2. The onoma and rhêma are already united to make up a logos ('statable complex') by synthesis, and, then, the *esti* rather than acting as a dyadic copulative functor, is merely a monadic sign of the 'statable complex' being actually stated

2.7 The propositional structure found in the *logos apophantikos* may be described as follows:

linguistically: a logos expressing categorial being (i.e. syncategorematic being implemented by one or more of the ten categories of being) is stated (either affirmatively or negatively) by means of the monadic functor 'be' or 'not be' *semantically*: the pragma represented by the logos is said to be (or not to be, respectively) part of the outside world (or: 'be (not) the case')." (pp. 53-54, notes omitted).

2. ———. 1987. "Logic and ontology in Ockham. Some notes on his view of the Categories of Being and the nature of its basic principles." In *Ockham and Ockhamists: Acts of the Symposium organized by the Dutch society for medieval philosophy Medium Aevum on the occasion of its 10th anniversary (Leiden, 10-12 September 1986)*, edited by Bos, Egbert Peter and Krop, Henri, 25-40. Nijmegen: Ingenium Publishers.

   Reprinted as chapter XIII in: *Through Language to Reality. Studies in Medieval Semantics and Metaphysics*.

   "*Conclusion*. There is no single reason, I think, to ascribe to Ockham any feelings of hostility towards metaphysics on this account. God created 'true and real being', but He created it in shaping 'what is truly and really being', individual beings, that is. As created, it is radically changeable and contingent as well. Uncreated, unchangeable being is not to be created, not even as some mysterious constituent present in creatural being. Human beings are not entitled to sublimate their

(indispensable) conceptual tools (e.g. universal terms) so that they represent unchangeable ontic standards. Whenever we are inclined to do so, Ockham's razor comes in, not however, to make us say that the metaphysical domain is void. Rather logic (and human thought in general) should make us recognize our own limitations, and refrain from speaking about the unspeakable when, and inasmuch as, our linguistic tools are bound to lead us astray. The same applies to Ockham's view of proofs of God's existence. He only admits the proof of God as first preserver of these actual things in this actual world and rejects all atemporal proofs. However, his faith is unshakeable and not involved in any philosophical thinking either. Likewise it is Ockham's ontology (doctrine of being) which is modest, the *onta* 'beings') are as abundant as they are. For that matter, Ockham let them really be (*ontôs einai* Plato would say). Well, in order to let them *be,* human thinking should be prudent in cautiously managing its homemade conceptual apparatus." (pp. 38-39)

3. ———. 1987. "Gilbert de Poitiers. Ses vues sémantiques et métaphysiques." In *Gilbert de Poitiers et ses contemporains: aux origines de la Logica modernorum. Actes du septième Symposium européen d'histoire de la logique et de la sémantique médiévales. Centre d'études supérieures de civilisation médiévale de Poitiers, Poitiers, 17-22 Juin 1985*, edited by Libera, Alain de and Jolivet, Jean, 147-171. Napoli: Bibliopolis.

   "La contribution à notre Symposium que je vous propose maintenant a pour but de n'envisager l'oeuvre théologique du fameux maître chartrain qu'au profit de notre connaissance de sa pensée philosophique. A l'intérieur de cette entreprise, on portera un intérêt spécial à l'interférence des vues sémantiques et métaphysiques chez Gilbert.

   Prenons notre point de départ dans son commentaire sur le *De hebdomadibus* de Boèce. On va voir que l'étude de cette oeuvre nous fera entrer dans le coeur même de la problématique." (p. 147)

   (...)

" Je suis d'avis que la finesse des expositions théologiques et philosophiques que nous offre le Porrétain nous échappe, à moins qu'elles ne soient replacées dans leur contexte sémantique. C'est bien dans le domaine de la sémantique que Gilbert est digne du vif intérêt de l'historien de la logique médiévale. Non pas seulement parce que ses expositions sont bien imprégnées de la pensée logico-grammaticale de son temps; cela n'a rien d'étonnant étant donné qu'il s'agit d'un savant de son envergure. Mais ce qui est d'un plus grand intérêt pour nous, ce sont les contributions que Gilbert a lui-même faites à l'évolution de la pensée sémantique au douzième siècle.

L'étude des oeuvres théologiques de Gilbert nous permet d'avancer les deux thèses suivantes:

(1) C'est par l'étude sémantique qu'est favorisée au plus haut point notre compréhension des pensées théologiques et philosophiques du Porrétain; je considère comme essentielles la manière et la mesure dont Gilbert a habillé, pour ainsi dire, sa pensée théologique et philosophique du vêtement de ses pensées grammatico-logicales.

(2) En expliquant les difficultés assez pénibles dans les *opuscula sacra* de Boèce, Gilbert a formulé ses propres vues sémantiques. Celles-ci, aussi empreintes de la tradition platonicienne qu'elles soient, ne témoignent pourtant pas moins d'une profondeur vraiment originale." (p. 171)

4. ———. 1987. "War Ockham ein Antimetaphysiker? Eine semantische Betrachtung." In *Philosophie im Mittelalter. Entwicklungslinien und Paradigmen. Wolfgang Kluxen zum 65. Geburstag*, edited by Beckmann, Jan P., Honnefelder, Ludger and Wieland, Georg, 313-328. Hamburg: F. Meiner.

   Reprinted as chapter XIV in: *Through Language to Reality. Studies in Medieval Semantics and Metaphysics*.

   "IV. Schlußbetrachtung. Ockham anerkennt ohne Einschränkung den transzendenten Bezirk, d. h. das Metaphysische oder Übersinnliche als Bezirk; in diesem Sinne ist er also gewiß kein Antimetaphysiker. Aber verwirft er denn die Metaphysik als Wissenschaft, oder höhlt er sie zumindest

aus? Zuerst muß anerkannt werden, daß Ockham im Prinzip der Metaphysik das Weisungsrecht über die Seienden (d. h., für Ockham, die individuellen Seienden) keineswegs abspricht. Zugleich kann nicht geleugnet werden, daß bei ihm der Metaphysik eine auffallend bescheidene Stelle zukommt. Wie läßt sich das unter Berücksichtigung von Ockhams unzweifelbarer Ehrfurcht vor dem Übersinnlieben erklären?

Der Schlüssel zur Lösung dieser Frage liegt nicht bloß in Ockhams Ontologie des individuellen Seins, sondern auch in seinen anthropologischen Auffassungen. Der Mensch ist nach ihm in seinen Denken und Sprechen nicht imstande, das Erhabene wesentlich zu durchforschen. Dessen soll sich der Mensch fort während eingedenk sein. Dies ist für Ockham in zwei deutliche Strategien übersetzbar:

a) nicht jedem modus significandi oder loquendi entspricht ein modus essendi in der Wirklichkeit

b) viele maßgebende Aussagen, sowohl sakrale wie profane, soll man nicht de virtute sermonis (dazu reicht unser Sprechen zuwenig aus), ondern der Ab sicht des Redners oder Schriftstellers entsprechend deuten." (ss. 326-327)

5. Rijk, Lambertus Marie de, and Braakhuis, Henk A.G., eds. 1987. *Logos and Pragma. Essays on the Philosophy of Language in Honour of Professor Gabriel Nuchelmans*. Nijmegen: Ingenium Publishers.

   Table of contents: Introduction XI; List of Professor Nuchelmans' publications 1950-1987 XI-XVII; W. E. Abraham: The strategy of Plato's philosophy of language 1; L. M. de Rijk: The anatomy of proposition: Logos and Pragma in Plato and Aristotle 27; N. Kretzmann: Boethius and the truth about tomorrow's sea battle 63; H. A. G. Braakhuis: The view of Peter of Spain on propositional composition 99; E. P. Bos: The theory of the proposition according to John Duns Scotus' two commentaries on Aristotle's *Perihermeneias* 121; E. Stump: Consequences in Ockham's *Summa Logicae* and their relation to syllogism, topics and insolubles 141; K. H. Tachau: Wodeham, Crathorn and Holcot: the development of the *Complexe significabile* 161; E. J. Ashworth: Jacobus Naveros

(fl. ca. 1533) on the question: 'Do spoken words signify concepts or things?' 189; E. M. Barth: Contradictions and symmetry rage in the logical Interregnum. An essay in empirical logic 215; E. Morscher: Propositions and all that: ontological and epistemological reflections 241; M. F. Fresco: Über das Verhältnis von Sprache, Denken und Welt. Ontologische Fragen unter besondere Berücksichtigung der Philosophie von J. A. der Mouw 259; Bibliography 281; Index of passages quoted or referred to 299; Index of names 311; Index of concepts and terms 317.

6. Rijk, Lambertus Marie de. 1988. "De quelques difficultés de nature linguistique dans le vocabulaire de Gilbert de la Porrée." In *Actes du colloque Terminologie de la vie intellectuelle au moyen âge*, edited by Weijers, Olga, 19-25. Turnhout: Brepols.

   Colloque at Leyde/La Haye, 20-21 September 1985.

   "On sait que, comme ceux de l'Antiquité, les philosophes du moyen âge ont fait aussi leur propre vocabulaire technique.

   Le but de cette courte communication est de mettre en lumière quelques difficultés spéciales du vocabulaire philosophique et théologique de Gilbert de Poitiers, auteur bien connu de la première moitié du XIIe siècle.

   D'abord, il faut remarquer que ces difficultés ressortent de l'usage très personnel et très original que fait Gilbert des termes courants de la langue philosophique du XIIe siècle.

   Il va de soi que ces difficultés sont délicates une fois de plus pour les philologues, en général pour les non-initiés en ce qui concerne l'histoire de la philosophie, parce que la confusion terminologique se présente déjà dans le domaine philosophique lui-même.

   Aussi va-t-on commencer par quelques termes connus, c'est-à-dire les termes *substantia, subsistentia* et *subsistens* et, dans ce contexte, la différence entre *esse* et *esse aliquid*. On va essayer de placer la terminologie dans le contexte des vues philosophiques de Gilbert, en particulier de la doctrine porrétaine sur le statut ontique de la chose concrète." (p. 19)

7. ———. 1988. "'Categorization' as a key notion in ancient and medieval semantics." *Vivarium* no. 26:1-18.

"The aim of this paper is to argue for a twofold thesis: (a) for Aristotle the verb '*katêgorein*' does not as such stand for statemental predication, let alone of the well-known 'S is P' type, and (b) 'non-statemental predication' or 'categorization' plays an important role in Ancient and Medieval philosophical procedure.

1. *Katêgorein and katêgoria in Aristotle*

Aristotle was the first to use the word 'category' *(katêgoria)* as a technical term in logic and philosophy. It is commonly taken to mean 'highest predicate' and explained in terms of statement-making. From the logical point of view categories are thus considered 'potential predicates'.(*)" (p. 1)

(...)

1.3 *Name giving ('categorization') as the key tool in the search for 'true substance*'

What Aristotle actually intends in his metaphysical discussions in the central books of his *Metaphysics* (Z-Th) is to discover the proper candidate for the name 'ousia'. According to Aristotle, the primary kind of 'being' or 'being as such' *(to on hêi on)* can only be found in 'being-ness' *(ousia;* see esp. *Metaph*. 1028b2). Unlike Plato, however, Aristotle is sure to find 'being as such' in the domain of things belonging to the everyday world. Aristotle's most pressing problem is to grasp the things' proper nature *qua* beings. In the search for an answer name-giving plays a decisive role: the solution to the problem consists in finding the most appropriate ('essential') name so as to bring everyday being into the discourse in such a way that precisely its 'beingness' is focussed upon." (p. 4)

(...)

2. *The use of 'praedicare' in Boethius*

The Greek phrase *katêgorein ti kata tinos is* usually rendered in Latin as *praedicare aliquid de aliquo*. The Latin formula

primarily means 'to say something of something else' (more precisely 'of somebody'). Of course, the most common meaning of the Latin phrase is 'to *predicate* something of something else in making a statement of the form S = P'. However, the verb *praedicare,* just as its Greek counterpart *katêgorein,* is used more than once merely in the sense of 'naming' or 'designating by means of a certain name', regardless of the syntactic role that name performs in a statement. In such cases *praedicare* stands for the act of calling up something under a certain name (designation), a procedure that we have labelled 'categorization'. (...)

Boethius' use of *praedicare* is quite in line with what is found in other authors. Along with the familiar use of the verb for statemental predication, Boethius also frequently uses *praedicare* in the sense of 'naming' or 'designating something under a certain name' whereby the use of the designating word in predicate position is, sometimes even explicitly, ruled out." (pp. 9-10)

(*) See L. M. de Rijk, *The Categories as Classes of Names (= On Ancient and Medieval Semantics 3), in: Vivarium*, 18 (1980), 1-62, esp. 4-7

8. ———, ed. 1988. *Some earlier Parisian Tracts on Distinctiones sophismatum*. Nijmegen: Ingenium Publishers.

   Edited by L. M. de Rijk with introduction and indexes.

   Content: I. Tractatus Vaticanus De multiplicatibus circa orationes accidentibus -- II. Tractatus Florianus De solutionibus sophismatum -- III. Tractatus Vaticanus De communibus distinctionibus.

   "As a matter of fact, syncategorematic words(3) play a predominant role in ambiguous expressions and sentences taken as a genre called *sophismata*, i.e. puzzling sentences of which the exact meaning can only be determined by introducing subtle semantic distinctions.(4) Every reader of the tracts involved is well acquainted with the Mediaeval authors' habit of closely linking up the treatment of syncategoremata with the solution to fallacies and sophismata. The author of the

pseudo-Boethian tract *De disciplina scolarium* also testifies to the close connection of these items, when he recommends the study of syncategoremata:

Terminorum autem determinaciones quae sincategoreumata appellamus, memorialiter menti imprimende, utpote que sophistice non parum deserviunt fantasie.(5)

The literary genre covering this sort of scholastic writings, is threefold:

1. the tracts on syncategoremata, which classify the precise meaning of a number of syncategorematic words, the ways in which they are used ambiguously; and they discuss current grammatical, semantic and logical rules related to these words and, finally, deal with special sophismata and the (attempted) solutions to them;(6)

2. the sophismata collections, where the sophismata themselves are the primary objects of discussion, although each of them is typical of a special difficulty concerning special ambiguous terms or phrases;

3. the so-called *Sophistariae*, the tracts on sophismata which, unlike the *Sophismata* collections, take the usual solutions (in fact, *distinctiones* concerning the ambiguous expression involved) as their starting-points." (pp. IX-X)

(3) For the sense of this term, see Kretzmann [1982: 211]: "Any word that can be used alone as a subject term or as a predicate term is classifiable as a categorematic word; all other words are classifiable as syncategorematic words, those that can occur in a proposition ... only along with at least one properly matched pair of categorematic words." See also de Libera [1985b: 64ff].

4. It is aptly defined by Kretzmann [1977: 6] as "a sentence puzzling in its own right or on the basis of a certain assumption, designed to bring some abstract issue into sharper focus the mediaeval ancestor of "The morning star is the evening star" or "George IV wished to know whether Scott was the author of Waverley". He is right in rejecting the modern label 'sophism' as sophismata "are sentences rather than

arguments and intended to be illuminating and instructive rather than specious and misleading". (ibid. n.9; see also Kretzmann [1982: 217, n. 24]. Some Master Martin (? of Alnwick) defines sophisma as 'diversitas veritatis et

falsitatis que in propositionibus oritur ex diversa situatione terminorum exponibilium vel resolubilium facientium terminos sequentes se diversimode supponere'. It should be noted in this connection that Martin's tract belongs to the *Probationes tenninorum* genre. See de Rijk [1982: 33]. 5. I 11, p. 97,6-8, ed. Weyers (Pseudo-Boece, *De disciplina scolarium*. Edition critique, introduction et notes, Leiden-Köln 1976).

6. For this genre, see Braakhuis [1979: passim]; and Kretzmann [1982: passim]. A lucid distinction between the different genres, *Distinctiones*, *Sophismata* and *Syncategoremata* is given by de Libera [1985b: 64-8].

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Alain de Libera, 'La litterature des abstractiones et la tradition logique d'Oxford,' in *The Rise of British Logic. Acts of the Sixth European Symposium on Medieval Logic and Semantics,* Balliol College, Oxford, 19-24 June 1983, edited by P. O. Lewry, Toronto: Pontifical Institute of Medieval Studies (coll. Papers in Medieval Studies, 7) 1985, 63-114

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Mediaeval Logic, Grammar and Semantics, eds. L.M. de Rijk, H.A.G. Braakhuis, E.P. Bos, C.H. Kneepkens. Nijmegen 1982

9. ———. 1988. "Semantics and metaphysics in Gilbert of Poitiers. A chapter of Twelfth century Platonism. Part I." *Vivarium* no. 26:73-112.

"1 *The Ontic Constituents of Natural Bodies*

There is one distinction that is of paramount importance in order for us to understand Gilbert's ontology, viz. the Boethian contradistinction of *id quod* and *id quo*. We have to start with this pair of key notions.

1.1 *Preliminary:* 'id quod' and 'id quo'

According to Gilbert, our world consists of a number of individual 'things'. This world and its inhabitants appear to have the following characteristics:

(a) each and every 'thing' is in fact to be considered as one self-contained entity, (a 'subsistens') whose identity and ontological unity are due to the singularity of what is proper to it (*sue proprietatis singularitas; Eut. 30, 88; Trin. 144, 58-62*),

(b) however, every 'subsistent' (henceforth my rendering of Latin 'subsistens') itself consists of a plurality of forms; in addition, there are 'circumstantial features' (rather than 'forms' properly speaking) that determine its actual state or condition ('status'); *Trin. 137, 55;* cf. Nielsen(*), *56-8* and below, our nrs *1.2* and *1.72*.

In fact, Gilbert's ontology is one continuous attempt to establish two basic relationships, one between a natural thing and its Creator and the other between the thing's diverse actual constituents, which while being totally different from each other grant it its intrinsic unity at the same time." (p. 74)

(...)

"1.9 *Summary*

Each inhabitant of our world Gilbert calls (following Boethius) an *id quod est* or *subsistens*. Its main constituents are the *subsistentiae* (or the subsistent's *id quo* which is sometimes

taken collectively to stand for *ea quibus)* and these are accompanied by the 'accidents', quantity and quality. The subsistent owes its status (or transitory condition) to a collection of inferior members of the Aristotelian class of accidents, which to Gilbert's mind are rather 'accessories' or 'attachments from without' *(extrinsecus affixa).*

The term 'substantia' is used both to stand for substance and substantial form *(subsistentia), i.e.,* that by which something is subsistent (or 'is a substance').

The collection of *subsistentiae* (substantial forms) or the *forma totius is* called *natura.* However, 'natura' is also used to stand for either just one *subsistentia* or all the forms found in *a subsistens* even including its 'accidental' forms (quantity and quality). The inclusion of all kinds of accidents (including those inferior ones that make up a thing's *status)* is seldom found in the intension of the word 'natura'.

One of the key notions featuring in Gilbert's ontology is *esse aliquid.* 'To be a-something' has a threefold import. First, it means 'to be only *some* thing', and to miss perfection. Second, it has the positive sense of 'being *a something',* i.e. 'being determinate and well-delineated', not indefinite, not formless that is. Third, 'to be a something' implies concreteness, corporealness and singularity." (pp. 111-112)

(*) Lauge Olaf Nielsen, *Theology and Philosophy in the Twelfth Century*. A study of Gilbert Porreta's thinking and the theological expositions of the doctrine of the Incarnation during the period 1130-1180, Leiden 1982.

10. ———. 1988. "On Boethius' notion of Being. A chapter of Boethian semantics." In *Meaning and Inference in Medieval Philosophy: Studies in Memory of Jan Pinborg*, edited by Kretzmann, Norman, 1-29. Dordrecht: Kluwer.

    Reprinted as chapter I in: *Through Language to Reality. Studies in Medieval Semantics and Metaphysics*.

    "From Parmenides onwards, ancient and medieval thought had a special liking for metaphysical speculation. No doubt, speculative thought was most influentially outlined by Plato

and Aristotle. However, what the Christian thinkers achieved in metaphysics was definitely more than just applying and adapting what was handed down to them. No student of medieval speculative thought can help being struck by the peculiar fact that whenever fundamental progress was made, it was theological problems which initiated the development. This applies to St Augustine and Boethius, and to the great medieval masters as well (such as Anselm, Thomas Aquinas, Duns Scotus). Their speculation was, time and again, focused on how the notion of being and the whole range of our linguistic tools can be applied to God's Nature (Being).

It is no wonder, then, that an inquiry into Boethius's notion of being should be concerned, first and foremost, with his theological treatises, especially *De hebdomadibus*. (p. 1)

(...)

My final section aims at showing how Boethius's notion of being is clearly articulated in accordance with his semantic distinctions. This is most clearly seen in the main argument of *De hebdomadibus* where they may be actually seen at work.

As is well known, the proper aim of *De hebdomadibus* is to point out the formal difference between *esse* and *esse bonum,* or in Boethius's words: 'the manner in which substances *are good* in virtue of their *being,* while not yet being substantially good' (38.2-4). Its method consists in a careful application of certain formal distinctions, viz.:

(a) The distinction between an object 'when taken as a subsistent whole and *id quod est* = the constitutive element which causes the object's actually' being; it is made in Axiom II and used in Axiom IV.

(b) The distinction (closely related to the preceding one) obtaining between the constitutive element effecting the object's actual being *(forma essendi,* or *ipsum esse)* and the object's actuality as such (*id quod est* or ipsum est); it is made in Axioms VII and VIII.

(c) The distinction between *esse* as 'pure being' (= *nihil aliud praeter se habens admixtum),* which belongs to any form, whether substantial or incidental, and *id quod est* admitting of some admixture (lit. 'something besides what it is itself'); it is made in Axiom IV and in fact implies the distinction between *esse simpliciter* and *esse aliquid*.

(d) The distinction between 'just being some thing', *tantum esse aliquid,* and '*being* something *qua* mode of *being'*. It is made in Axiom V and used in Axiom VI and is in fact concerned with a further distinction made within the notion of *id quod est*. It points out the differences between the effect caused by some form as constitutive of being *some* thing and that caused by the main constituent *(forma essendi)* which causes an object's *being simpliciter*.

(e) The distinction between two different modes of participation, one effecting an object's *being subsistent,* the other its being *some* thing, where the '*some* thing' (*aliquid*) refers to some (non-subsistent) quality such as 'being white', 'being wise', 'being good', etc.

The application of these distinctions enables Boethius to present a solution to the main problem: although the objects (*ea quae sunt,* plural of *id quod est*) *are* (*are good*) through their own constitutive element, *being* (*being good*), nevertheless they are not identical with their constitutive element nor (*a fortiori*) with the IPSUM ESSE (BONUM ESSE) of which their constituent is only a participation." (p. 22-23)

11. ———. 1989. "Semantics and metaphysics in Gilbert of Poitiers. A chapter of Twelfth century Platonism. Part II." *Vivarium* no. 27:1-35.

"Gilbert's View of Transcendent Reality.

Gilbert's world consists of quite a lot of singular subsistent objects which owe their being and 'being-a-something' to a collection of forms, both subsistential and accidental. Well, God has created this world after what in the Platonic tradition was called the 'exemplary Forms'. For Gilbert, creation and concretion are two complementary notions which play an

important role in his ontology. Creation is the reception of a total form or collection of subsistentiae; it is also called generation. As a natural process it amounts to 'beginning to be-of-acertain-kind'." (p. 1)

(...)

"POSTSCRIPT. In his short study on Gilbert of Poitiers (in *A History of Twelfth-Century Western Philosophy,* ed. Peter Dronke, Cambridge 1988, 328-52) John Marenbon rightly argues that when presenting an account of Gilbert's thought one should not separate his philosophy from his theology. However, I fully disagree with his suggestion (p. 351) that as a metaphysician Gilbert proves to have been a thinker whose 'treatment is inadequate and confused'. On the contrary, when dealing with really intricate theological problems Gilbert of Poitiers, like many other Medieval thinkers (e.g. Thomas Aquinas), develops his (NeoPlatonic) metaphysics as a 'clear-minded and subtle writer', and so there seems to be no reason at all to oppose Gilbert against people like Aquinas, Scotus, Ockham and others. They were all real philosophers, albeit in a theological context, which *as such* confronted them with a series of genuinely philosophical issues. In fact, why should any historian of philosophy approach only Gilbert of Poitiers 'as a thinker who tackled a set of changeless *(sic!)* metaphysical problems-identical (sic!) to those which faced, for instance, Plato and Aristotle, or Kant and Hegel'?" (pp. 34-35)

12. ———. 1989. *Through Language to Reality: Studies in Medieval Semantics and Metaphysics*. Northampton: Variorum Reprints.

    The volume is dedicated to L. M. De Rijk on the occasion of his 65th birthday.

    Contents: Preface IX-XI; SIXTH CENTURY: I. On Boethius's notion of Being. A chapter of Boethian semantics; TWELFTH CENTURY: Peter Abälard (1079-1142): Meister und Opfer des Scharfsinns; III. The semantical impact of Abailard's solution of the problem of universals; IV. La signification de la proposition (*dictum propositionis*) chez Abélard; V. Die Wirkung der neuplatonischen Semantik auf das mittelalterliche

Denken über das Sein; VI: Abailard's semantics views in the light of later developments; THIRTEENTH CENTURY: VII. Die Bedeutungslehre der Logik im 13. Jahruhndert und ihr Gegenstück in der metaphysischen Spekulation; VIII. Each man's ass is not everybody's ass. On an important item in 13th-century semantics; IX. The development of *Suppositio naturalis* in mediaeval logic, I. Natural suppositiojn as non-contextual supposition; FOURTEENTH CENTURY: X. The development of *Suppositio naturalis* in mediaeval logic, II. 14th-century natural supposition as atemporal (omnitemporal) supposition; XI: On Buridan's doctrine of connotation; XII. Semantics in Richard Billingham and Johannes Venator; XIII. Logic and ontology in Ockham. Some notes on his view of the categories of Being and the nature of its basic principles; XIV. War Ockham ein Antimetaphysicker? Eine semantische Betrachtung; Indexes. 1. Manuscripts; 2. Anonymous tract; 3. Ancient and medieval names; 4. Modern names; 5. Subjects and terms. (This volume contains XII + 322 pages).

13. ———. 1989. "Ist Logos Satz? Zu Heideggers Auffassung von Platons Stellung 'am Anfänge der Metaphysik'." In *Heideggers These vom Ende der Philosophie. Verhandlungen des Leidener Heidegger-Symposiums (April 1984)*, edited by Fresco, Marcel, Van Dijk, Rob and Vijgeboom, Peter, 22-32. Bonn: Bouvier Verlag.

14. ———. 1989. "Einiges zu den Hintergünden der Scotistischen Beweistheorie: die Schlüsselrolle des Sein-Könnens (*Esse possibile*)." In *Die Kölner Universität im Mittelalter. Geistige Wurzeln und soziale Wirklichkeit*, edited by Zimmermann, Albert, 176-191. Berlin: Walter de Gruiyter.

    "Wer Scotus' Beweistheorie in den Griff bekommen will, wird schließlich noch dadurch mit einer dritten Belastung rechnen müssen, daß Scotus sich nie in einer eigenen Kommentararbeit zu Aristoteles' *Zweiten Analytiken* systematisch über die Lehre vom Beweis geäußert hat, wie stark er auch immer, wie die übrigen mittelalterlichen Denker, in seiner Auffassung der Beweislehre vom aristotelischen Gedankengut beeinflußt wurde.

Es scheint mir daher angebracht, zuerst etwas vorzubringen über die Rolle, die eine Beweistheorie, oder vielmehr ein Beweisverfahren, in jedem beliebigen spekulativen Denksystem, ungeachtet dessen theologischer oder philosophischer Natur, besitzt; zunächst soll etwas über die Lehre vom Beweis bei Aristoteles und den mittelalterlichen Autoren, besonders Scotus, gesagt werden, um zuletzt einige wichtige Punkte aufzugreifen, deren genauere Betrachtung uns die wichtigeren Hintergründe des scotischen Denkens über Beweis und sicheres Wissen vordringen läßt." (s. 177)

15. Peter, of Spain. 1990. *Language in Dispute: An English Translation by Francis P. Dinneen of Peter of Spain's Tractatus called afterwards Summulae logicales*. Amsterdam, Philadelphia: Benjamins.

    On the basis of the critical edition established by L. M. De Rijk.

16. Rijk, Lambertus Marie de. 1990. "Ockham's theory of demonstration: his use of Aristotle' s *kath' holou* and *kath' hauto* requirements." In *Die Gegenwart Ockhams*, edited by Vossenkuhl, Wilhelm and Schõnberger, Rolf, 232-240. Weinheim: VCH-Verlagsgesellschaft.

    "Far from being a sceptic William of Ockham made every effort to corroborate the basis of philosophical and theological thought by purifying it of all sorts of untenable presuppositions. His main contribution to fourteenth century philosophical and theological development lies in systematically rethinking scholastic doctrines, and especially their assumptions, on the firm basis of his own favourite leading principles: the strictly individual nature of all that really is and the radical contingency of all creatural being.

    These two principles also play a major part in Ockham's way of dealing with the Aristotelian theory of demonstration. The present paper aims at investigating Ockham's doctrine of demonstrative proof, focusing on the way in which he felt forced to adapt or rephrase the special requirements Aristotle had laid down for propositions to enter into syllogistic proof, especially strict proof (the so-called '*demonstratio potissima*'). Our main argument will concern Aristotle's rather peculiar

'*kath holou*' requirement and Ockham's appliance of the '*kath hauto*' (Latin: 'per se') notion which is also involved in framing correct premisses for demonstrative proofs. A few preliminary remarks will be made about the essentials of Aristotle's theory of demonstration." (p. 232)

(...)

"Conclusions.

To sum up our findings: Ockham's adaptations and manipulations of Aristotle's requirements for genuine demonstrative propositions are as many demands imposed by his own metaphysical views. He comments on Aristotle, always starting from his own favourite views. Though Aristotle is the Master, Ockham is the one to say what the Master meant, or what he should have meant. On the other hand, his introducing the *'per se strictissimo modo*' rather seems to be a matter of technicality. Whereas in *Posterior Analytics* Aristotle deals with the scientific procedure of *apodeixis* in general, in which the apodeictic syllogism is merely a vehicle for correctly framing an *apodeixis,* the Medievals, and Ockham in particular, were apt to reduce Aristotle's theory of demonstrative proof to a theory of demonstrative syllogism. That is why the '*demonstratio potissima*' (including its specific demands) so heavily influenced Ockham's theory of demonstration." (p. 239)

17. ———. 1990. "Specific tools concerning logical education." In *Méthodes et instruments du travail intellectuel au moyen âge*, edited by Weijers, Olga, 62-81. Turnhout: Brepols.

"Unlike in our days logical doctrine was very influential in the Middle Ages. Logic was indeed considered then the vehicle par excellence both in matters of teaching and scientific inquiry in any field of knowledge. When embarking upon a discussion of the specific terminology concerning logical education, some preliminary remarks seem to be indispensable.

The reader should be warned, first. Logical theory taken as such, which comprises a great mass of specifically logical terms (such as 'praedicamentum', 'predicable', 'syllogism', 'fallacy', 'supposition', 'appellation', 'ampliation', 'distribution',

'syncategorema', and so on) is out of scope now; those terms and their like will be mentioned only in passing, inasfar namely as they occur in educational practice.

Another remark better starts from the well-known Medieval distinction between logica docens and logica utens, the former of which being logical doctrine as developped, expounded and taught for its own sake, whereas the latter is rather logic practically applied in any sort of logical analysis or argumentation. To be sure, logica utens does not merely coincide with the more or less explicit occurrence of logical argumentation in whatever context. Even qua logica utens the art of logic displayed a high degree of technicality. In other words: medieval logica utens rather than being practical argumentation as loosely accomplished by somebody who exhibited a remarkable natural ability for logical reasoning consisted in the performance of somebody being really well-versed in all those logical techniques he had been taught in his youth in class room. So, whoever is interested in specific terms of logical teaching and learning should surely not leave exhibitions of logica utens out of consideration (*).

Our third remark which is in the line of the previous one, concerns the remarkably wide scope of logica utens. Of course, logica docens played a very important part in Medieval education, as may be also gathered from its predominant position in Medieval curricula. However, according to a good Peripatetic tradition, logic was taken to serve as the organon or instrument of all other branches of learning and science, which means that logic, and logic alone, provided other disciplines with the correct art of thinking and reasoning. Thus logic proves to have been effectually present, for example, in theological disputation, a fact that every student of Medieval theology is fully aware of. But it had an equally prevailing position in other fields of learning, too, such as Natural science ("Physics"), Ethics and even Political philosophy.

A final preliminary remark aims at elucidating the large scope of Medieval logic from still another point of view, viz. the close relationship between scientific inquiry and exposition as well as

scientific education in the Middle Ages. That is to say that scientific inquiry and exposition as well as education and learning were controlled by the same didactics of exposition and argumentation. Indeed, nearly all Medieval writings that contain scholarly investigations in any field of learning whatsoever display didactic approaches which are quite similar to those used by works mainly intended for instruction, no matter for the benefit of beginners or advanced people." (pp. 62-63)

(*) For the contradistinction of *dialectica docens* and *dialectica utens* both of them especially concerned with the use of logical topics (*loci*), see Eleonore Stump, *Topics: their development and absorption into consequences* in *The Cambridge History of Later Medieval Philosophy,* 1982, p. 281, n. 41.

18. ———. 1990. "The Posterior Analytics in the Latin West." In *Knowledge and the Sciences in Medieval Philosophy: Proceedings of the Eight International Congress of Medieval Philosophy (SIEPM), Helsinki, 24-29 August 1987. Volume I*, edited by Asztalos, Monika, Murdoch, John Emery and Niiniluoto, Ilkka, 104-127. Helsinki: Acta Philosophica Fennica.

"It is common knowledge that Aristotle had the conviction that all reality was to be found within our world of sensible experience and that Plato's assumption of another, Transcendent World of Perfect Being was merely 'empty talk and poetic metaphor' *(Metaph.* A9, 991a20). Indeed, Aristotle took Plato's Forms to be quite useless for explaining the possibility of true knowledge about our world. However, like his master, Plato, Aristotle stuck to the Parmenidean conviction about the real existence of unchanging formal principles of being. As is well-known, his formal principles are *in* things as their immanent dynamic natures (*eidê*).

For Aristotle, true knowledge concerns the essential natures immanent in things (see e.g. *Metaph.,* 991a12-3; 999a24-9; 1018b36; 1032b1 ff. et alibi). To be sure, all being is individual being and so Aristotle is compelled to answer the quite intriguing question: if the proper object of true knowledge is universal nature and everything real is a particular, how, then,

are we able to gain genuine knowledge about the things in their own right? In his *Posterior Analytics* Aristotle explains what he understands by truly knowing things. Well, quite in line with his philosophical stand, Aristotle claims that all scientific knowledge is concerned with discerning a universal nature as *immanent in* a particular. In I 2, 72a75-7 e.g., it is explicitly said that the elements of the deduction are such and such *in concreto* (cf. 73a29-31). For Aristotle, demonstration in fact concerns some *phenomenal state of affairs* of which the investigation aims to clarify the essential structures." (p. 102)

(...)

"Aristotle's description of induction and its role in the scientific process fits in remarkably well with what he has earlier remarked about the process of proper categorization. Referring to the well-known battle simile - how a general retreat comes to an end after one man makes a stand, and then another *etc.,* the author argues that 'as soon as one of the undifferentiated percepts makes a stand, there is a primitive universal in the mind ... until the highest genera have been reached' (II 19, 100a14-b4).

The faculty, or rather cognitive attitude, by which we become familiar with the first principles is the *Nous* or intellective apprehension. Well, just as the Nous precedes all principles (such as axioms etc.), in the same way scientific knowledge covers the whole domain of states of affairs (*pragmata*), Aristotle concludes (100b16-17).

Let us try, now, in the next sections, to discover the Medievals' doctrinal reception of the *Posterior Analytics* by discussing their views of some themes characteristic of Aristotle's scientific method. It would be useful, to that end, to single out the following items: the Medievals' discussion of the well-known four questions, their views of the three requirements for 'hunting essential attributes', their (different) views of necessity, and, finally, the Medieval conceptions of induction and our knowledge of the First Principles." (p. 110)

19. ———. 1990. "Un tournant important dans l'usage du mot 'idea' chez Henri de Gand." In *Idea. VI Colloquio Internazionale del*

Lessico internazionale Europeo. Roma, 5-7 Gennaio 1989, edited by Fattori, Marta and Bianchi, Massimo Luigi, 89-98. Roma: Edizioni dell'Ateneo.

"1. *Introduction.* On sait que le terme 'idée' était un mot-clé dans la métaphysique de Platon. Les exposés importants de ce matin ont rendu entièrement superflu de rappeler le rôle du mot idea chez Platon ainsi que dans la tradition platonicienne et dans la patristique.

Les communications que nous venons d'écouter cet après-midi nous ont fait comprendre l'importance du mot latin *idea, ou* plutôt la valeur de la notion d'idée, dont le mot *idea* n'était que l'un des véhicules à côté de *forma, species, notio, conceptus, intentio,* etc.

Il n'est pas nécessaire d'être spécialiste de l'histoire de la philosophie médiévale pour bien savoir que, quelle que soit la dette des auteurs médiévaux envers des sources antiques, et quel que fût le respect qu'ils ont ressenti envers toute autorité -- les sources ne les ont cependant jamais empêchés de suivre leur propre voie au fur et à mesure que cela s'imposait dans l'intérêt de leur réflexions philosophiques.

C'est pourquoi l'étude de l'usage des termes philosophiques et leur développement au cours du moyen-âge n'est pas seulement d'intérêt linguistique. Au contraire, l'analyse de ce développement est tout à fait indispensable pour bien comprendre les doctrines philosophiques elles-mêmes de la période médiévale.

Je me propose dans cette communication de mettre en relief le tournant important qu'a subi l'usage du mot latin *idea* chez certains auteurs de la seconde moitié du 13e siècle, usage, bien entendu, qui s'est prolongé au 14' siècle. La figure centrale sera celle du philosophe flamand Henri de Gand (mort en 1293).

Comme je viens de vous suggérer, ce tournant est significatif d'un développement doctrinal chez ces auteurs. Aussi ce développement doctrinal s'impose comme le cadre adapté aux exigences d'un exposé sémantique à propos de l'usage du mot

idea, disons après saint Thomas d'Aquin (mort en 1277)." (p. 89)

20. ———. 1991. "Two short questions on Proclean metaphysics in Paris B. N. lat. 16.096." *Vivarium* no. 29:1-12.

    "The collectaneous manuscript Paris, B.N. lat. 16.096 (formerly belonging to the codices Sorbonnenses) contains (ff. 172va-177vb, which part dates, it seems, from the second half of the 13th century) some anonymous questions referred to by the catalogue (*) as Quaestiones super librum Posteriorum. This description, however, is incorrect as these questions have no bearing whatsoever on the doctrine of Aristotle's Posterior Analytics. Actually, they are two short metaphysical questions (called expositiones by the author) on the key notions of 'beingness' and 'oneness' respectively, followed by a longer, incomplete treatise on the nature of the components of a definition (or rather a diffinitum).

    (...)

    Only two of the five questions announced in the beginning of this third treatise are preserved. One of them deals with the problem of whether the definition consisting of genus and differentia requires a real composition of the components of the diffinitum, the other examines whether immaterial substances are composite in some respects. Unlike the first two tracts, the third does not show any influence of Neoplatonic doctrine.

    To my knowledge, the expositions on Ens and Unum have only come down to us in the Paris manuscript. They are interesting in that the author makes a successful effort to penetrate some of the basic views of Proclean metaphysics." (pp. 1-2, notes omitted)

    (*) L. Delisle, Inventaire des manuscrits latins de la Sorbonne, conservés à la Bibliothèque Impériale sous les nos. 15.176-16.718 du fonds latin, in: Bibliothèque de l'École des chartes, 31 (1870), 135 ff.

21. Peter, of Spain. 1992. *Syncategoreumata*. Leiden: Brill.

First critical edition by L. M. de Rijk with an introduction, critical apparatus, indexes and an English translation by Joke Spruyt.

Content of the English translation: Introduction 39; Chapter 1. On composition 45; Chapter 2. On negation 73; Chapter 3. On exclusive words 105; Chapter 4. On exceptive words; Chapter 5. On consecutive words 197; Chapter 6. On the verbs 'begins' and 'ceases' 249; Chapter 7. On the words 'necessarily' (*necessario*) and 'contingently' (*contingenter*) 283; Chapter 8. On conjunctions 307; Chapter 9. On '*Quanto*', '*Quam*' and '*Quicquid*'; Chapter 10. On answers 425; Critical apparatus 434; Index locorum 572; Index rerum notabilium 574; Index sophismatum 613.

"Peter of Spain (ca 1205-77) who, in 1276, became Pope under the name of John XXI, was the author of an impressive number of scholarly works, inter alia the Tractatus (a textbook of logic, widely known afterwards under the title Summule logicales) and the Syncategoreumata. The latter work, which deals with syncategorematic terms, is here critically edited for the first time, together with an English translation.

Peter's authorship of the Syncategoreumata is beyond all doubt: it is confirmed again and again by nearly all our manuscripts. As to the date and place of origin of the Syncategoreumata: they were surely written after the Tractatus (which were written not later than the 1230's, see my Introduction to the edition of this work, p. LV-LVII).

There is no reason at all to assume a connection between the Syncategoreumata and Peter's stay at the University of Paris, which he left in 1229, before the composition of the Tractatus. Clearly, Paris does not play any role in the early diffusion of the Syncategoreumata. It seems highly probable, therefore, that the Syncategoreumata were written by Peter in the same region where he wrote the Tractatus, i.e. Northern Spain or Southern France. The work's most likely date is between 1235-1245 (cf. my Introduction to the Tractatus, pp. XXXIV-LXI). From Peter's use of lectio (see X, cap. 8) it may be concluded that the

Syncategoreumata were meant as a piece of school-teaching." (p. 9, notes omitted)

22. Rijk, Lambertus Marie de. 1992. "Causation and participation in Proclus. The pivotal role of scope distinction." In *On Proclus and His Influence in Medieval Philosophy*, edited by Meijer, Pieter Ane and Bos, Egbert Peter, 1-34. Leiden: Brill.

    1. Status questionis; 2. Causation and participation in Plato; 3. Procession and participation in Plotinus and Jamblichus; 4. Proclus' refined metaphysics; 4.1 Preliminary; 4.2 The Proclean universe from the viewpoint of causation; 4.3 The Proclean universe from the viewpoint of participation; 5. The meaning of *amethekton* and *metekomenon* in Proclus; 5.1 *Méthexis* c.a. in the *Elementatio*; 5.2 *Méthexis* c.a. in the *Platonic Theology*; The basic role of the *metexomenon* for continuity and reversion; Scope distinction in Neoplatonic doctrine and procedure; 7.1 Two famous cases of scope distinction in Proclus; 7.2 Scope distinction deliberately applied and recommended; 7.3 The philosophical impact of scope distinction in Neoplatonism.

    "The present paper aims to investigate in some more detail the transcendence-immanence antinomy. First an outline of its historical background will be presented from Plato onward through Plotinus and Jamblichus up to Proclus. Next I shall discuss Proclus' doctrine on these matters in the larger perspective of his philosophy, and focus on the intriguing notion of *amethekton*. Finally a few remarks will be added on the important role of what we might call 'scope distinction' in Proclus' doctrines and dialectical arguments." (p. 2)

23. ———. 1992. "John Buridan on Universals." *Revue de Métaphysique et de Morale* no. 97:35-59.

    "It is common knowledge that Plato strongly believed that, in order to explain the nature of whatever is (either things or states of affairs, including Man and his environment), the assumption of Transcendent Universal Forms is indispensable. In his view, these universal Forms are the ontic causes of each and every sublunary entity, which all owe their being to their sharing in these Forms. Consequently, everyone who is in want

of firm knowledge *(episteme)* about, the things of the outside world is bound to direct his attention to the transcendent domain of the universal Forms'.

However, Plato was the first to recognise, and seriously deal with, the objections that can be raised to this doctrine. These objections mainly concern the status (and the dignity, however modest) of our transient world and, above all, the possibility to obtain, true knowledge of this world as *it stands,* in its ever-changing nature, that is." (p. 35)

(...)

"To be sure, the Medievals all rejected the Platonic Ideas taken as separate substances and they adhered to the Aristotelian common sense principle that only individuals have independent existence. Nevertheless, they were still under the spell of the status of «universal being» as the indispensable basis of true knowledge.

Marylin McCord Adams has analysed some early fourteenth century solutions to the problem of universals (Scotus, Ockham, Burley and Harclay) (*). In McCord's article Buridan's view of the matter is left out of consideration. Quite understandably so, since Buridan's solution to the problem differs considerably from the sophisticated arguments given by his contemporaries. Buridan seeks.for a solution in analysing the several ways of human understanding. In directing his attention to the propositional attitude involved in the cognitive procedure Buridan is remarkably close to the ingenious solution Peter Abelard had come up with two centuries earlier. In the next *sections* I shall give an outline of Abelard's treatment of the question of universals followed by an analysis of Buridan's discussion of the matter (as found in his commentary on the *Metaphysics* and elsewhere)." (p. 37)

(...)

"We may conclude, then, that two bright logicians of the Parisian tradition have come up with quite an ingenious solution to the problem of universals. Both of them started out from the firm conviction that nothing exists but particulars.

Nevertheless, they apparently were not satisfied with purely extensional solutions as brought forward by Oxford logicians such as Heytesbury and Ockham. Maybe extensionalists are out to show how people *ought* to think. Abelard and Buridan, however, were especially interested in the various ways of conceiving we *actually* use in daily life, in our attempts to conceptually deal with the outside world." (p. 59)

(*) "Universals in the early Fourteenth century" in *Cambridge History of Later Medieval Philosophy, from the Rediscovery of Aristotle to the Desintegration of Scholasticism 1100-1600* pp. 411-439.

24. ———. 1992. "Peter Abaelard (1079-1142)." In *Sprachphilosophie. Philosophy of Language. La philosophie du langage. Eine internationales Handbuch zeitgenössicher Forschung. Volume 1*, edited by Dascal, Marcelo, Gerhardus, Dietfried, Lorenz, Kuno and Meggle, Georg, 290-296. Berlin: Walter de Gruyter.

    1. Die Sprache als menschliche Ausdrucksweise; 2. *Nomen, Verbum, Oratio*; 3. Die prädikativ-kopulative Funktion des Verbum; 4. Sememverschmelzung als Schlüsselverfahren in Abaelards Semantik; 5. Die Einstellung Abaelards zur Sprache; 6. Literatur in Auswahl.

25. ———. 1993. "Der Streit über das *medium demonstrationis*: die Frucht eines Misverständnisses?" In *Argumentationstheorie. Scholastische Forschungen zu den logischen und semantischen Regeln korrekten Folgerns*, edited by Jacobi, Klaus, 451-463. Leiden: Brill.

    "In der alten Ausgabe des Kommentars zu den *Zweiten Analytiken* von Aegidius Romanus' findet sich nach dem Kommentar eine kurze Abhandlung aus der Feder des Augustiner-Eremiten Augustinus de Biella. Sie wurde zur Verteidigung der Auffassung des Aegidius über das *medium demonstrationis* geschrieben. Aegidius hatte gelehrt, daß bei einer *demonstratio potissima* (also bei der aristotelischen Apodeixis im strengsten Sinne) das *medium* sich aus der Definition des Attributs *(passio)* ergebe, und nicht, wie die communis opinio lautete, aus der Definition des Subjekts. Wie

üblich, fängt Biella damit an, Argumente gegen die Auffassung Aegidius' anzuführen, um dieselben anschließend zu widerlegen. Biella hat aber augenscheinlich den Text von Aegidius nicht zur Hand gehabt, denn er fährt fort, *dominus* Aegidius sei wohl dieser Auffassung über (las *rnedium demonstrationis* gewesen, "wie ich von den *doctores ordinis (Tatrum heremitarum* gehört habe" (oder: "wie ich es deren Schriften entnommen habe")." (s. .451)

26. ———. 1993. "La supposizione naturale: una pietra di paragone per i punti di vista filosofici." In *Logica e linguaggio nel Medioevo*, edited by Fedriga, Riccardo and Poggioni, Sara, 185-220. Milano: LED, Edizioni universitarie di lettere, economia, diritto.

    Italian translation of: "La philosophie au moyen âge" (1985), chapter 8, pp. 184-203.

27. ———. 1993. "On Buridan's view of Accidental Being." In *John Buridan: A Master of Arts. Some Aspects of His Philosophy. Acts of the Second Symposium Organized by the Dutch Society for Medieval Philosophy Medium Aevum on the Occasion of its 15th Anniversary. Leiden-Amsterdam (Vrije Universiteit), 20-21 June, 1991.*, edited by Bos, Egbert Peter and Krop, Henri, 41-51. Nijmegen: Ingenium Publishers.

    "One of the most striking characteristics of late medieval metaphysics is the upgrading of 'accidental being'. The strict opposition between *'esse per se'* and *'esse per accidens',* which had been of paramount importance ever since Aristotle, has lost its relevance in the ontological discussions of the fourteenth century. The status of 'accidental being' came rather close to that of 'substantial being'. In the views of philosophers such as Ockham and Buridan (not to mention thinkers like Crathorn) the nature of 'accidental being' (or rather 'quantitative and qualitative being') can no longer be properly defined in terms of ontological dependency upon substance. In other words, '*per se* subsistence' is assigned not only to substance but to 'accidental being' as well.

    In the present contribution I will illustrate this development by discussing some of Buridan's expositions in his *Questiones*

commentary on Aristotle's *Metaphysics (IV,* q. 6 and VII, q. 3-4)." (p. 41)

28. ———. 1993. "Works by Gerald Ot (*Gerardus Odonis*) on logic, metaphysics and natural philosophy rediscovered in Madrid, Bibl. Nac. 4229." *Archives d'Histoire Doctrinale et Littéraire du Moyen Âge* no. 60:173-193; 378.

    "Some twenty years ago I discovered in the Biblioteca Nacional in Madrid a very interesting manuscript with works (all of them anonymous, to be sure) on logic, metaphysics and natural philosophy. In fact, my discovery turned out to be a rediscovery, for the manuscript contained a note written by the famous historian of Franciscan philosophy and theology, Father Ephrem Longpré OFM, which said that, with the exception of the writings occurring from fol. 204r onwards, all tracts found in this codex are by a Franciscan master, Gerardus Odonis. (...)

    Gerard Odon OFM (who as Patriarch of Antiochia died in 1349 of the plague, at Catania, Sicily, where he was gifted with the benefices of a wealthy church) is especially known as the much troubled successor of the deposed Michael of Cesena as Master General of the Franciscan Order and a close adherent of Pope John XXII in the debate on the beatific vision." p. 173

    "The Ms Madrid, Bibl. Nac. 4229 appears to be of the utmost importance for our knowledge of Gerard Odon's doctrine on several subjects in the fields of logic, metaphysics and natural philosophy. To establish his authorship of all the works as occurring in the present Ms with certainty requires more research. The results of the present investigations can be summarised in the following survey:

    I LOGIC:

    1.1 *Quid est subiectum in logica (69va-74rb)*

    1.2 *De sillogismis (1ra-19va)*

    1.3 *De tribus dubiis circa naturam dictionum exclusivarum et suppositionis simpliciter simplicis (37rb-43ra)*

    1.4 *De principiis scientiarum (45ra-69va)*

II METAPHYSICS:

2.1 *De intentionibus (incomplete; 74va-122vb)*

2.2 *De esse et essentia (125ra-132vb)*

2.3 *De principiis nature (156ra-174vb, together with 19va-28vb)*

2.4 *De natura universalis (incomplete; 204ra-207vb)*

III NATURAL PHILOSOPHY:

3.1 *De augmento forme (132vb-150rb)*

3.2 *De intensione et remissione formarum (175ra-179ra)*

3.3 *De continuo (179rb-186vb)*

3.4 *De loco (187ra-192va)*

3.5 *De tempore (192vb-199va)*

3.6 *De motu (199vb-203vb)*" (p. 193?

29. ———. 1994. "John Buridan on man's capability of grasping the truth." In *Scientia et ars im Hoch- und Spätmmittelalter*, edited by Craemer-Rügenberg, Ingrid and Speer, Andreas, 281-303. Berlin: Walter de Gruyter.

    Miscellanea Mediaevalia, vol. 22/1.

    "Introduction. As is well-known, two subjects are distinctive of the fourteenth century theory of cognition, namely *'certitudo'* and *'evidentia'*. It is true, thirteenth century philosophers, such as Thomas Aquinas, were also concerned with certitude and evidentness as indispensable requisites for 'true knowledge' *('scientia')*. However, until the end of the thirteenth century certitude and evidentness were not prominent in the discussions about the cognitive procedure nor were they treated as separate matters, requiring separate attention. In Thomas Aquinas for example, the conviction that man is really capable of grasping the truth with certainty is really constitutive of his philosophical (and theological) thought and praxis (*)', or to speak with J. A. Aertsen, of 'Thomas' way of thought'.(**) This, however, does not alter the fact that in Aquinas' philosophy

'certitudo' is not highlighted as such, and the specific role of 'evidentia' is even virtually ignored.

Buridan's theory of cognition, on the contrary, clearly focusses on the ingredients *'certitudo'* and *'evidentia',* and, within this framework, on the notion of *'assensus'*. In the present paper I aim to elucidate the role of this key notion of John Buridan's theory of cognition." (p. 281)

(*) See the excellent paper by Gerard Verbeke, "Certitude et incertitude de la recherche philosophique selon saint Thomas d'Aquin", in: *Rivista di Filosofia neo-scolastica* 66 (1974), 740-57.

(**) Jan Aertsen, *Nature and Creature. Thomas Aquinas' Way of Thought*. Studien und Texte zur Geistesgeschichte des Mittelalters herausgegeben von Albert Zimmermann, Band XXI, Leiden etc. 1988, *passim*.

30. ———. 1994. *Nicholas of Autrecourt: His Correspondence with Master Giles and Bernard of Arezzo*. Leiden: Brill.

A critical edition by L. M. de Rijk from the two Parisian manuscripts with an introduction, English translation, explanatory notes and indexes.

Contents: Acknowledgements IX; Introduction 1; 1. Nicholas of Autrecourt. Life and works 1; 2. Nicholas' correspondence with Bernard and Giles 5; 3. The extant letters. Their tradition and structure 24; 4. Principles of the present edition and translation 37; Conspectus siglorum 45; Text and translation 46; Explanatory notes 113; Appendices 139; Indices 209; Bibliography 238.

"The present edition is based on the two Mss hitherto known, Paris, *BN lat*. 16408 (A) and 16409 (B). They are far from being perfect as they derive from exemplars that were themselves not quite reliable witnesses of the letters. However, they provide sufficient support for constituting a critical edition.

(...)

A translation is provided in order to make the letters accessible to all those who are not well-acquainted with Latin grammar

and idiom. For that matter, Nicholas writes in a fairly clear and occasionally vivid Latin, but he is not a talented stylist. At times, he is not very particular about contaminated constructions. I have tried to smooth away some of these solecisms." (pp 37-38)

31. ———. 1994. "A special use of 'ratio' in 13th and 14th century metaphysics." In *Ratio. VII Colloquio del Lessico Intellettuale Europeo. Roma, 9-11 gennaio 1992*, edited by Fattori, Marta and Bianchi, Massimo Luigi, 197-218. Firenze: L. S. Olschki.

    "In the opening lines of the fifth tract of his Summulae Peter of Spain deals with six different meanings of the terminus technicus 'ratio'. (a)

    Three of them are relevant to the present discussion:

    'Ratio' is used in more than one way. In one way it is the same as definition or description, as in «univocal things are those which have a name in common and whose 'ratio substantie' corresponding to that name is the same» (b) [...]. In another way 'ratio' is the same as the form imposed on matter (forma materie), e.g. in a knife iron is the matter and the arrangement imposed on the iron is the form. In yet another way 'ratio' is the same as a common essence that is predicable of many things, e.g. the essence of a genus, a species or a differentia. [...].

    The aim of the present paper is to elucidate the important role of the term 'ratio' in metaphysical discussions from the thirteenth century onwards. The three above mentioned senses all refer to (what belongs to) a thing's essential nature. The first sense, however, is the one that comes

    most close to the subject matter of our discussion. (c) The opening lines of Aristotle's Categoriae, which are referred to by Peter may serve as the starting point of our investigation." (p. 197)

    (...)

    "7. *Conclusion.*

    We may summarise the foregoing observations as follows:

(1) As early as in Boethius (Aristotle) *ratio* (Greek 'logos') was used to stand for one specific (ontic or logical) characteristic that a thing has in common with other things, notwithstanding the dissimilarity of their respective 'complete natures'. Thus 'man' and 'cow' have the *ratio animalis* in common and a white wall and a white statue have whiteness in common.

(2) Ratio may also be used to refer to a thing's 'complete nature' as distinct from either the nature of other things (e.g. the *ratio hominis* vs the *ratio lapidis*) or from the thing's individuality (*ratio singularitatis*).

(3) Distinguishing several *rationes* in one and the same thing is a procedure which is typical of man's intellectual capability. This procedure forms the backbone of many philosophical and theological arguments concerning God and the entities occurring in the outside world.

(4) Possible translations of *ratio* as used in the special sense discussed in this paper are:

- *logically*: 'logical aspect', 'logical characteristic'; 'concept', 'notion' (bearing on some aspect characteristic or feature); 'meaning', 'descriptive account', 'definition'.

- *ontologically*:'ontic aspect', 'characteristic', 'feature' (including formal ones)." (p. 218)

(a) Peter of Spain, Tractatus called afterwards Summule logicales. First Critical Edition from the Manuscripts with an Introduction by L. M. de Rijk, Assen, 1972, p. 55, 4-14. Cf. the English translation in The Cambridge Translations of Medieval Philosophical Texts, Vol. I: Logic and the Philosophy of Language, edited by Norman Kretzmann and Eleonore Stump, Cambridge etc., 1988, p. 226.

(b) ARISTOTLE, Categoriae, 1, 1 a 8-9.

(c) For that matter, the distinction between the three senses as given by Peter of Spain is not entirely clear-cut: they are, at least partially, overlapping.

Digital Quadrivium Project



History of Logic

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Annotated Bibliography of Lambertus Marie de Rijk. Third Part: from 1987 to 1994

Bibliography

1. Rijk, Lambertus Marie de. 1987. "The anatomy of the proposition. *Logos* and *Pragma* in Plato and Aristotle." In *Logos and Pragma: Essays on the Philosophy of Language in Honour of Professor Gabriel Nuchelmans*, edited by de Rijk, Lambertus Marie and Braakhuis, Henk A.G., 27-61. Nijmegen: Ingenium Publishers.

   "Introductory

   This study is written in honour of a scholar who, among many other things, has laid the solid basis for the study of what may be considered the kernel of the semantics of the statement-making utterance, viz. the definition of the bearers of truth and falsity.

   In the first section I present a survey of Plato's semantics of the statement-making expression and a number of key notions involved. Next, I explore Aristotle's views of the matter, starting with a discussion of Aristotle's notion of *pragma* including that of being *qua* truth and not-being *qua* falsehood. In search for the nature of Aristotle's *logos,* I discuss this notion as it occurs on the *onomazein* level as well as the way in which it acts on the *legein* level. Next, I investigate the important notions of *synthesis* and *dihaeresis* and the role of *einai* as a monadic functor and *qua* syncategorematic container of categorial being.

Finally, I attempt to present a characterization of Aristotle's statement-making utterance.

(...) p. 27

"Epilogue

We may summarize what we have found as follows:

1 For Plato,

1.1 a *logos* is a composite expression consisting of a name *(onoma)* and an attribute *(rhêma)* which as such is not yet a statement-making utterance

1.2 a logos represents a state of affairs *(pragma),* i.e. an actual combination of some participata *(dynameis)* in the outside world

1.3 a *logos eirêmenos is* a statement-making utterance; it asserts that the pragma represented by the logos is actually the case.

2 For Aristotle,

2.1 a *logos* is a composite expression consisting of an *onoma* and *a rhêma* which represents both a notional and an ontological state of affairs. It may be characterized as a 'statable complex'

2.2 a *pragma is* a state of affairs either *ontologically:* state of affairs being part of the outside world or *semantically:* state of affairs conceived of and expressed by a logos

2.3 a *logos apophantikos* ('statement-making utterance') is a logos actually stated (either asserted or denied)

2.4 a logos may as such be used either on the *onomazein* level or on the *legein* level (qua *logos apophantikos*). Similarly, *phasis* (*kataphasis, apophasis*) may be used on either of these levels

2.5 *synthesis* is either synthesis1, = the act of uniting an onoma and a rhêma into a logos (on the *onomazein* level) or synthesis2 = the assertion of such a union accomplished in *a logos*

apophantikos, (on the *legein* level), while *dihairesis* is always the denial of such a union (on the *legein* level)

2.6 the *esti* forming part of *a logos apophantikos is* not a copula, properly speaking. Rather, it is a sign of (it consignifies, to speak with *De interp*. 3,16b24-5) synthesis2. The onoma and rhêma are already united to make up a logos ('statable complex') by synthesis, and, then, the *esti* rather than acting as a dyadic copulative functor, is merely a monadic sign of the 'statable complex' being actually stated

2.7 The propositional structure found in the *logos apophantikos* may be described as follows:

linguistically: a logos expressing categorial being (i.e. syncategorematic being implemented by one or more of the ten categories of being) is stated (either affirmatively or negatively) by means of the monadic functor 'be' or 'not be' *semantically*: the pragma represented by the logos is said to be (or not to be, respectively) part of the outside world (or: 'be (not) the case')." (pp. 53-54, notes omitted).

2. ———. 1987. "Logic and ontology in Ockham. Some notes on his view of the Categories of Being and the nature of its basic principles." In *Ockham and Ockhamists: Acts of the Symposium organized by the Dutch society for medieval philosophy Medium Aevum on the occasion of its 10th anniversary (Leiden, 10-12 September 1986)*, edited by Bos, Egbert Peter and Krop, Henri, 25-40. Nijmegen: Ingenium Publishers.

   Reprinted as chapter XIII in: *Through Language to Reality. Studies in Medieval Semantics and Metaphysics*.

   "*Conclusion*. There is no single reason, I think, to ascribe to Ockham any feelings of hostility towards metaphysics on this account. God created 'true and real being', but He created it in shaping 'what is truly and really being', individual beings, that is. As created, it is radically changeable and contingent as well. Uncreated, unchangeable being is not to be created, not even as some mysterious constituent present in creatural being. Human beings are not entitled to sublimate their

(indispensable) conceptual tools (e.g. universal terms) so that they represent unchangeable ontic standards. Whenever we are inclined to do so, Ockham's razor comes in, not however, to make us say that the metaphysical domain is void. Rather logic (and human thought in general) should make us recognize our own limitations, and refrain from speaking about the unspeakable when, and inasmuch as, our linguistic tools are bound to lead us astray. The same applies to Ockham's view of proofs of God's existence. He only admits the proof of God as first preserver of these actual things in this actual world and rejects all atemporal proofs. However, his faith is unshakeable and not involved in any philosophical thinking either. Likewise it is Ockham's ontology (doctrine of being) which is modest, the *onta* 'beings') are as abundant as they are. For that matter, Ockham let them really be (*ontôs einai* Plato would say). Well, in order to let them *be,* human thinking should be prudent in cautiously managing its homemade conceptual apparatus." (pp. 38-39)

3. ———. 1987. "Gilbert de Poitiers. Ses vues sémantiques et métaphysiques." In *Gilbert de Poitiers et ses contemporains: aux origines de la Logica modernorum. Actes du septième Symposium européen d'histoire de la logique et de la sémantique médiévales. Centre d'études supérieures de civilisation médiévale de Poitiers, Poitiers, 17-22 Juin 1985*, edited by Libera, Alain de and Jolivet, Jean, 147-171. Napoli: Bibliopolis.

   "La contribution à notre Symposium que je vous propose maintenant a pour but de n'envisager l'oeuvre théologique du fameux maître chartrain qu'au profit de notre connaissance de sa pensée philosophique. A l'intérieur de cette entreprise, on portera un intérêt spécial à l'interférence des vues sémantiques et métaphysiques chez Gilbert.

   Prenons notre point de départ dans son commentaire sur le *De hebdomadibus* de Boèce. On va voir que l'étude de cette oeuvre nous fera entrer dans le coeur même de la problématique." (p. 147)

   (...)

" Je suis d'avis que la finesse des expositions théologiques et philosophiques que nous offre le Porrétain nous échappe, à moins qu'elles ne soient replacées dans leur contexte sémantique. C'est bien dans le domaine de la sémantique que Gilbert est digne du vif intérêt de l'historien de la logique médiévale. Non pas seulement parce que ses expositions sont bien imprégnées de la pensée logico-grammaticale de son temps; cela n'a rien d'étonnant étant donné qu'il s'agit d'un savant de son envergure. Mais ce qui est d'un plus grand intérêt pour nous, ce sont les contributions que Gilbert a lui-même faites à l'évolution de la pensée sémantique au douzième siècle.

L'étude des oeuvres théologiques de Gilbert nous permet d'avancer les deux thèses suivantes:

(1) C'est par l'étude sémantique qu'est favorisée au plus haut point notre compréhension des pensées théologiques et philosophiques du Porrétain; je considère comme essentielles la manière et la mesure dont Gilbert a habillé, pour ainsi dire, sa pensée théologique et philosophique du vêtement de ses pensées grammatico-logicales.

(2) En expliquant les difficultés assez pénibles dans les *opuscula sacra* de Boèce, Gilbert a formulé ses propres vues sémantiques. Celles-ci, aussi empreintes de la tradition platonicienne qu'elles soient, ne témoignent pourtant pas moins d'une profondeur vraiment originale." (p. 171)

4. ———. 1987. "War Ockham ein Antimetaphysiker? Eine semantische Betrachtung." In *Philosophie im Mittelalter. Entwicklungslinien und Paradigmen. Wolfgang Kluxen zum 65. Geburstag*, edited by Beckmann, Jan P., Honnefelder, Ludger and Wieland, Georg, 313-328. Hamburg: F. Meiner.

   Reprinted as chapter XIV in: *Through Language to Reality. Studies in Medieval Semantics and Metaphysics*.

   "IV. Schlußbetrachtung. Ockham anerkennt ohne Einschränkung den transzendenten Bezirk, d. h. das Metaphysische oder Übersinnliche als Bezirk; in diesem Sinne ist er also gewiß kein Antimetaphysiker. Aber verwirft er denn die Metaphysik als Wissenschaft, oder höhlt er sie zumindest

aus? Zuerst muß anerkannt werden, daß Ockham im Prinzip der Metaphysik das Weisungsrecht über die Seienden (d. h., für Ockham, die individuellen Seienden) keineswegs abspricht. Zugleich kann nicht geleugnet werden, daß bei ihm der Metaphysik eine auffallend bescheidene Stelle zukommt. Wie läßt sich das unter Berücksichtigung von Ockhams unzweifelbarer Ehrfurcht vor dem Übersinnlieben erklären?

Der Schlüssel zur Lösung dieser Frage liegt nicht bloß in Ockhams Ontologie des individuellen Seins, sondern auch in seinen anthropologischen Auffassungen. Der Mensch ist nach ihm in seinen Denken und Sprechen nicht imstande, das Erhabene wesentlich zu durchforschen. Dessen soll sich der Mensch fort während eingedenk sein. Dies ist für Ockham in zwei deutliche Strategien übersetzbar:

a) nicht jedem modus significandi oder loquendi entspricht ein modus essendi in der Wirklichkeit

b) viele maßgebende Aussagen, sowohl sakrale wie profane, soll man nicht de virtute sermonis (dazu reicht unser Sprechen zuwenig aus), ondern der Ab sicht des Redners oder Schriftstellers entsprechend deuten." (ss. 326-327)

5. Rijk, Lambertus Marie de, and Braakhuis, Henk A.G., eds. 1987. *Logos and Pragma. Essays on the Philosophy of Language in Honour of Professor Gabriel Nuchelmans*. Nijmegen: Ingenium Publishers.

   Table of contents: Introduction XI; List of Professor Nuchelmans' publications 1950-1987 XI-XVII; W. E. Abraham: The strategy of Plato's philosophy of language 1; L. M. de Rijk: The anatomy of proposition: Logos and Pragma in Plato and Aristotle 27; N. Kretzmann: Boethius and the truth about tomorrow's sea battle 63; H. A. G. Braakhuis: The view of Peter of Spain on propositional composition 99; E. P. Bos: The theory of the proposition according to John Duns Scotus' two commentaries on Aristotle's *Perihermeneias* 121; E. Stump: Consequences in Ockham's *Summa Logicae* and their relation to syllogism, topics and insolubles 141; K. H. Tachau: Wodeham, Crathorn and Holcot: the development of the *Complexe significabile* 161; E. J. Ashworth: Jacobus Naveros

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6. Rijk, Lambertus Marie de. 1988. "De quelques difficultés de nature linguistique dans le vocabulaire de Gilbert de la Porrée." In *Actes du colloque Terminologie de la vie intellectuelle au moyen âge*, edited by Weijers, Olga, 19-25. Turnhout: Brepols.

   Colloque at Leyde/La Haye, 20-21 September 1985.

   "On sait que, comme ceux de l'Antiquité, les philosophes du moyen âge ont fait aussi leur propre vocabulaire technique.

   Le but de cette courte communication est de mettre en lumière quelques difficultés spéciales du vocabulaire philosophique et théologique de Gilbert de Poitiers, auteur bien connu de la première moitié du XIIe siècle.

   D'abord, il faut remarquer que ces difficultés ressortent de l'usage très personnel et très original que fait Gilbert des termes courants de la langue philosophique du XIIe siècle.

   Il va de soi que ces difficultés sont délicates une fois de plus pour les philologues, en général pour les non-initiés en ce qui concerne l'histoire de la philosophie, parce que la confusion terminologique se présente déjà dans le domaine philosophique lui-même.

   Aussi va-t-on commencer par quelques termes connus, c'est-à-dire les termes *substantia, subsistentia* et *subsistens* et, dans ce contexte, la différence entre *esse* et *esse aliquid*. On va essayer de placer la terminologie dans le contexte des vues philosophiques de Gilbert, en particulier de la doctrine porrétaine sur le statut ontique de la chose concrète." (p. 19)

7. ———. 1988. "'Categorization' as a key notion in ancient and medieval semantics." *Vivarium* no. 26:1-18.

"The aim of this paper is to argue for a twofold thesis: (a) for Aristotle the verb '*katêgorein*' does not as such stand for statemental predication, let alone of the well-known 'S is P' type, and (b) 'non-statemental predication' or 'categorization' plays an important role in Ancient and Medieval philosophical procedure.

1. *Katêgorein and katêgoria in Aristotle*

Aristotle was the first to use the word 'category' *(katêgoria)* as a technical term in logic and philosophy. It is commonly taken to mean 'highest predicate' and explained in terms of statement-making. From the logical point of view categories are thus considered 'potential predicates'.(*)" (p. 1)

(...)

1.3 *Name giving ('categorization') as the key tool in the search for 'true substance*'

What Aristotle actually intends in his metaphysical discussions in the central books of his *Metaphysics* (Z-Th) is to discover the proper candidate for the name 'ousia'. According to Aristotle, the primary kind of 'being' or 'being as such' *(to on hêi on)* can only be found in 'being-ness' *(ousia;* see esp. *Metaph*. 1028b2). Unlike Plato, however, Aristotle is sure to find 'being as such' in the domain of things belonging to the everyday world. Aristotle's most pressing problem is to grasp the things' proper nature *qua* beings. In the search for an answer name-giving plays a decisive role: the solution to the problem consists in finding the most appropriate ('essential') name so as to bring everyday being into the discourse in such a way that precisely its 'beingness' is focussed upon." (p. 4)

(...)

2. *The use of 'praedicare' in Boethius*

The Greek phrase *katêgorein ti kata tinos is* usually rendered in Latin as *praedicare aliquid de aliquo*. The Latin formula

primarily means 'to say something of something else' (more precisely 'of somebody'). Of course, the most common meaning of the Latin phrase is 'to *predicate* something of something else in making a statement of the form S = P'. However, the verb *praedicare,* just as its Greek counterpart *katêgorein,* is used more than once merely in the sense of 'naming' or 'designating by means of a certain name', regardless of the syntactic role that name performs in a statement. In such cases *praedicare* stands for the act of calling up something under a certain name (designation), a procedure that we have labelled 'categorization'. (...)

Boethius' use of *praedicare* is quite in line with what is found in other authors. Along with the familiar use of the verb for statemental predication, Boethius also frequently uses *praedicare* in the sense of 'naming' or 'designating something under a certain name' whereby the use of the designating word in predicate position is, sometimes even explicitly, ruled out." (pp. 9-10)

(*) See L. M. de Rijk, *The Categories as Classes of Names (= On Ancient and Medieval Semantics 3), in: Vivarium*, 18 (1980), 1-62, esp. 4-7

8. ———, ed. 1988. *Some earlier Parisian Tracts on Distinctiones sophismatum*. Nijmegen: Ingenium Publishers.

   Edited by L. M. de Rijk with introduction and indexes.

   Content: I. Tractatus Vaticanus De multiplicatibus circa orationes accidentibus -- II. Tractatus Florianus De solutionibus sophismatum -- III. Tractatus Vaticanus De communibus distinctionibus.

   "As a matter of fact, syncategorematic words(3) play a predominant role in ambiguous expressions and sentences taken as a genre called *sophismata*, i.e. puzzling sentences of which the exact meaning can only be determined by introducing subtle semantic distinctions.(4) Every reader of the tracts involved is well acquainted with the Mediaeval authors' habit of closely linking up the treatment of syncategoremata with the solution to fallacies and sophismata. The author of the

pseudo-Boethian tract *De disciplina scolarium* also testifies to the close connection of these items, when he recommends the study of syncategoremata:

Terminorum autem determinaciones quae sincategoreumata appellamus, memorialiter menti imprimende, utpote que sophistice non parum deserviunt fantasie.(5)

The literary genre covering this sort of scholastic writings, is threefold:

1. the tracts on syncategoremata, which classify the precise meaning of a number of syncategorematic words, the ways in which they are used ambiguously; and they discuss current grammatical, semantic and logical rules related to these words and, finally, deal with special sophismata and the (attempted) solutions to them;(6)

2. the sophismata collections, where the sophismata themselves are the primary objects of discussion, although each of them is typical of a special difficulty concerning special ambiguous terms or phrases;

3. the so-called *Sophistariae*, the tracts on sophismata which, unlike the *Sophismata* collections, take the usual solutions (in fact, *distinctiones* concerning the ambiguous expression involved) as their starting-points." (pp. IX-X)

(3) For the sense of this term, see Kretzmann [1982: 211]: "Any word that can be used alone as a subject term or as a predicate term is classifiable as a categorematic word; all other words are classifiable as syncategorematic words, those that can occur in a proposition ... only along with at least one properly matched pair of categorematic words." See also de Libera [1985b: 64ff].

4. It is aptly defined by Kretzmann [1977: 6] as "a sentence puzzling in its own right or on the basis of a certain assumption, designed to bring some abstract issue into sharper focus the mediaeval ancestor of "The morning star is the evening star" or "George IV wished to know whether Scott was the author of Waverley". He is right in rejecting the modern label 'sophism' as sophismata "are sentences rather than

arguments and intended to be illuminating and instructive rather than specious and misleading". (ibid. n.9; see also Kretzmann [1982: 217, n. 24]. Some Master Martin (? of Alnwick) defines sophisma as 'diversitas veritatis et

falsitatis que in propositionibus oritur ex diversa situatione terminorum exponibilium vel resolubilium facientium terminos sequentes se diversimode supponere'. It should be noted in this connection that Martin's tract belongs to the *Probationes tenninorum* genre. See de Rijk [1982: 33]. 5. I 11, p. 97,6-8, ed. Weyers (Pseudo-Boece, *De disciplina scolarium*. Edition critique, introduction et notes, Leiden-Köln 1976).

6. For this genre, see Braakhuis [1979: passim]; and Kretzmann [1982: passim]. A lucid distinction between the different genres, *Distinctiones*, *Sophismata* and *Syncategoremata* is given by de Libera [1985b: 64-8].

References

H.A.G. Braakhuis, De 13e eeuwse tractaten over syncategorematische tennen. Deel I, Inleidende studie, Meppel 1979

Norman Kretzmann, 'Socrates is Whiter than Plato Begins to be White', *Nous* 11 (1977), 3-15

Norman Kretzmann, 'Syncategoremata, Exponibilia, Sophismata', in *The Cambridge History of Later Medieval Philosophy* (ed. N. Kretzmann, A. Kenny, J. Pinborg, Cambridge 1982), 211-145

Alain de Libera, 'La litterature des abstractiones et la tradition logique d'Oxford,' in *The Rise of British Logic. Acts of the Sixth European Symposium on Medieval Logic and Semantics,* Balliol College, Oxford, 19-24 June 1983, edited by P. O. Lewry, Toronto: Pontifical Institute of Medieval Studies (coll. Papers in Medieval Studies, 7) 1985, 63-114

L.M. de Rijk, 'Some 14th Century Tracts on the probationes terminorum. Martin of Alnwick O.F.M., Richard Billingham, Edward Upton and Others," *Artistarium*. A Series of Texts on

Mediaeval Logic, Grammar and Semantics, eds. L.M. de Rijk, H.A.G. Braakhuis, E.P. Bos, C.H. Kneepkens. Nijmegen 1982

9. ———. 1988. "Semantics and metaphysics in Gilbert of Poitiers. A chapter of Twelfth century Platonism. Part I." *Vivarium* no. 26:73-112.

"1 *The Ontic Constituents of Natural Bodies*

There is one distinction that is of paramount importance in order for us to understand Gilbert's ontology, viz. the Boethian contradistinction of *id quod* and *id quo*. We have to start with this pair of key notions.

1.1 *Preliminary:* 'id quod' and 'id quo'

According to Gilbert, our world consists of a number of individual 'things'. This world and its inhabitants appear to have the following characteristics:

(a) each and every 'thing' is in fact to be considered as one self-contained entity, (a 'subsistens') whose identity and ontological unity are due to the singularity of what is proper to it (*sue proprietatis singularitas; Eut. 30, 88; Trin. 144, 58-62*),

(b) however, every 'subsistent' (henceforth my rendering of Latin 'subsistens') itself consists of a plurality of forms; in addition, there are 'circumstantial features' (rather than 'forms' properly speaking) that determine its actual state or condition ('status'); *Trin. 137, 55;* cf. Nielsen(*), *56-8* and below, our nrs *1.2* and *1.72*.

In fact, Gilbert's ontology is one continuous attempt to establish two basic relationships, one between a natural thing and its Creator and the other between the thing's diverse actual constituents, which while being totally different from each other grant it its intrinsic unity at the same time." (p. 74)

(...)

"1.9 *Summary*

Each inhabitant of our world Gilbert calls (following Boethius) an *id quod est* or *subsistens*. Its main constituents are the *subsistentiae* (or the subsistent's *id quo* which is sometimes

taken collectively to stand for *ea quibus)* and these are accompanied by the 'accidents', quantity and quality. The subsistent owes its status (or transitory condition) to a collection of inferior members of the Aristotelian class of accidents, which to Gilbert's mind are rather 'accessories' or 'attachments from without' *(extrinsecus affixa).*

The term 'substantia' is used both to stand for substance and substantial form *(subsistentia), i.e.,* that by which something is subsistent (or 'is a substance').

The collection of *subsistentiae* (substantial forms) or the *forma totius is* called *natura.* However, 'natura' is also used to stand for either just one *subsistentia* or all the forms found in *a subsistens* even including its 'accidental' forms (quantity and quality). The inclusion of all kinds of accidents (including those inferior ones that make up a thing's *status)* is seldom found in the intension of the word 'natura'.

One of the key notions featuring in Gilbert's ontology is *esse aliquid.* 'To be a-something' has a threefold import. First, it means 'to be only *some* thing', and to miss perfection. Second, it has the positive sense of 'being *a something',* i.e. 'being determinate and well-delineated', not indefinite, not formless that is. Third, 'to be a something' implies concreteness, corporealness and singularity." (pp. 111-112)

(*) Lauge Olaf Nielsen, *Theology and Philosophy in the Twelfth Century*. A study of Gilbert Porreta's thinking and the theological expositions of the doctrine of the Incarnation during the period 1130-1180, Leiden 1982.

10. ———. 1988. "On Boethius' notion of Being. A chapter of Boethian semantics." In *Meaning and Inference in Medieval Philosophy: Studies in Memory of Jan Pinborg*, edited by Kretzmann, Norman, 1-29. Dordrecht: Kluwer.

    Reprinted as chapter I in: *Through Language to Reality. Studies in Medieval Semantics and Metaphysics*.

    "From Parmenides onwards, ancient and medieval thought had a special liking for metaphysical speculation. No doubt, speculative thought was most influentially outlined by Plato

and Aristotle. However, what the Christian thinkers achieved in metaphysics was definitely more than just applying and adapting what was handed down to them. No student of medieval speculative thought can help being struck by the peculiar fact that whenever fundamental progress was made, it was theological problems which initiated the development. This applies to St Augustine and Boethius, and to the great medieval masters as well (such as Anselm, Thomas Aquinas, Duns Scotus). Their speculation was, time and again, focused on how the notion of being and the whole range of our linguistic tools can be applied to God's Nature (Being).

It is no wonder, then, that an inquiry into Boethius's notion of being should be concerned, first and foremost, with his theological treatises, especially *De hebdomadibus*. (p. 1)

(...)

My final section aims at showing how Boethius's notion of being is clearly articulated in accordance with his semantic distinctions. This is most clearly seen in the main argument of *De hebdomadibus* where they may be actually seen at work.

As is well known, the proper aim of *De hebdomadibus* is to point out the formal difference between *esse* and *esse bonum,* or in Boethius's words: 'the manner in which substances *are good* in virtue of their *being,* while not yet being substantially good' (38.2-4). Its method consists in a careful application of certain formal distinctions, viz.:

(a) The distinction between an object 'when taken as a subsistent whole and *id quod est* = the constitutive element which causes the object's actually' being; it is made in Axiom II and used in Axiom IV.

(b) The distinction (closely related to the preceding one) obtaining between the constitutive element effecting the object's actual being *(forma essendi,* or *ipsum esse)* and the object's actuality as such (*id quod est* or ipsum est); it is made in Axioms VII and VIII.

(c) The distinction between *esse* as 'pure being' (= *nihil aliud praeter se habens admixtum),* which belongs to any form, whether substantial or incidental, and *id quod est* admitting of some admixture (lit. 'something besides what it is itself'); it is made in Axiom IV and in fact implies the distinction between *esse simpliciter* and *esse aliquid*.

(d) The distinction between 'just being some thing', *tantum esse aliquid,* and '*being* something *qua* mode of *being'*. It is made in Axiom V and used in Axiom VI and is in fact concerned with a further distinction made within the notion of *id quod est*. It points out the differences between the effect caused by some form as constitutive of being *some* thing and that caused by the main constituent *(forma essendi)* which causes an object's *being simpliciter*.

(e) The distinction between two different modes of participation, one effecting an object's *being subsistent,* the other its being *some* thing, where the '*some* thing' (*aliquid*) refers to some (non-subsistent) quality such as 'being white', 'being wise', 'being good', etc.

The application of these distinctions enables Boethius to present a solution to the main problem: although the objects (*ea quae sunt,* plural of *id quod est*) *are* (*are good*) through their own constitutive element, *being* (*being good*), nevertheless they are not identical with their constitutive element nor (*a fortiori*) with the IPSUM ESSE (BONUM ESSE) of which their constituent is only a participation." (p. 22-23)

11. ———. 1989. "Semantics and metaphysics in Gilbert of Poitiers. A chapter of Twelfth century Platonism. Part II." *Vivarium* no. 27:1-35.

"Gilbert's View of Transcendent Reality.

Gilbert's world consists of quite a lot of singular subsistent objects which owe their being and 'being-a-something' to a collection of forms, both subsistential and accidental. Well, God has created this world after what in the Platonic tradition was called the 'exemplary Forms'. For Gilbert, creation and concretion are two complementary notions which play an

important role in his ontology. Creation is the reception of a total form or collection of subsistentiae; it is also called generation. As a natural process it amounts to 'beginning to be-of-acertain-kind'." (p. 1)

(...)

"POSTSCRIPT. In his short study on Gilbert of Poitiers (in *A History of Twelfth-Century Western Philosophy,* ed. Peter Dronke, Cambridge 1988, 328-52) John Marenbon rightly argues that when presenting an account of Gilbert's thought one should not separate his philosophy from his theology. However, I fully disagree with his suggestion (p. 351) that as a metaphysician Gilbert proves to have been a thinker whose 'treatment is inadequate and confused'. On the contrary, when dealing with really intricate theological problems Gilbert of Poitiers, like many other Medieval thinkers (e.g. Thomas Aquinas), develops his (NeoPlatonic) metaphysics as a 'clear-minded and subtle writer', and so there seems to be no reason at all to oppose Gilbert against people like Aquinas, Scotus, Ockham and others. They were all real philosophers, albeit in a theological context, which *as such* confronted them with a series of genuinely philosophical issues. In fact, why should any historian of philosophy approach only Gilbert of Poitiers 'as a thinker who tackled a set of changeless *(sic!)* metaphysical problems-identical (sic!) to those which faced, for instance, Plato and Aristotle, or Kant and Hegel'?" (pp. 34-35)

12. ———. 1989. *Through Language to Reality: Studies in Medieval Semantics and Metaphysics*. Northampton: Variorum Reprints.

    The volume is dedicated to L. M. De Rijk on the occasion of his 65th birthday.

    Contents: Preface IX-XI; SIXTH CENTURY: I. On Boethius's notion of Being. A chapter of Boethian semantics; TWELFTH CENTURY: Peter Abälard (1079-1142): Meister und Opfer des Scharfsinns; III. The semantical impact of Abailard's solution of the problem of universals; IV. La signification de la proposition (*dictum propositionis*) chez Abélard; V. Die Wirkung der neuplatonischen Semantik auf das mittelalterliche

Denken über das Sein; VI: Abailard's semantics views in the light of later developments; THIRTEENTH CENTURY: VII. Die Bedeutungslehre der Logik im 13. Jahruhndert und ihr Gegenstück in der metaphysischen Spekulation; VIII. Each man's ass is not everybody's ass. On an important item in 13th-century semantics; IX. The development of *Suppositio naturalis* in mediaeval logic, I. Natural suppositiojn as non-contextual supposition; FOURTEENTH CENTURY: X. The development of *Suppositio naturalis* in mediaeval logic, II. 14th-century natural supposition as atemporal (omnitemporal) supposition; XI: On Buridan's doctrine of connotation; XII. Semantics in Richard Billingham and Johannes Venator; XIII. Logic and ontology in Ockham. Some notes on his view of the categories of Being and the nature of its basic principles; XIV. War Ockham ein Antimetaphysicker? Eine semantische Betrachtung; Indexes. 1. Manuscripts; 2. Anonymous tract; 3. Ancient and medieval names; 4. Modern names; 5. Subjects and terms. (This volume contains XII + 322 pages).

13. ———. 1989. "Ist Logos Satz? Zu Heideggers Auffassung von Platons Stellung 'am Anfänge der Metaphysik'." In *Heideggers These vom Ende der Philosophie. Verhandlungen des Leidener Heidegger-Symposiums (April 1984)*, edited by Fresco, Marcel, Van Dijk, Rob and Vijgeboom, Peter, 22-32. Bonn: Bouvier Verlag.

14. ———. 1989. "Einiges zu den Hintergünden der Scotistischen Beweistheorie: die Schlüsselrolle des Sein-Könnens (*Esse possibile*)." In *Die Kölner Universität im Mittelalter. Geistige Wurzeln und soziale Wirklichkeit*, edited by Zimmermann, Albert, 176-191. Berlin: Walter de Gruiyter.

    "Wer Scotus' Beweistheorie in den Griff bekommen will, wird schließlich noch dadurch mit einer dritten Belastung rechnen müssen, daß Scotus sich nie in einer eigenen Kommentararbeit zu Aristoteles' *Zweiten Analytiken* systematisch über die Lehre vom Beweis geäußert hat, wie stark er auch immer, wie die übrigen mittelalterlichen Denker, in seiner Auffassung der Beweislehre vom aristotelischen Gedankengut beeinflußt wurde.

Es scheint mir daher angebracht, zuerst etwas vorzubringen über die Rolle, die eine Beweistheorie, oder vielmehr ein Beweisverfahren, in jedem beliebigen spekulativen Denksystem, ungeachtet dessen theologischer oder philosophischer Natur, besitzt; zunächst soll etwas über die Lehre vom Beweis bei Aristoteles und den mittelalterlichen Autoren, besonders Scotus, gesagt werden, um zuletzt einige wichtige Punkte aufzugreifen, deren genauere Betrachtung uns die wichtigeren Hintergründe des scotischen Denkens über Beweis und sicheres Wissen vordringen läßt." (s. 177)

15. Peter, of Spain. 1990. *Language in Dispute: An English Translation by Francis P. Dinneen of Peter of Spain's Tractatus called afterwards Summulae logicales*. Amsterdam, Philadelphia: Benjamins.

    On the basis of the critical edition established by L. M. De Rijk.

16. Rijk, Lambertus Marie de. 1990. "Ockham's theory of demonstration: his use of Aristotle' s *kath' holou* and *kath' hauto* requirements." In *Die Gegenwart Ockhams*, edited by Vossenkuhl, Wilhelm and Schõnberger, Rolf, 232-240. Weinheim: VCH-Verlagsgesellschaft.

    "Far from being a sceptic William of Ockham made every effort to corroborate the basis of philosophical and theological thought by purifying it of all sorts of untenable presuppositions. His main contribution to fourteenth century philosophical and theological development lies in systematically rethinking scholastic doctrines, and especially their assumptions, on the firm basis of his own favourite leading principles: the strictly individual nature of all that really is and the radical contingency of all creatural being.

    These two principles also play a major part in Ockham's way of dealing with the Aristotelian theory of demonstration. The present paper aims at investigating Ockham's doctrine of demonstrative proof, focusing on the way in which he felt forced to adapt or rephrase the special requirements Aristotle had laid down for propositions to enter into syllogistic proof, especially strict proof (the so-called '*demonstratio potissima*'). Our main argument will concern Aristotle's rather peculiar

'*kath holou*' requirement and Ockham's appliance of the '*kath hauto*' (Latin: 'per se') notion which is also involved in framing correct premisses for demonstrative proofs. A few preliminary remarks will be made about the essentials of Aristotle's theory of demonstration." (p. 232)

(...)

"Conclusions.

To sum up our findings: Ockham's adaptations and manipulations of Aristotle's requirements for genuine demonstrative propositions are as many demands imposed by his own metaphysical views. He comments on Aristotle, always starting from his own favourite views. Though Aristotle is the Master, Ockham is the one to say what the Master meant, or what he should have meant. On the other hand, his introducing the *'per se strictissimo modo*' rather seems to be a matter of technicality. Whereas in *Posterior Analytics* Aristotle deals with the scientific procedure of *apodeixis* in general, in which the apodeictic syllogism is merely a vehicle for correctly framing an *apodeixis,* the Medievals, and Ockham in particular, were apt to reduce Aristotle's theory of demonstrative proof to a theory of demonstrative syllogism. That is why the '*demonstratio potissima*' (including its specific demands) so heavily influenced Ockham's theory of demonstration." (p. 239)

17. ———. 1990. "Specific tools concerning logical education." In *Méthodes et instruments du travail intellectuel au moyen âge*, edited by Weijers, Olga, 62-81. Turnhout: Brepols.

"Unlike in our days logical doctrine was very influential in the Middle Ages. Logic was indeed considered then the vehicle par excellence both in matters of teaching and scientific inquiry in any field of knowledge. When embarking upon a discussion of the specific terminology concerning logical education, some preliminary remarks seem to be indispensable.

The reader should be warned, first. Logical theory taken as such, which comprises a great mass of specifically logical terms (such as 'praedicamentum', 'predicable', 'syllogism', 'fallacy', 'supposition', 'appellation', 'ampliation', 'distribution',

'syncategorema', and so on) is out of scope now; those terms and their like will be mentioned only in passing, inasfar namely as they occur in educational practice.

Another remark better starts from the well-known Medieval distinction between logica docens and logica utens, the former of which being logical doctrine as developped, expounded and taught for its own sake, whereas the latter is rather logic practically applied in any sort of logical analysis or argumentation. To be sure, logica utens does not merely coincide with the more or less explicit occurrence of logical argumentation in whatever context. Even qua logica utens the art of logic displayed a high degree of technicality. In other words: medieval logica utens rather than being practical argumentation as loosely accomplished by somebody who exhibited a remarkable natural ability for logical reasoning consisted in the performance of somebody being really well-versed in all those logical techniques he had been taught in his youth in class room. So, whoever is interested in specific terms of logical teaching and learning should surely not leave exhibitions of logica utens out of consideration (*).

Our third remark which is in the line of the previous one, concerns the remarkably wide scope of logica utens. Of course, logica docens played a very important part in Medieval education, as may be also gathered from its predominant position in Medieval curricula. However, according to a good Peripatetic tradition, logic was taken to serve as the organon or instrument of all other branches of learning and science, which means that logic, and logic alone, provided other disciplines with the correct art of thinking and reasoning. Thus logic proves to have been effectually present, for example, in theological disputation, a fact that every student of Medieval theology is fully aware of. But it had an equally prevailing position in other fields of learning, too, such as Natural science ("Physics"), Ethics and even Political philosophy.

A final preliminary remark aims at elucidating the large scope of Medieval logic from still another point of view, viz. the close relationship between scientific inquiry and exposition as well as

scientific education in the Middle Ages. That is to say that scientific inquiry and exposition as well as education and learning were controlled by the same didactics of exposition and argumentation. Indeed, nearly all Medieval writings that contain scholarly investigations in any field of learning whatsoever display didactic approaches which are quite similar to those used by works mainly intended for instruction, no matter for the benefit of beginners or advanced people." (pp. 62-63)

(*) For the contradistinction of *dialectica docens* and *dialectica utens* both of them especially concerned with the use of logical topics (*loci*), see Eleonore Stump, *Topics: their development and absorption into consequences* in *The Cambridge History of Later Medieval Philosophy,* 1982, p. 281, n. 41.

18. ———. 1990. "The Posterior Analytics in the Latin West." In *Knowledge and the Sciences in Medieval Philosophy: Proceedings of the Eight International Congress of Medieval Philosophy (SIEPM), Helsinki, 24-29 August 1987. Volume I*, edited by Asztalos, Monika, Murdoch, John Emery and Niiniluoto, Ilkka, 104-127. Helsinki: Acta Philosophica Fennica.

"It is common knowledge that Aristotle had the conviction that all reality was to be found within our world of sensible experience and that Plato's assumption of another, Transcendent World of Perfect Being was merely 'empty talk and poetic metaphor' *(Metaph.* A9, 991a20). Indeed, Aristotle took Plato's Forms to be quite useless for explaining the possibility of true knowledge about our world. However, like his master, Plato, Aristotle stuck to the Parmenidean conviction about the real existence of unchanging formal principles of being. As is well-known, his formal principles are *in* things as their immanent dynamic natures (*eidê*).

For Aristotle, true knowledge concerns the essential natures immanent in things (see e.g. *Metaph.,* 991a12-3; 999a24-9; 1018b36; 1032b1 ff. et alibi). To be sure, all being is individual being and so Aristotle is compelled to answer the quite intriguing question: if the proper object of true knowledge is universal nature and everything real is a particular, how, then,

are we able to gain genuine knowledge about the things in their own right? In his *Posterior Analytics* Aristotle explains what he understands by truly knowing things. Well, quite in line with his philosophical stand, Aristotle claims that all scientific knowledge is concerned with discerning a universal nature as *immanent in* a particular. In I 2, 72a75-7 e.g., it is explicitly said that the elements of the deduction are such and such *in concreto* (cf. 73a29-31). For Aristotle, demonstration in fact concerns some *phenomenal state of affairs* of which the investigation aims to clarify the essential structures." (p. 102)

(...)

"Aristotle's description of induction and its role in the scientific process fits in remarkably well with what he has earlier remarked about the process of proper categorization. Referring to the well-known battle simile - how a general retreat comes to an end after one man makes a stand, and then another *etc.,* the author argues that 'as soon as one of the undifferentiated percepts makes a stand, there is a primitive universal in the mind ... until the highest genera have been reached' (II 19, 100a14-b4).

The faculty, or rather cognitive attitude, by which we become familiar with the first principles is the *Nous* or intellective apprehension. Well, just as the Nous precedes all principles (such as axioms etc.), in the same way scientific knowledge covers the whole domain of states of affairs (*pragmata*), Aristotle concludes (100b16-17).

Let us try, now, in the next sections, to discover the Medievals' doctrinal reception of the *Posterior Analytics* by discussing their views of some themes characteristic of Aristotle's scientific method. It would be useful, to that end, to single out the following items: the Medievals' discussion of the well-known four questions, their views of the three requirements for 'hunting essential attributes', their (different) views of necessity, and, finally, the Medieval conceptions of induction and our knowledge of the First Principles." (p. 110)

19. ———. 1990. "Un tournant important dans l'usage du mot 'idea' chez Henri de Gand." In *Idea. VI Colloquio Internazionale del*

Lessico internazionale Europeo. Roma, 5-7 Gennaio 1989, edited by Fattori, Marta and Bianchi, Massimo Luigi, 89-98. Roma: Edizioni dell'Ateneo.

"1. *Introduction.* On sait que le terme 'idée' était un mot-clé dans la métaphysique de Platon. Les exposés importants de ce matin ont rendu entièrement superflu de rappeler le rôle du mot idea chez Platon ainsi que dans la tradition platonicienne et dans la patristique.

Les communications que nous venons d'écouter cet après-midi nous ont fait comprendre l'importance du mot latin *idea, ou* plutôt la valeur de la notion d'idée, dont le mot *idea* n'était que l'un des véhicules à côté de *forma, species, notio, conceptus, intentio,* etc.

Il n'est pas nécessaire d'être spécialiste de l'histoire de la philosophie médiévale pour bien savoir que, quelle que soit la dette des auteurs médiévaux envers des sources antiques, et quel que fût le respect qu'ils ont ressenti envers toute autorité -- les sources ne les ont cependant jamais empêchés de suivre leur propre voie au fur et à mesure que cela s'imposait dans l'intérêt de leur réflexions philosophiques.

C'est pourquoi l'étude de l'usage des termes philosophiques et leur développement au cours du moyen-âge n'est pas seulement d'intérêt linguistique. Au contraire, l'analyse de ce développement est tout à fait indispensable pour bien comprendre les doctrines philosophiques elles-mêmes de la période médiévale.

Je me propose dans cette communication de mettre en relief le tournant important qu'a subi l'usage du mot latin *idea* chez certains auteurs de la seconde moitié du 13e siècle, usage, bien entendu, qui s'est prolongé au 14' siècle. La figure centrale sera celle du philosophe flamand Henri de Gand (mort en 1293).

Comme je viens de vous suggérer, ce tournant est significatif d'un développement doctrinal chez ces auteurs. Aussi ce développement doctrinal s'impose comme le cadre adapté aux exigences d'un exposé sémantique à propos de l'usage du mot

idea, disons après saint Thomas d'Aquin (mort en 1277)." (p. 89)

20. ———. 1991. "Two short questions on Proclean metaphysics in Paris B. N. lat. 16.096." *Vivarium* no. 29:1-12.

    "The collectaneous manuscript Paris, B.N. lat. 16.096 (formerly belonging to the codices Sorbonnenses) contains (ff. 172va-177vb, which part dates, it seems, from the second half of the 13th century) some anonymous questions referred to by the catalogue (*) as Quaestiones super librum Posteriorum. This description, however, is incorrect as these questions have no bearing whatsoever on the doctrine of Aristotle's Posterior Analytics. Actually, they are two short metaphysical questions (called expositiones by the author) on the key notions of 'beingness' and 'oneness' respectively, followed by a longer, incomplete treatise on the nature of the components of a definition (or rather a diffinitum).

    (...)

    Only two of the five questions announced in the beginning of this third treatise are preserved. One of them deals with the problem of whether the definition consisting of genus and differentia requires a real composition of the components of the diffinitum, the other examines whether immaterial substances are composite in some respects. Unlike the first two tracts, the third does not show any influence of Neoplatonic doctrine.

    To my knowledge, the expositions on Ens and Unum have only come down to us in the Paris manuscript. They are interesting in that the author makes a successful effort to penetrate some of the basic views of Proclean metaphysics." (pp. 1-2, notes omitted)

    (*) L. Delisle, Inventaire des manuscrits latins de la Sorbonne, conservés à la Bibliothèque Impériale sous les nos. 15.176-16.718 du fonds latin, in: Bibliothèque de l'École des chartes, 31 (1870), 135 ff.

21. Peter, of Spain. 1992. *Syncategoreumata*. Leiden: Brill.

First critical edition by L. M. de Rijk with an introduction, critical apparatus, indexes and an English translation by Joke Spruyt.

Content of the English translation: Introduction 39; Chapter 1. On composition 45; Chapter 2. On negation 73; Chapter 3. On exclusive words 105; Chapter 4. On exceptive words; Chapter 5. On consecutive words 197; Chapter 6. On the verbs 'begins' and 'ceases' 249; Chapter 7. On the words 'necessarily' (*necessario*) and 'contingently' (*contingenter*) 283; Chapter 8. On conjunctions 307; Chapter 9. On '*Quanto*', '*Quam*' and '*Quicquid*'; Chapter 10. On answers 425; Critical apparatus 434; Index locorum 572; Index rerum notabilium 574; Index sophismatum 613.

"Peter of Spain (ca 1205-77) who, in 1276, became Pope under the name of John XXI, was the author of an impressive number of scholarly works, inter alia the Tractatus (a textbook of logic, widely known afterwards under the title Summule logicales) and the Syncategoreumata. The latter work, which deals with syncategorematic terms, is here critically edited for the first time, together with an English translation.

Peter's authorship of the Syncategoreumata is beyond all doubt: it is confirmed again and again by nearly all our manuscripts. As to the date and place of origin of the Syncategoreumata: they were surely written after the Tractatus (which were written not later than the 1230's, see my Introduction to the edition of this work, p. LV-LVII).

There is no reason at all to assume a connection between the Syncategoreumata and Peter's stay at the University of Paris, which he left in 1229, before the composition of the Tractatus. Clearly, Paris does not play any role in the early diffusion of the Syncategoreumata. It seems highly probable, therefore, that the Syncategoreumata were written by Peter in the same region where he wrote the Tractatus, i.e. Northern Spain or Southern France. The work's most likely date is between 1235-1245 (cf. my Introduction to the Tractatus, pp. XXXIV-LXI). From Peter's use of lectio (see X, cap. 8) it may be concluded that the

Syncategoreumata were meant as a piece of school-teaching." (p. 9, notes omitted)

22. Rijk, Lambertus Marie de. 1992. "Causation and participation in Proclus. The pivotal role of scope distinction." In *On Proclus and His Influence in Medieval Philosophy*, edited by Meijer, Pieter Ane and Bos, Egbert Peter, 1-34. Leiden: Brill.

    1. Status questionis; 2. Causation and participation in Plato; 3. Procession and participation in Plotinus and Jamblichus; 4. Proclus' refined metaphysics; 4.1 Preliminary; 4.2 The Proclean universe from the viewpoint of causation; 4.3 The Proclean universe from the viewpoint of participation; 5. The meaning of *amethekton* and *metekomenon* in Proclus; 5.1 *Méthexis* c.a. in the *Elementatio*; 5.2 *Méthexis* c.a. in the *Platonic Theology*; The basic role of the *metexomenon* for continuity and reversion; Scope distinction in Neoplatonic doctrine and procedure; 7.1 Two famous cases of scope distinction in Proclus; 7.2 Scope distinction deliberately applied and recommended; 7.3 The philosophical impact of scope distinction in Neoplatonism.

    "The present paper aims to investigate in some more detail the transcendence-immanence antinomy. First an outline of its historical background will be presented from Plato onward through Plotinus and Jamblichus up to Proclus. Next I shall discuss Proclus' doctrine on these matters in the larger perspective of his philosophy, and focus on the intriguing notion of *amethekton*. Finally a few remarks will be added on the important role of what we might call 'scope distinction' in Proclus' doctrines and dialectical arguments." (p. 2)

23. ———. 1992. "John Buridan on Universals." *Revue de Métaphysique et de Morale* no. 97:35-59.

    "It is common knowledge that Plato strongly believed that, in order to explain the nature of whatever is (either things or states of affairs, including Man and his environment), the assumption of Transcendent Universal Forms is indispensable. In his view, these universal Forms are the ontic causes of each and every sublunary entity, which all owe their being to their sharing in these Forms. Consequently, everyone who is in want

of firm knowledge *(episteme)* about, the things of the outside world is bound to direct his attention to the transcendent domain of the universal Forms'.

However, Plato was the first to recognise, and seriously deal with, the objections that can be raised to this doctrine. These objections mainly concern the status (and the dignity, however modest) of our transient world and, above all, the possibility to obtain, true knowledge of this world as *it stands,* in its ever-changing nature, that is." (p. 35)

(...)

"To be sure, the Medievals all rejected the Platonic Ideas taken as separate substances and they adhered to the Aristotelian common sense principle that only individuals have independent existence. Nevertheless, they were still under the spell of the status of «universal being» as the indispensable basis of true knowledge.

Marylin McCord Adams has analysed some early fourteenth century solutions to the problem of universals (Scotus, Ockham, Burley and Harclay) (*). In McCord's article Buridan's view of the matter is left out of consideration. Quite understandably so, since Buridan's solution to the problem differs considerably from the sophisticated arguments given by his contemporaries. Buridan seeks.for a solution in analysing the several ways of human understanding. In directing his attention to the propositional attitude involved in the cognitive procedure Buridan is remarkably close to the ingenious solution Peter Abelard had come up with two centuries earlier. In the next *sections* I shall give an outline of Abelard's treatment of the question of universals followed by an analysis of Buridan's discussion of the matter (as found in his commentary on the *Metaphysics* and elsewhere)." (p. 37)

(...)

"We may conclude, then, that two bright logicians of the Parisian tradition have come up with quite an ingenious solution to the problem of universals. Both of them started out from the firm conviction that nothing exists but particulars.

Nevertheless, they apparently were not satisfied with purely extensional solutions as brought forward by Oxford logicians such as Heytesbury and Ockham. Maybe extensionalists are out to show how people *ought* to think. Abelard and Buridan, however, were especially interested in the various ways of conceiving we *actually* use in daily life, in our attempts to conceptually deal with the outside world." (p. 59)

(*) "Universals in the early Fourteenth century" in *Cambridge History of Later Medieval Philosophy, from the Rediscovery of Aristotle to the Desintegration of Scholasticism 1100-1600* pp. 411-439.

24. ———. 1992. "Peter Abaelard (1079-1142)." In *Sprachphilosophie. Philosophy of Language. La philosophie du langage. Eine internationales Handbuch zeitgenössicher Forschung. Volume 1*, edited by Dascal, Marcelo, Gerhardus, Dietfried, Lorenz, Kuno and Meggle, Georg, 290-296. Berlin: Walter de Gruyter.

    1. Die Sprache als menschliche Ausdrucksweise; 2. *Nomen, Verbum, Oratio*; 3. Die prädikativ-kopulative Funktion des Verbum; 4. Sememverschmelzung als Schlüsselverfahren in Abaelards Semantik; 5. Die Einstellung Abaelards zur Sprache; 6. Literatur in Auswahl.

25. ———. 1993. "Der Streit über das *medium demonstrationis*: die Frucht eines Misverständnisses?" In *Argumentationstheorie. Scholastische Forschungen zu den logischen und semantischen Regeln korrekten Folgerns*, edited by Jacobi, Klaus, 451-463. Leiden: Brill.

    "In der alten Ausgabe des Kommentars zu den *Zweiten Analytiken* von Aegidius Romanus' findet sich nach dem Kommentar eine kurze Abhandlung aus der Feder des Augustiner-Eremiten Augustinus de Biella. Sie wurde zur Verteidigung der Auffassung des Aegidius über das *medium demonstrationis* geschrieben. Aegidius hatte gelehrt, daß bei einer *demonstratio potissima* (also bei der aristotelischen Apodeixis im strengsten Sinne) das *medium* sich aus der Definition des Attributs *(passio)* ergebe, und nicht, wie die communis opinio lautete, aus der Definition des Subjekts. Wie

üblich, fängt Biella damit an, Argumente gegen die Auffassung Aegidius' anzuführen, um dieselben anschließend zu widerlegen. Biella hat aber augenscheinlich den Text von Aegidius nicht zur Hand gehabt, denn er fährt fort, *dominus* Aegidius sei wohl dieser Auffassung über (las *rnedium demonstrationis* gewesen, "wie ich von den *doctores ordinis (Tatrum heremitarum* gehört habe" (oder: "wie ich es deren Schriften entnommen habe")." (s. .451)

26. ———. 1993. "La supposizione naturale: una pietra di paragone per i punti di vista filosofici." In *Logica e linguaggio nel Medioevo*, edited by Fedriga, Riccardo and Poggioni, Sara, 185-220. Milano: LED, Edizioni universitarie di lettere, economia, diritto.

    Italian translation of: "La philosophie au moyen âge" (1985), chapter 8, pp. 184-203.

27. ———. 1993. "On Buridan's view of Accidental Being." In *John Buridan: A Master of Arts. Some Aspects of His Philosophy. Acts of the Second Symposium Organized by the Dutch Society for Medieval Philosophy Medium Aevum on the Occasion of its 15th Anniversary. Leiden-Amsterdam (Vrije Universiteit), 20-21 June, 1991.*, edited by Bos, Egbert Peter and Krop, Henri, 41-51. Nijmegen: Ingenium Publishers.

    "One of the most striking characteristics of late medieval metaphysics is the upgrading of 'accidental being'. The strict opposition between *'esse per se'* and *'esse per accidens',* which had been of paramount importance ever since Aristotle, has lost its relevance in the ontological discussions of the fourteenth century. The status of 'accidental being' came rather close to that of 'substantial being'. In the views of philosophers such as Ockham and Buridan (not to mention thinkers like Crathorn) the nature of 'accidental being' (or rather 'quantitative and qualitative being') can no longer be properly defined in terms of ontological dependency upon substance. In other words, '*per se* subsistence' is assigned not only to substance but to 'accidental being' as well.

    In the present contribution I will illustrate this development by discussing some of Buridan's expositions in his *Questiones*

commentary on Aristotle's *Metaphysics (IV,* q. 6 and VII, q. 3-4)." (p. 41)

28. ———. 1993. "Works by Gerald Ot (*Gerardus Odonis*) on logic, metaphysics and natural philosophy rediscovered in Madrid, Bibl. Nac. 4229." *Archives d'Histoire Doctrinale et Littéraire du Moyen Âge* no. 60:173-193; 378.

    "Some twenty years ago I discovered in the Biblioteca Nacional in Madrid a very interesting manuscript with works (all of them anonymous, to be sure) on logic, metaphysics and natural philosophy. In fact, my discovery turned out to be a rediscovery, for the manuscript contained a note written by the famous historian of Franciscan philosophy and theology, Father Ephrem Longpré OFM, which said that, with the exception of the writings occurring from fol. 204r onwards, all tracts found in this codex are by a Franciscan master, Gerardus Odonis. (...)

    Gerard Odon OFM (who as Patriarch of Antiochia died in 1349 of the plague, at Catania, Sicily, where he was gifted with the benefices of a wealthy church) is especially known as the much troubled successor of the deposed Michael of Cesena as Master General of the Franciscan Order and a close adherent of Pope John XXII in the debate on the beatific vision." p. 173

    "The Ms Madrid, Bibl. Nac. 4229 appears to be of the utmost importance for our knowledge of Gerard Odon's doctrine on several subjects in the fields of logic, metaphysics and natural philosophy. To establish his authorship of all the works as occurring in the present Ms with certainty requires more research. The results of the present investigations can be summarised in the following survey:

    I LOGIC:

    1.1 *Quid est subiectum in logica (69va-74rb)*

    1.2 *De sillogismis (1ra-19va)*

    1.3 *De tribus dubiis circa naturam dictionum exclusivarum et suppositionis simpliciter simplicis (37rb-43ra)*

    1.4 *De principiis scientiarum (45ra-69va)*

II METAPHYSICS:

2.1 *De intentionibus (incomplete; 74va-122vb)*

2.2 *De esse et essentia (125ra-132vb)*

2.3 *De principiis nature (156ra-174vb, together with 19va-28vb)*

2.4 *De natura universalis (incomplete; 204ra-207vb)*

III NATURAL PHILOSOPHY:

3.1 *De augmento forme (132vb-150rb)*

3.2 *De intensione et remissione formarum (175ra-179ra)*

3.3 *De continuo (179rb-186vb)*

3.4 *De loco (187ra-192va)*

3.5 *De tempore (192vb-199va)*

3.6 *De motu (199vb-203vb)*" (p. 193?

29. ———. 1994. "John Buridan on man's capability of grasping the truth." In *Scientia et ars im Hoch- und Spätmmittelalter*, edited by Craemer-Rügenberg, Ingrid and Speer, Andreas, 281-303. Berlin: Walter de Gruyter.

    Miscellanea Mediaevalia, vol. 22/1.

    "Introduction. As is well-known, two subjects are distinctive of the fourteenth century theory of cognition, namely *'certitudo'* and *'evidentia'*. It is true, thirteenth century philosophers, such as Thomas Aquinas, were also concerned with certitude and evidentness as indispensable requisites for 'true knowledge' *('scientia')*. However, until the end of the thirteenth century certitude and evidentness were not prominent in the discussions about the cognitive procedure nor were they treated as separate matters, requiring separate attention. In Thomas Aquinas for example, the conviction that man is really capable of grasping the truth with certainty is really constitutive of his philosophical (and theological) thought and praxis (*)', or to speak with J. A. Aertsen, of 'Thomas' way of thought'.(**) This, however, does not alter the fact that in Aquinas' philosophy

'certitudo' is not highlighted as such, and the specific role of 'evidentia' is even virtually ignored.

Buridan's theory of cognition, on the contrary, clearly focusses on the ingredients *'certitudo'* and *'evidentia',* and, within this framework, on the notion of *'assensus'*. In the present paper I aim to elucidate the role of this key notion of John Buridan's theory of cognition." (p. 281)

(*) See the excellent paper by Gerard Verbeke, "Certitude et incertitude de la recherche philosophique selon saint Thomas d'Aquin", in: *Rivista di Filosofia neo-scolastica* 66 (1974), 740-57.

(**) Jan Aertsen, *Nature and Creature. Thomas Aquinas' Way of Thought*. Studien und Texte zur Geistesgeschichte des Mittelalters herausgegeben von Albert Zimmermann, Band XXI, Leiden etc. 1988, *passim*.

30. ———. 1994. *Nicholas of Autrecourt: His Correspondence with Master Giles and Bernard of Arezzo*. Leiden: Brill.

A critical edition by L. M. de Rijk from the two Parisian manuscripts with an introduction, English translation, explanatory notes and indexes.

Contents: Acknowledgements IX; Introduction 1; 1. Nicholas of Autrecourt. Life and works 1; 2. Nicholas' correspondence with Bernard and Giles 5; 3. The extant letters. Their tradition and structure 24; 4. Principles of the present edition and translation 37; Conspectus siglorum 45; Text and translation 46; Explanatory notes 113; Appendices 139; Indices 209; Bibliography 238.

"The present edition is based on the two Mss hitherto known, Paris, *BN lat*. 16408 (A) and 16409 (B). They are far from being perfect as they derive from exemplars that were themselves not quite reliable witnesses of the letters. However, they provide sufficient support for constituting a critical edition.

(...)

A translation is provided in order to make the letters accessible to all those who are not well-acquainted with Latin grammar

and idiom. For that matter, Nicholas writes in a fairly clear and occasionally vivid Latin, but he is not a talented stylist. At times, he is not very particular about contaminated constructions. I have tried to smooth away some of these solecisms." (pp 37-38)

31. ———. 1994. "A special use of 'ratio' in 13th and 14th century metaphysics." In *Ratio. VII Colloquio del Lessico Intellettuale Europeo. Roma, 9-11 gennaio 1992*, edited by Fattori, Marta and Bianchi, Massimo Luigi, 197-218. Firenze: L. S. Olschki.

    "In the opening lines of the fifth tract of his Summulae Peter of Spain deals with six different meanings of the terminus technicus 'ratio'. (a)

    Three of them are relevant to the present discussion:

    'Ratio' is used in more than one way. In one way it is the same as definition or description, as in «univocal things are those which have a name in common and whose 'ratio substantie' corresponding to that name is the same» (b) [...]. In another way 'ratio' is the same as the form imposed on matter (forma materie), e.g. in a knife iron is the matter and the arrangement imposed on the iron is the form. In yet another way 'ratio' is the same as a common essence that is predicable of many things, e.g. the essence of a genus, a species or a differentia. [...].

    The aim of the present paper is to elucidate the important role of the term 'ratio' in metaphysical discussions from the thirteenth century onwards. The three above mentioned senses all refer to (what belongs to) a thing's essential nature. The first sense, however, is the one that comes

    most close to the subject matter of our discussion. (c) The opening lines of Aristotle's Categoriae, which are referred to by Peter may serve as the starting point of our investigation." (p. 197)

    (...)

    "7. *Conclusion.*

    We may summarise the foregoing observations as follows:

(1) As early as in Boethius (Aristotle) *ratio* (Greek 'logos') was used to stand for one specific (ontic or logical) characteristic that a thing has in common with other things, notwithstanding the dissimilarity of their respective 'complete natures'. Thus 'man' and 'cow' have the *ratio animalis* in common and a white wall and a white statue have whiteness in common.

(2) Ratio may also be used to refer to a thing's 'complete nature' as distinct from either the nature of other things (e.g. the *ratio hominis* vs the *ratio lapidis*) or from the thing's individuality (*ratio singularitatis*).

(3) Distinguishing several *rationes* in one and the same thing is a procedure which is typical of man's intellectual capability. This procedure forms the backbone of many philosophical and theological arguments concerning God and the entities occurring in the outside world.

(4) Possible translations of *ratio* as used in the special sense discussed in this paper are:

- *logically*: 'logical aspect', 'logical characteristic'; 'concept', 'notion' (bearing on some aspect characteristic or feature); 'meaning', 'descriptive account', 'definition'.

- *ontologically*:'ontic aspect', 'characteristic', 'feature' (including formal ones)." (p. 218)

(a) Peter of Spain, Tractatus called afterwards Summule logicales. First Critical Edition from the Manuscripts with an Introduction by L. M. de Rijk, Assen, 1972, p. 55, 4-14. Cf. the English translation in The Cambridge Translations of Medieval Philosophical Texts, Vol. I: Logic and the Philosophy of Language, edited by Norman Kretzmann and Eleonore Stump, Cambridge etc., 1988, p. 226.

(b) ARISTOTLE, Categoriae, 1, 1 a 8-9.

(c) For that matter, the distinction between the three senses as given by Peter of Spain is not entirely clear-cut: they are, at least partially, overlapping.

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History of Logic

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Annotated Bibliography of Lambertus Marie de Rijk. Fourth Part: from 1995 to 2013

Bibliography

1. John, Buridan. 1995. *Johannes Buridanus Summulae de Praedicabilibus*. Nijmegen: Ingenium Publishers.

   Introduction, critical edition and indexes by L.M. De Rijk.

   "The present edition contains the second tract [of Buridan's *Summulae*], *De praedicabilibus,* which deals with the five 'predicables', introduced by the Neoplatonist commentator of Aristotle, Porphyry (c. 233-c. 304 A.D.) in his introductory book (*Isagoge*) to the Stagirite's *Categories, viz.* 'genus', 'species', 'differentia', 'proprium', and 'accidens'. From as early as the eleventh century, medieval authors commented upon Boethius' (480-524) translation of, and commentary upon, this work.

   Buridan's discussion of the predicables is mainly based on the corresponding tract of Peter of Spain's manual. His comments are preceded by the complete text of the lemma from Peter to be discussed. It should be no surprise that Buridan's quotations should go back to an adapted version of Peter's text.

   (...)

   Buridan's work consists of elementary exegesis as well as extensive objections and *dubitationes* in which specific

questions are dealt with, mostly in an original fashion." (pp. XVII and XXI)

2. Rijk, Lambertus Marie de. 1995. "Teaching and inquiry in 13th and 14th century logic and metaphysics." In *Vocabulary of Teaching and Research between Middle Ages and Renaissance. Proceedings of the Colloquium London, Warburg Institute, 11-12 March 1994*, edited by Weijers, Olga, 83-95. Turnhout: Brepols.

   !The Medievals have ably expanded the logico-semantic approach to Reality they inherited from the Ancients, especially in their so-called 'logica modernorum', which was thus baptised by the Medieval logicians themselves in contradistinction to Aristotelian-Boethian logic, the so-called ‘logica antiquorum’.

   Coming now to the proper subject of my contribution of this afternoon I shall conhne myself to three items which seem to be the most appropriate to afford a quick understanding of how the deliberate and thoughtful use ot linguistic devices by the Medievals in their teaching and inquiry could contribute to the development of philosophy. These items are:

   [1] the far-reaching distinction made in the ‘logica modernorum’ between signification, supposition, and connotation

   [2] Abelard’s solution to the famous problem of universals

   [3] a particular case taken from Buridan’s commentary on Aristotle's *Metaphysics*, which may clarify the innovatory power of the distinction between supposition and connotation and, by the same token, of logico-semantics as practised in medieval teaching and inquiry." (p. 85, a note omitted)

3. ———. 1995. "Ockham as the Commentator of *His* Aristotle. His treatment of *Posterior Analytics*." In *Aristotelica et Lulliana: magistro doctissimo Charles H. Lohr septuagesimum annum feliciter agenti dedicata*, edited by Domínguez Reboiras, Fernando, Imbach, Ruedi, Pindl, Theodor and Walter, Peter, 77-127. The Hague: Martinus Nijhoff.

1. Introduction; 2. Preliminary: Aristotle on demonstrative or epistemonic proof; 2.1 On the three requrements *'kata pantos', kath' 'hauto', 'kath' holou'*, 2.2 On the notion of necessity; 2.3 On the four types of questions. On 'Middle' and 'Definiens'; 2.3.1 Subject and attribute. The Middle; 2.3.2. On definition and the four question-types; 2.3.3 The role of definitions in epistemonic proof; 2.3.4 Recipes for the discovery of definitions; 2.4 The '*kath' holou*' requirement revisited; 2.5 Particulars and the proper objects of Aristotle's epistemonic proof; 3. Ockham as a Commentator of *Posterior Analytics*; 3.1 Ockham's treatment of the four basic question-types; 3.2 Ockham's view of the '*kath' holou'* requirement; 3.3 The impact of Ockham's ontology upon his theory of demonstration; 3.3.1 Ockham's problem concerning the First Subject; 3.3.2 Ockham's introduction of 'Non-First Subject'; 3.3.3 '*Demonstratio particularis'* in Ockham; 3.3.4 Ockham's view of necessity; 3.5 '*Dici per se'* and '*propositio per se vera*' in Ockham; 3.5.1 Two kinds of *'per se'* assignment; 3.5.2 The '*propositio per se (vera)'* in Ockham; 3.5.3 The strict and strictest senses of '*per se'*; 4. Conclusion.

"The present paper aims to clarify the attitude towards Aristotle adopted by one of the leading lights of fourteenth century philosophical and theological thought, William of Ockham, by investigating (a) how in some of the vital subjects of Aristotelian doctrine, the Venerable Inceptor understood and interpreted the Master, (b) how and why on specific occasions, he deliberately took the liberty to stray from Aristotle's teachings. It goes without saying that in such an undertaking, one has to confine oneself to certain doctrinal themes the choice of which might seem quite arbitrary. The present author has picked out the Aristotelian doctrine of demonstrative proof as interpreted by Ockham." (p. 78)

4. ———. 1995. "Ockham's horror of the Universal. An assessment of his view of individuality." *Mediaevalia.Textos e Estudos* no. 7-8:473-497.

Quodlibetaria: miscellanea studiorum in honorem prof. J. M. da Cruz Pontes anno iubilationis suae, Conimbrigae MCMXCV.

"The aim of this paper is to properly assess Ockham' s view of individual being, from the historical as well as from the doctrinal point of view. Regarding the doctrinal assessment, the present author will not refrain from using a phantom sketch, which, admittedly, will prove more useful to clarify what definitely was not Ockham' s doctrine than to identify the Venerable Inceptor' s real philosophical vis age.

So much for this paper's *finis propinquus*. Its *finis remotus* is of at least equal importance: to honour the author' s fellow-septuagenarian, an exemplary medievalist whose merits go far beyond those regarding our common favourite author, his renowned compatriot *Petrus Hispanus Portugalensis*." (p. 473)

(...)

"Returning now to Ockham, we have to acknowledge that our phantom sketch reduces the philosopher Ockham to little more than his own shadow. However, in trying to identify bis thought and philosophical

involvement by means of the phantom sketch, we may, in some sense, hit the mark. He surely had the courage to rule out certain things from rational thought because to his mind, they were not susceptible of conceptualization and rational penetration, while not brushing them aside as non-existent or not worthwhile either.(29)

To some extent, Ockham fought a battle against, if not the arrogance of reason, most surely its inflated ego. His *entia non sunt multiplicanda sine necessitate* was a logical too!, or better still a disputational rule, and did not aim to narrow the horizon of what *is*." (p. 494)

(29) For Ockham's attitude to metaphysics see De RijK 1987.

References

De Rijk, L. M. "War Ockham ein Antimetaphysiker? Eine semantische Betrachtung" in *Philosophie im Mittelalter. Entwicklungs!inien und Paradigmen*. Wolfgang K1uxen zum 65. Geburtstag, hrsg. von

J.P. Beckmann, L. Honnefelder und G. Wieland. Hamburg 1987, 313-328 [reprinted in de Rijk 1989].

De Rijk, L. M. *Through Language to Reality. Studies in Medieval Semantics and Metaphysics*, edited by E.P. Bos. Collected Studies Series, 302. Variorum Reprints. Northampton 1989.

5. ———. 1996. "The key role of the Latin language in medieval philosophical thought." In *Media Latinitas: A Collection of Essays to Mark the Occasion of the Tetirement of L. J. Engels*, edited by Nip, R.I.A., 129-145. Turnhout: Brepols.

   "Everyone embarking on the theme 'Medieval Latin and Philosophy' should realise that this theme involves more than just a juxtaposition of two separate items which are quite interesting in themselves. On the contrary, Medieval Latin and philosophy had a great mutual impact and thus were most closely related. To put it differently, in Medieval philosophical teaching and inquiry linguistic analysis was considered by the Medievals themselves really indispensable. (*)

   Like the Ancients, the Medieval thinkers firmly believed that, ultimately, the outside world is not-chaotic. In their view it has a 'logical' or intelligible structure, which, as such, is accessible to the human mind, insofar as the latter has the same 'logical' structure'. In other words, in the view of the Medievals there is an isomorphic relationship between the realms of thought and of being. (**)

   (...)

   The Medievals have largely expanded the logico-semantical approach they had inherited from the Ancients, especially in their so-called 'logica modernorum', which has its root in the logico-grammatical discussions found as early as in the eleventh century.

   Coming now to the proper subject of my contribution I should like to discuss three extremely important themes that featured in Medieval philosophy, viz. [1] the 'Object-Thought' issue, [2] the problem of the Universals, and [3] the metaphysics of 'Accidental Being'. Our discussion will focus on the linguistic

aspects of the solutions to each one of these problems. Three things in particular will be considered: [a] the semantical development of a terminology which was already common usage (e.g. 'idea', 'ratio'), [b] the introduction of new philosophical tools (e.g. 'suppositio', 'appellatio', 'connotatio'), and [c] the role of (artificial) word-order. I shall argue that for the Medievals, the Latin language was not only the vehicle of philosophical thought, but also an inspiring source of pioneering philosophical insight." (pp. 129-130)

(*) For a broader discussion see L.M. de Rijk, 'Teaching and Inquiry in 13th-14th Century Logic and Metaphysics'

(**) In this connection the word 'logical' should be associated with the Greek 'logos', rather than the discipline of logic.

6. ———. 1996. "On Aristotle's semantics in *De Interpretatione* 1-4." In *Polyhistor: Studies in the History and Hhistoriography of Ancient Philosophy Presented to Jaap Mansfeld on His Sixtieth Birthday*, edited by Algra, Keimpe, Van der Horst, Pieter and Runia, David, 115-134. Leiden: Brill.

   "By and large, in *De interpretatione* Aristotle is concerned with our capability to speak about all that presents itself to our mind. From chapter 4 onwards, he deals with the statement-making expressions (affirmation and negation), which are the main tools for conveying our thoughts about things. This discussion is prepared (chapters 1-3) by some important observations concerning the basic elements of such expressions, viz. *onoma* and *rhema*. The present contribution contains some comments on Aristotle's view of the proper nature of statement-making as put forward in *De interpretatione*. First, I would like to highlight Aristotle's, what Sir David Ross has called 'frankly 'representative' view of knowledge' by discussing the terms *omoioma* and *pragma*. Next, I will discuss what is meant by a term's 'time-connotation', and finally I will examine the semantics of *onoma, rhema* and *logos*." (p. 115)

7. ———. 1996. "Burley's so-called *Tractatus primus,* with an edition of the additional Quaestio '*Utrum contradictio sit maxima oppositio*'." *Vivarium* no. 34:161-191.

"The extensive list of works by Walter Burley contains a collection of some eagerly disputed questions concerning natural philosophy, which in most of the manuscript catalogues goes under the blank title *Tractatus primus*. (...)

In the shorter version of his *Expositio super librum Sex principiorum,* written after he had left Paris in 1327, he deals with the position concerning the specific sameness of whiteness and blackness he had argued for ín the fourth *quaestio,* and refers to his '*primus tractatus de formis accidcntalibus"*

(...)

This reference seems to imply that the title '*De formis accidentalibus'* covers both the *Tractatus primus* and the *Tractatus secundus,* which was afterwards called '*De intensione et remission formarum.'* I think it would be better to call the first treatise *'De formis accidentalibus,* pars prima,' with the subtitle *'De quattuor conclusionibus circa formas accidentales'*. The second treatise, then, which contains a discussion of a closely related subject matter, should go under the title *'De formis accidentalibus,* pars secunda,' with the subtitle *'De causa intrinseca susceptionis magis et minus'*. Later on, its current tide became *De intensione et remissione formarum*." (pp. 161-162)

8. Giraldus, Odonis. 1997. *Giraldus Odonis O.F.M. Opera philosophica. Vol I. Logica*. Leiden: Brill.

   Edited by L. M. de Rijk.

   Contents: Acknowledgments IX; Introduction 1; List of manuscripts 63; Bibliography 65; TEXT 69; Argumentum 71; Liber Primus: De sillogismis 85; Annexum I: De natura oppositionis contradictorie 186; Liber secundus: De suppositionibus 231; Annexum II: De tribus dubiis 293; Liber tertius: De principiis scientiarum 325; Annexum III: De primo subiecto in logica 467; Index locorum 493; Index nominum 498; Index verborum et rerum notabilium 500-543.

   From the Introduction: "It may be useful to say something about the general nature of Girald's *Logica,* Libri I-III, which now appear in print for the first time as a whole. Generally

speaking, the work is well-composed and written in a lucid style. The *Addenda* even contain rather passionate passages, when Girald is rejecting opponent views, especially in those cases where Walter Burley is (anonymously) under attack. The characteristic given by Brown (1) of *De suppositionibus* seems to be well to the point for the entire *Logica:* Girald's treatise is structured in his own individual way, but all with its personal stamp, especially emerging in *De suppositionibus*." (p. 25)

(...)

"As we have remarked before, Girald's tract on "the two most common and well-founded principles of knowledge" is the most original part of his *Logica*. To assess its place in Girald's thought requires an investigation into the proper nature of the two principles and what the Medieval commentators used to call the 'conditions' ('specific properties') of these principles, as well as what to Girald's mind plays the key role in such an inquiry, the proper subject of logic. I shall deal with these themes here briefly; they will be extensively discussed in our *Introduction* to the edition of Girald's metaphysical works." (p. 37)

(1) Stephen F. Brown "Gerard Odon's *De suppositionibus*" in: *Franciscan Studies* 35 (1975), 5-44 cfr. p. 10.

9. Rijk, Lambertus Marie de. 1997. "Le "G*uide de l'étudiant"* et les exigences particulières de la preuve demonstrative selon Aristote." In *L'enseignement de la philosophie au XIII siècle. Autour du 'Guide de l'étudiant' du ms. Ripoll 109.*, edited by Lafleur, Claude and Carrier, Joanne, 353-366. Turnhout: Brepols.

   "Les *Seconds Analytiques,* qui constituent sans doute la pièce maîtresse de l'oeuvre logique d'Aristote et dont l'importance philosophique surpasse de beaucoup le domaine de la logique proprement dite, étaient considérés dès le Moyen Âge comme un texte extrêmement difficile. On y traite de la théorie de la démonstration poursuivant la connaissance certaine, stable et nécessaire, fondée sur des prémisses elles-mêmes nécessaires.

Après quelques remarques générales sur la nécessité de connaissances préexistantes', sur la nature de la science et de la démonstration, suivies par une énumération des opinions erronées à ce propos, le Stagirite aborde la question des conditions requises pour construire des prémisses nécessaires, qui s'appellent *condiciones principiorum* dans le vocabulaire médiéval." (p. 353)

10. ———. 1997. "Guiral Ott (Giraldus Odonis) O.F.M. (1273-1349): his view of statemental Being in his commentary on the Sentences." In *Vestigia, Imagines, Verba. Semiotics and Logic in Medieval Theological Texts (XIIIth-XIVth Century)*, edited by Marmo, Costantino, 355-369. Turnhout: Brepols.

    Acts of the 11th Symposium on Medieval Logic and Semantics, San Marino, 24-28 May 1994.

    "The fourteenth-century Franciscan master Giraldus Odonis (Guiral Ot) who at the time he was Patriarch of Antiochia died of the plague in 1349, in Catania, Sicily, is mainly known as the unfortunate successor of the deposed Michael of Cesena as Master General of his Order and a faithful adherent of Pope John XXII in the debate on the beatific vision" p. 355

    It is the intention of the present contribution to discuss the author's second question [in his commentary on the *Sentences*] which deals with *esse tertio adiacens*, or what is nowadays mostly called 'copulative being', but I would prefere to label it 'statemental being' ". (p. 356)

    (...)

    "7. Conclusion. To Odonis' mind, statemental being is a kind of being *sui generis*, so to speak, which, no doubt, is something more than a kind of being that entirely owes its existence to the soul's activity. Rather Odonois' statemental being should be regarded as the metaphysical indivision (in as far as, on the statemental level, affirmative sentences are concerned), or division (in the case of negative sentences) which exist in the realm of the *natura communis*. Thus, statemental being is the basic precondition for the existence of both real being and conceptual being, to the extent that within the domain of the

natures communis it specifically concerns the ontological (whether essential or incidental) relationships of indivision and division that exist between the common natures. When defending against his numerous opponents the real character of statemental being, Odonis has the metaphysical reality of the realm of the common natures in mind, rather than the reality of the actual world. To put it briefly, like his doctrine of the nature of the universal, Odonis' view of statemental being clearly betrays a Platonic flavour, which makes him join the camp of the extreme realists." (p. 364)

11. ———. 1997. "Gerardus Odonis O.F.M. on the principle of non-contradiction and the proper nature of demonstration." *Franciscan Studies* no. 54:51-67.

    "One of the most original works by the Franciscan Master Gerardus Odonis (Guiralt Ot) is the third part of his *Logica, De principiis scientiarum.* This treatise is not just a commentary on Aristotle's *Posterior Analytics,* nor is it a specialized treatment of its subject matter, which is demonstrative (or rather epistemonic) knowledge, as is found in Ockham's *Sum of Logic.* Rather, Odonis took his treatise to be a supplement to the Aristotelian work, where the demonstrative principles proper to the different 'sciences' *(principia propria)* as well as those they all have in common *(principia communia)* are extensively discussed by Aristotle, but less attention is paid to the most common principles of the intellect *(principia communissima intellectus),* such as the twofold principle of noncontradiction. What Odonis means to do, then, is to discuss the well-known seven requirements concerning the proper and the common principles insofar as they apply to the principle of non contradiction (henceforth *PNC*).

    (...)

    Accordingly, the author has divided his treatise into ten chapters, the first of which deals with the subject matter of *PNC* and its constituents or terms. This chapter presents first ten basic assumptions *(suppositiones),* next twelve theses (*conclusiones*) together with the discussion of a number of

notable statements *(notabilia)* and corollaries, and finally the refutation of objections *(dubia)*.

In the present paper the *conclusiones* 6-11 concerning the nature of being as involved in *PNC* will be discussed." (pp. 51-53, notes omitted).

12. ———. 1997. "Foi chrétienne et savoir humain. La lutte de Buridan contre les *theologizantes*." In *Langages et philosophie. Hommage à Jean Jolivet*, edited by Libera, Alain de, Elamrani-Jamal, Abdelali and Galonnier, Alain, 393-409. Paris: Vrin.

"Introduction. Pendant tout le Moyen Age, comme durant la période patristique, les penseurs chrétiens se sont beaucoup intéressés aux rapports entre la raison et la foi. On sait que le principal thème de recherche et de discussion, en ce domaine, était l'harmonisation de la foi et de la raison, ce qui revenait au début à faire une apologie du le caractère rationnel de la foi, mais ce qui, chez des géants comme Anselme ou Abélard, a conduit à une élaboration de la théologie grâce à l'emploi de ce que notre collègue, Jean Jolivet, dans son étude de pionnier sur la théologie d'Abélard, a si heureusement appelé les « arts du langage (1) ». D'autre part, les penseurs médiévaux ont toujours reconnu l'importance du « dépôt de la foi » en tant que collection des vérités garanties, si bien que l'on prenait ces vérités pour des renseignements supplémentaires sur les phénomènes terrestres. Le simple « Soleil, arrête-toi » de Josué *(Livre de Josué 10, 12)* a suffi pour maintenir le système géocentrique.

A partir de la deuxième moitié du XIIIe siècle, c'est surtout la toutepuissance divine et la contingence radicale de tout le créé qui conduisent certains penseurs à regarder le monde d'un point de vue tout différent. La nouvelle attitude a dû stimuler, d'une manière générale, l'intérêt des philosophes pour les implications épistémologiques de la toute-puissance divine, en particulier pour celles qui concernent les limites de la connaissance humaine.

Jean Buridan (né en Picardie, peut-être à Béthune, vers l'an 1300, mort vers 1361) a bien fait face à ces problèmes épistémologiques. En rendant à César ce qui est à César, et à

Dieu ce qui est à Dieu, il a pu déterminer sa propre attitude devant la foi et la théologie. Le philosophe picard a trouvé les *theologizantes* sur sa route. La lutte de Buridan contre leur point de vue n'était qu'un corollaire de ses idées optimistes (et bien fondées) sur les possibilités et la validité du savoir humain." (p. 393)

(1) J. Jolivet, *Arts du langage et théologie chez Abélard,* Paris, Vrin (Études de philosophie médiévale, LVII), 1969.

13. ———. 1997. "The Commentaries on Aristotle's *Metaphysics*." In *L'enseignement des disciplines à la Faculté des Arts (Paris et Oxford, XIIIe-XVe siècles). Actes du Colloque International*, edited by Weijers, Olga and Holz, Louis, 303-312. Turnhout: Brepols.

"Considering the rich survey Professor Lohr has presented this afternoon of Medieval commentaries on Aristotle's philosophical works including *Metaphysics*, there is no point in discussing in general terms the vicissitudes of this Aristotelian work at the Parisian Faculty of Arts. On top of that, in *the lettre d'invitation* of the organizers we were asked to say something about our own recent research in the field under discussion. Therefore I shall confine myself to John Buridan's (c. 1290-c. 1360) commentaries on *Metaphysics*. Fortunately, Buridan's activity as a commentator on *Metaphysics* may to a large degree be regarded as representative of the period. As we learn from Lohr's survey, from the fourteenth century only some five commentaries on this important Aristotelian writing are extant, quite unlike the thirteenth and fifteenth centuries, from which a considerable amount of such works have survived. (*)" (p. 303)

(*) For the reception of the *Metaphysics* into the curriculum of the Parisian Faculty of Arts see A. L. Gabriel, *Metaphysics in the Curriculum of Studies of the Mediaeval Universities*. in P. Wilpert ed., *Die Melaphysik im Mittelalter. lhr Ursprung and Ihre Bedeutung* (Miscellanea Mediuevalia 2) Berlin, 1963, pp. 92-102 ; G. Leff, *Paris and Oxford Universities in the XIIIth and XIVth Centuries*, New York, 1988, p. 189 sqq.

14. Johannes, Venator. 1999. *Johannes Venator Anglicus. Logica*. Stuttgart, Bad Cannstatt: Frommann-Holzboog.

    First critical edition from the manuscripts edited by L. M. de Rijk.

    Vol. I: *Tractatus* I-II, Vol. II: *Tractatus* III-IV. *Grammatica speculativa*.

    "Properly speaking, nothing is known about our author's life with all due certainty. In recent times, he is commonly identified with the English logician John Hunt(e)man listed by Emden, who was from York diocese and a master in Oxford still in the 1390's, when Paul of Venice stayed there. He is reported as a fellow of Oriel College as early as in 1373 and still being there in January 1383. He was Robert Rygge's Junior Proctor of Oxford University in 1382-3, and, like Rygge, he was delated in 1382 for sympathising with the heretic views held by John Wyclif. In 1390, he was Chancelor of Lincoln, and on June 14, 1414, he was appointed Vicar General of the Bishop of Durham. These dates of the John Huntman are all well compatible with his identification with the author Johannes Venator. It is interesting in this connection that the Vatican manuscript does ascribe the *Logica* to an English author ("Johannes Venator doctor anglicus"). Unfortunately, there is no other positive evidence so far for this plausible identification." (p. 7)

15. Rijk, Lambertus Marie de. 2000. "*Logica Morelli*. Some notes on the semantics of a Fifteenth century Spanish logic." In *Medieval and Renaissance Logic in Spain. Acts of the 12th European Symposium on medieval logic and semantics, held at the University of Navarre (Pamplona, 26-30 May 1997)*, edited by Angelelli, Ignacio and Pérez-Ilzarbe, Paloma, 209-224. Hildesheim: Georg Olms Verlag.

    "The present paper, which is presented as a modest contribution to the general theme of our Symposium on the History of Spanish Logic, intends to highlight some interesting topics discussed in a fifteenth century introductory *Sum of Logic* which is extant in (at least) two Spanish manuscripts.

When visiting Spanish libraries in the Autumn of 1971 I came across a copy of a *Sum of Logic* in the Biblioteca Capitular Colombina at Sevilla (cod. 7-3-13). This work attracted my attention because of its clear design and lucid execution. Another copy of this work turned up in the Biblioteca del Cabildo Metropolitano at Zaragoza (cod. 15-57), under the name "Logica Morelli", and was dated 1476.

(...)

The work consists of five parts:

(1) the logic of terms, including the well-known properties of terms, supposition, ampliation, and appellation.

(2) the logic of propositions, including their various "probationes" (in the wake of Richard Billingham, *Speculum,* and the widespread adaptations of this work)

(3) the theory of argumentation

(4) the doctine of the predicables and the categories

(5) the doctrine of the so-called "obligations".

(...)

This treatise seems to nicely testify to fifteenth-century logical education in Spain. We owe a survey of the contents of this work together with a description of the two manuscripts to our colleague Joke Spruyt." (pp. 209-210)

[A printed edition of the work is now available: *Logica Morelli* - Edited from the manuscripts with an introduction, notes and indices by Joke Spruyt - Turnhout, Brepols, 2003]

16. John, Buridan. 2001. *Summulae VIII: De demonstrationibus*. Groningen: Ingenium Publishers.

"ll.3 Treatise VIII. *De demonstrationibus:* on its general structure and contents

The present edition contains the eighth tract, *De demonstrationibus*, by far the greater part of which deals with demonstrative argument, and for the sake of this prefaces it

with a discussion of the standard lore concerning division and definition.

II.3.1 The general structure of *De demonstrationibus*

The main division of the work clearly appears from the opening lines (1.1 in the present edition), in which Buridan proposes to deal with demonstration, but thinks it indispensable to discuss first the doctrine of division and definition which lies at the bottom of that concerning demonstrative argument, despite the fact that 'auctor noster' did not pay any attention to this important part of logic ('pars logicae magis

nobilis et final is').

The author next remarks that the present tract is the eighth one according to what was said in the general introduction to the whole work ('secundum dicta a principio'). It strikes the reader firstly that our author does not say 'octavus et ultimus tractatus', and, for that matter, in doing so, is quite in line with what he had outlined before in his general division of his *Summulae* (section 1.1.1 of the planned edition), notwithstanding the fact that in all the extant manuscript versions of the work the author lets us know that in the present 'lectura' he does not intend to read on the ninth and conclusive treatise on sophisms. The other noticeable thing is that in this passage, each treatise is announced with the phrase 'it will be about' ('erit de') the respective subject matter, with the exception of the present treatise on demonstration, of which it is said that it 'will be added' ('octavus apponetur'): Summulae I, De introductionibus, I. I. I

(...)

Our treatise quite understandably consists of three main parts ('tres materiae principales'), one about division, one about definition, the third about the proper subject matter, demonstration. There are good reasons for assuming that in an earlier version, the two parts on division and definition were not yet integral parts of the eighth treatise. As a matter of fact, unlike all other manuscripts, our two most reliable

manuscripts, *E* and *T* start a fresh numeration for the ten chapters of the 'tertia materia de demonstrationibus', whereas the others continue the initial numbering of the preceding parts on division and definition, counting the ten chapters on demonstration as 'capitulum quartum, quintum, sextum', and so on.

Thus, in its final version, the work is divided into twelve chapters, so that the two first parts ('materiae) in fact are the two first chapters of the work. Each chapter is divided into 'partes' and the latter are subdivided into 'clausulae' in the usual way. (Introduction, pp. XXI-XXII)

17. Nicolas, d'Autrecourt. 2001. *Correspondance, articles condamnés*. Paris: Vrin.

    Texte latin établi par L. M. de Rijk; introduction, traduction et notes par Christophe Grellard.

    French translation of: *Nicholas of Autrecourt. His correspondence with Master Giles and Bernard of Arezzo*.

18. Rijk, Lambertus Marie de. 2002. *Aristotle: Semantics and Ontology. Volume I: General introduction. The Works on Logic*. Leiden: Brill.

    "In this book I intend to show that the ascription of many shortcomings or obscurities to Aristotle resulted from persistent misinterpretation of key notions in his work. The idea underlying this study is that commentators have wrongfully attributed anachronistic perceptions of 'predication', and statement-making in general to Aristotle. In Volume I, what I consider to be the genuine semantics underlying Aristotle's expositions of his philosophy are culled from the *Organon*. Determining what the basic components of Aristotle's semantics are is extremely important for our understanding of his view of the task of logic -- his strategy of argument in particular.

    In chapter 1, after some preliminary considerations I argue that when analyzed at deep structure level, Aristotelian statement-making does not allow for the dyadic 'S is P' formula. An examination of the basic function of `be' and its cognates in

Aristotle's philosophical investigations shows that in his analysis statement-making is copula-less. Following traditional linguistics I take the 'existential' or hyparctic use of `be' to be the central one in Greek *(pace* Kahn), on the understanding that in Aristotle *hyparxis* is found not only in the stronger form of 'actual occurrence' but also in a weaker form of what I term 'connotative (or intensional) be' (1.3-1.6). Since Aristotle's 'semantic behaviour', in spite of his skilful manipulation of the diverse semantic levels of expressions, is in fact not explicitly organized in a well-thought-out system of formal semantics, I have, in order to fill this void, formulated some semantic rules of thumb (1.7).

In chapter 2 I provide ample evidence for my exegesis of Aristotle's statement-making, in which the opposition between 'assertible' and `assertion' is predominant and in which 'is' functions as an assertoric operator rather than as a copula (2.1-2.2). Next, I demonstrate that Aristotle's doctrine of the categories fits in well with his view of copula-less statement-making, arguing that the ten categories are 'appellations' ('nominations') rather than sentence predicates featuring in an 'S is P' formation (2.3-2.4). Finally, categorization is assessed in the wider context of Aristotle's general strategy of argument (2.5-2.7).

In the remaining chapters of the first volume (3-6) I present more evidence for my previous findings concerning Aristotle's 'semantic behaviour' by enquiring into the role of his semantic views as we find them in the several tracts of the *Organon,* in particular the *Categories De interpretatione* and *Posterior Analytics*. These tracts are dealt with *in extenso,* in order to avoid the temptation to quote selectively to suit my purposes." (Preface, PP. XV-XVI)

19. ———. 2002. *Aristotle: Semantics and Ontology. Volume II: The Metaphysics, Semantics in Aristotle's Strategy of Argument*. Leiden: Brill.

"The lion's part of volume two (chapters 7-11) is taken up by a discussion of the introductory books of the *Metaphysics* (A-E) and a thorough analysis of its central books (Z-H-O). I

emphasize the significance of Aristotle's semantic views for his metaphysical investigations, particularly for his search for the true *ousia*. By focusing on Aristotle's semantic strategy I hope to offer a clearer and more coherent view of his philosophical position, in particular in those passages which are often deemed obscure or downright ambiguous.

In chapter 12 1 show that a keen awareness of Aristotle's semantic modus operandi is not merely useful for the interpretation of his metaphysics, but is equally helpful in gaining a clearer insight into many other areas of the Stagirite's sublunar ontology (such as his teaching about Time and Prime matter in *Physics*).

In the Epilogue (chapter 13), the balance is drawn up. The unity of Aristotelian thought is argued for and the basic semantic tools of localization and categorization are pinpointed as the backbone of Aristotle's strategy of philosophic argument.

My working method is to expound Aristotle's semantic views by presenting a running commentary on the main lines found in the *Organon* with the aid of quotation and paraphrase. My findings are first tested (mainly in Volume II) by looking at the way these views are applied in Aristotle's presentation of his ontology of the sublunar world as set out in the *Metaphysics,* particularly in the central books (ZHO). As for the remaining works, I have dealt with them in a rather selective manner, only to illustrate that they display a similar way of philosophizing and a similar strategy of argument. In the second volume, too, the exposition is in the form of quotation and paraphrase modelled of Aristotle's own comprehensive manner of treating doctrinally related subjects: he seldom discussed isolated problems in the way modern philosophers in their academic papers, like to deal with special issues tailored to their own contemporary philosophic interest." From the Preface to the first volume, pp. XVI-XVII)

20. ———. 2002. "Il Medioevo: periodo tipicamente medievale?" In *Medioevo in discussione. Temi, problemi e interpretazioni del pensiero medievale*, edited by Brigaglia, Gianluca. Milano: Unicopli.

21. ———. 2003. "Boethius on *De interpretatione* (ch. 3): is he a reliable guide?" In *Boèce ou la chaîne des savoirs. Actes du Colloque International de la fondation Singer Polignac (Paris, 8-12 juin 1999)*, edited by Galonnier, Alain, 207-227. Paris: Peeters Publishers.

    "There can be no doubt whatsoever about Boethius's exceptional merits for transmitting Aristotle's logic to us. But while 'Aristotelian' logic is in many respects synonymous with 'Aristotelico-Boethian' logic, the question can be raised whether Aristotle himself was an 'Aristotelian'. To give just one example: from Lukasiewicz onwards there has been much debate among scholars about the telling differences between traditional syllogistic and that of the *Prior Analytics*. (1)

    In this paper I intend to deal with two specimens of Boethius's way of commenting upon Aristotle's text. They are found in his discussion of *De interpretatione*, chapters 2 and 3, which present Aristotle's views of *ónoma* and *rhema*. (2) One concerns the semantics of indefinite names, the other that of isolated names and verbs." (p. 207)

    (...)

    "Conclusion.

    Returning now to Boethius' manner of commenting upon Aristotle's texts, the following points can be made:

    [1] In the wake of Ammonius, (3) Boethius explains [*De int.*] 16b22-25 on the apophantic level, i.e. in terms of statement-making, instead of framing significative concepts, i.e. on the onomastic level.

    [2] Whereas in Ammonius' report of the predecessors, Alexander and Porphyry, as well as his own exposition of the issue, there are many clues to the previous alternative reading and interpretation on the onomastic level, Boethius does not even refrain from cleansing the text (including his 'quotations'), by changing, at any occurrence, '*ens*' into '*est*'.

    [3] In doing so, Boethius decisively influenced the commentary tradition on account of the purport of *De int.* 3, 16b19-25. He

effectively contributed to the common verdict on this paragraph in terms of 'a curious medley'.

[4] As far as the semantics of the indefinite verb (3, 16b14-15) is concerned, Boethius' apparently adhering to the so-called 'Ammonii recensio' was far less desastrous for the common understanding of Aristotle on this score, and, in effect, merely provided us with some stimulating Medieval discussions of the semantics of term infinitation.

[5] Finally by way of speculative surmise, it might be suggested that both the fact that Boethius dealt with the 'Ammonii recognise' without reading it in his lemma of 16b14-15, as well as his rather ruthlessly interfering in the quotations of the pre-Ammonian sources, should make it more plausible that Boethius had extensive, but incomplete marginal notes to his Greek text of Aristotle at his disposal, rather than a full copy of Ammonius' commentary (or those of other Greek commentators).

To comment upon Aristotle's work naturally includes developing his lore. But nothing can ever guarantee that this will happen *ad metem auctoris*. (4)" (p. 227)

(1) Jan Lukasiewicz, *Aristotle's Syllogistic from the Standpoint of Modern Formal Logic*, Oxford, 1951. G. Patzig, *Aristotle's Theory of the Syllogism. A logico-philological study of Book A of the Prior Analytics*, Dordrecht, 1969.

(2) *Rhema* properly stands for 'what is said of', including not only our 'verb' but also adjectives, when used in attributive position. One should realise, however, that 'verb' refers to a word class, rather than a semantic or syntactical category, as *rhema* does.

(3) It is unmistakably plain that in *De int*. ch. 3, Boethius is strongly influenced by what he read in Ammonius (or in marginal notes on Ammonius' view).

(4) Cf. the interesting paper on this subject by Frans A.J. de Haas, "Survival of the Fittest? Mutations of Aristotle's Method of Inquiry in Late Antiquity" (forthcoming). [Conference: *The*

Dynamics of Natural Philosophy in the Aristotelian Tradition (and beyond), Nijmegen, 16-20 August 1999.]

22. ———. 2003. "The logic of indefinite names in Boethius, Abelard, Duns Scotus, and Radulphus Brito." In *Aristotle's Peri hermeneias in the Latin Middle Ages: Essays on the Commentary tradition*, edited by Braakhuis, Henk A.G. and Kneepkens, Corneli Henri, 207-233. Groningen: Ingenium Publishers.

    "Aristotle's doctrine of indefinite names (nouns) was handed down to the Middle Ages together with Boethius' comments and explanations. Boethius' view of the matter has two characteristic features. For one thing, there is a certain ambiguity on his part concerning the precise semantic value of such terms; for another, Boethius deviates considerably from Aristotle in that he explicitly assigns the property of 'holding indifferently of existents and non-existents' not only to the indefinite *rhéma* (as it is found in Aristotle, De interpr. 3, 16b15) but to the indefinite name (*onoma*) as well.

    Until the end of the 12th century the logic and grammar (1) of indefinite terms (nouns and verbs) was a much debated issue. Although assiduously echoing the well-known *auctoritates* Medieval thinkers did not always go the whole way with their predecessors. For example, Abelard and Scotus, starting from their own philosophical tenets, more or less inconspicuously corrected some dubious elements in Boethius' interpretation of Aristotle's doctrine of the indefinite name. Peter Abelard, especially, took great pains to precisely define the meaning of indefinite terms. He focussed his attention on the proper meaning of indefinite terms rather than on the question whether they are 'holding indifferently of existents and non-existens'. In contrast, 13th-century scholars like Duns Scotus and Radulphus Brito based their discussion of the proper meaning of the indefinite name upon the question '*Utrum nomen infinitum aliquid ponat*' ("Whether an infinite name posits something"), which calls to mind Boethius' claim that indefinite names 'hold indifferently of existent and non-existents'.

Abelard's discussion of the proper meaning of the indefinite name is also interesting in that it helps us to gain a good understandiiip of what Boethius had in mind in claiming that the indefinite name 'siginifes an infinite number of things' ('*significat infinita*'). For, thanks to Äbelard's expositions, it becomes clear that the phrase '*significare infinita*', which, on the face of it, may be taken as referring to the extensional of the indefinite name, on closer inspection proves to concern its intension, because the controversy between Abelard and Boethius turns out to be about two different views of the indefinite name's intension rather that about any opposition of intension as against extension." (pp. 207-208.)

(1) For the grammatical approaches to the problem of the indefinite term in the 12th century, see C.H. Kneepkens, "Orléans 266 and the Sophismata Collection: Master Joscelin of Soissons and the infinite words in the early twelfth century", in St. Read (ed.) *Sophisms in Medieval Logic and Grammar*. Acts of the Ninth European Symposium for Medieval Logic and Semantics, held at St Andrews, June 1990 (Nijhoff International Philosophy Series, 48; Dordrectt/Boston/London 1993), 64-85.

23. ———. 2003. "The Aristotelian background of medieval *transcendentia*: a semantic approach." In *Die Logik des Transzendentalen. Festchrift für Jan A. Aertsen zum 65. Geburstag*, edited by Pickavé, Martin, 3-22. Berlin: Walter de Gruyter.

1. Aristotle's notion of 'connotative' or 'intensional be'; 2. The so-called 'termini transcendentes' in the Middle Ages; 2.1. How to bring the general notions 'be' and 'one' into focus; 2.2. On the peculiar use of the label 'transcendens' in prioristic syllogistic; 3. On the use of 'transcendens' to bring general, extra-categorial ontic notions in focus; 3.1. The commonness of the general ontic notions; 3.2. The epistemological aspect: the emergence of the idea of conceptual primacy 3.3. On the contaminative shift to Platonic transcendence; 4. The (Aristotelian) semantic sense underlying 'transcendentia' retained; 5. Concluding remarks."

"1. As I have argued for elsewhere, the Greek notion 'ES-' or 'be' as coming to the fore in its several grammatical appearances - the infinitive *einai*, the articular participle *to on*, and the verbal noun ousia - not only refers to what is actually there ('exists') or actually is the case, but can also represent a form of 'be' that does not, as such, include actual existence, and indeed indicates the general ontic condition that underlies, and is in fact connoted by, any categorial designations. To Aristotle in particular, each and every noun includes what I have termed 'connotative' or 'intensional' be-ing. (...)" The semantic view that every nominal or verbal sememe by connotation contains the fundamental notion of be-ing is at the basis of Aristotle's argument against Plato. To Plato, transcendent Being is the fullness of Forms (later called 'plenitude formarum'), whereas particular forms existing in the outside world are merely as many shares of such-and-such be-ing in virtue of which the outside things share in the transcendent Source of Beingness. In Aristotle, things are quite different: there is no being-ness other that what is found in particular beings. It is their immanent forms which are constitutive of their (modes of) be-ing, rather than some putative transcendent Source (on the contrary, as it is worded later on: 'forma dat esse'). By itself, 'be' even is a categorially empty notion The fact that to Aristotle, 'be-ing' is a categorially empty notion by no means implies that Aristotle should be unaware of the fundamental importance of the notion of be-ing when it comes to metaphysical investigation. It need not come as a surprise that it is in his "Metaphysics" that the notion of 'be-ingness' (ousia) is the very nucleus of the metaphysical search for the quiddity of things: this search concerns true 'ousia' or true 'being-ness'. All things considered, despite his obstinately arguing for the (categorial!) emptiness of the notion 'be', Aristotle recognizes the basic sememe of 'be-ing' present in each and every categorial notion, and at the same time he is, to some extent, aware that there are also some other general ontic notions, which are equally fundamental to metaphysics." (pp. 3-4)

24. Giraldus, Odonis. 2005. *Giraldus Odonis O.F.M. Opera philosophica. Vol II. De intentionibus*. Leiden: Brill.

Edited by L. M. de Rijk.

Contents: Acknowledgements XIII; L. M. de Rijk: Introduction 1; A study on the medieval intentionality debate up to ca. 1350 (pp. 19-371).

Chapter I. Preliminary matters p. 19; Chapter II. The common doctrine of Cognition ca 1260 p. 41; Chapter III. The "epistemological turn" around 1270 p. 79; Chapter IV. The intentionality issue before Faversham and Radulphus Brito p. 113; Chapter V. Simon Faversham on Second Intentions p. 165; Chapter VI. Radulphus Brito on intentionality p. 191; Chapter VII. Hervaeus Natalis's Treatise *De secundis intentionibus* p. 251 Chapter VIII. Giraldus Odonis's Treatise *De intentionibus* p. 303; Chapter IX. Conclusion p. 333; Bibliography p. 359; List of manuscripta referred to p. 373; Text of *De intentionibus* p. 377-596;

Appendices p. 597; A. William of Ware (Guillelmus Guarro) p. 607; B. James of Metz (Jacobus Mettensis) p. 619; C. Hervé Nédellec (Hervaeus Natalis) p. 625; D. Durand of St. Pourçain (Durandus de S. Porciano) p. 635; E. Raoul le Breton (Radulphus Brito) p. 643; F. Pierre d'Auriole (Petrus Aureolus) p. 695; G. Franciscus de Prato p. 749; H. Stephan of Rieti (Stephanus de Reate) p. 777;

Indices p. 823; A. Indices locorum p. 825; B. Index nominum p. 839; C. Index verborum rerumque notabilium p. 845-894.

"The torso of Girald's *De intentionibus* as we have it extant consists of three Partes: I: *De intentione in communi*, in five articuli; II: *Quid sit prima intentio et quid secunda*, in an articulus unicus, and III: *Quid sit intentio transcendens et quid non-transcendens,* which comprises (in our incomplete text) four questiones disputate, consisting of four, two, three, and one articulus, respectively.

(...)

"All things considered, the present work is markedly polemical, which particularly comes to the fore in the (at times venomous) criticism of Hervaeus Natalis. It might be suggested, therefore,

that the elaborated version too originated in the context of academic disputation,(22) which is highlighted by the prologue of *De intentionibus,* in which the questiones disputatae on transcendent intentions are presented as the proper theme of the treatise." (pp. 12-13)

(22) 22 See Weijers (2002), 25–51.

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Weijers, O. (2002), *La 'disputatio' dans les Facultés des arts au moyen âge. Studia Artistarum. Etudes sur la Faculté des arts dans les Universités médiévales* (sous la direction de Olga Weijers, La Haye & Louis Holtz, Paris). Brepols Turnhout.

25. Rijk, Lambertus Marie de. 2005. "Girald Odonis on the Real Status of Some Second Intentions." *Documenti e Studi sulla Tradizione Filosofica Medievale* no. 16:515-551.

"The Franciscan Friar Giraldus Odonis (Guiral Ot) was a friend and protégé of Pope John XXII. After Michael of Cesena had been deposed as Minister General of the Order and excommunicated at the Papal Court at Avignon in 1328, Odonis led the Order from 1329 until 1342, when he was appointed patriarch of Antioch. He was quite a prolific author, but with the exception of his views on ethics and physics, his doctrinal positions were, and still are, hardly known." (p. 515)

(...)

"However, there is at least one other branch of philosophy in which Girald's unconventional views come to light, to wit the complex domain of what was later on diversified into logic, metaphysics, and epistemology. Indeed, Girald's views of the real (i.e. mind-independent) status of some second intention's (*intentiones secundae*) are peculiar, and even the man himself considered them exceptional. In the present paper I intend to discuss Girald's view of the matter. To facilitate the evaluation of his remarkable stand on the general issue of the status of first and second intentions, which was so eagerly debated in the first quarter of the 14th century, I will first try to globally assess the ins and outs of this issue within the framework of contemporary scholastic philosophy." (pp. 515-516)

(...)

"The medieval issue of intentional being (*esse intentionale*) had three sources(4) : first, Aristotelian semantics, as found in his *De interpretatione* (or *Perihermeneias*, as it was usually called in the Middle Ages) in particular; second, St. Augustine's discussion (in his *Quaestio de Ideis*) of the relationship between God and the exemplary Ideas; and third, the species debate in the context of Arabic optics. As for the second and third sources, they were extremely effective in putting intention on the table as a truly inescapable (theological and cognitive, respectively) problem(5)." (P. 516)

(4) See L. M. de Rijk, *Giraldus Odonis O.F.M., Opera philosophica*. Vol. 2 : *De intentionibus*. Critical Edition from the Manuscripts, Brill, Leiden - Köln 2005, sect. 1.3.

(5) For the role of St. Augustine's *Quaestio de Ideis* (= *De diversis quaestionibus* LXXXIH. 9· 46), see e.g. L. M. de Rijk, *Some Notes on an Important Chapter of Platonism*, in *Kephalaion. Studies offered to C. J. de Vogel,* eds. J. Mansfeld - L. M. de Rijk,Van Gorcum, Assen 1975, pp. 204-213. For the other source, the fundamental study : K. H. Tachau, *Vision and Certitude in the Age of Ockham. Optics, Epistemology and the Foundations of Semantics,* 1250-1345, Brill, Leiden -Köln 1988 (Studien und Texte zur Geistesgeschichte des Mittelalters, 22), is still indispensable.

26. ———. 2006. "Giraldus Odonis, Godfrey Fontaines, and Peter Auriol on the Principle of Individuation." In *"Ad Ingenii Acuitionem". Studies in honour of Alfonso Maierù*, edited by Caroti, Stefano, Imbach, Ruedi, Kaluza, Zénon, Stabile, Giorgio and Sturlese, Loris, 403-436. Louvain-la-Neuve: Fédération Internationale des Instituts d'Études Médiévales.

"Everyone interested in the history of philosophy knows that the problem of the universal has played a predominant role. Ockham may indeed have tried to highlight the importance of this problem by nullifying its counterpart, the problem of individuation, to the great majority of Medieval thinkers, however, the problem area surrounding the principle of individuation remained of serious interest. Against the

background of the phenomenon of universality as strictly required for obtaining genuine knowledge, they kept regarding the individuality issue as a source of philosophic and theological perplexity which could not be underestimated with impunity. The purport of this paper is to evaluate Girald Odonis's treatment of the individuation issue (In II Sent., dist. 6, q. 4, and, in addition, In III Sent., dist. 1, qq. 1-3) in the context of what others brought forward on the subject, particularly Godfrey of Fontaines and Peter Auriol.

As Russel Friedman has rightly observed, from the beginnings of 14th century onwards, the *Sentences* commentary came into its own as a preferred medium of scholastic theological and philosophical discourse, certainly rivaling in this respect, and often outshining, other vehicles of theological expression (e. g. *Quodlibetal questions, Summae*, Biblical commentaries). The Franciscan Master, Giraldus Odonis (c. 1280-1349) was among the numerous scholars who were beginning to use the *Sentences* commentary as a vehicle for mature thought about a gamut of controversial philosophic as well as theological issues. Therefore the occurrence of this philosophically hotly debated item in his *Sentences* commentary cannot come as a surprise.

In the sixth *Distinctio* of the Second Book, Gerald comes (in the fourth question) to speak about the individuation problem, asking what it is in virtue of which there is a multiplication of individuals within one species. He proposes to deal with this question by firstly summing up a number of previous or current opinions, then to advance his own position, and thirdly to reply to the ins and outs, including the backgrounds of the rival positions." (pp. 403-404, notes omitted).

27. Johannes, Buridanus. 2008. *Lectura Erfordiensis in I-VI Metaphysicam, together with the 15th-century Abbreviatio caminensis*. Turnhout: Brepols.

    Introduction, critical edition and indexes by L. M. de Rijk.

    "John Buridan’s intensive activity as a commentator on Aristotle’s *Metaphysics* and his ongoing influence as a philosopher at fourteenth and fifteenth century universities nicely come to the fore in two Eastern

European codices. One of them (Erfurt, *Amplon*. F 322) appears to contain part of an early (possibly the earlierst) version of his *Questions on Metaphysics*, the other (nowadays Warsow, *Narodowa* ii 8057) presents

an abbreviation of these early questions, including also a later continuation of this Buridanian questions-commentary which strikingly parallells the redaction of Buridan's questions as found in the second part of the Erfurt manuscript. The aim of this edition is to make these interesting texts available for the investigation of the academic activities concerning Aristotle's *Metaphysics* during the period of ca. 1330 – ca. 1430." (Prefece, P. VII)

(...)

"Buridan wrote many commentaries on Aristotle, including his *Metaphysics*.

Metaphysics was an important academic discipline in the Medieval Arts Faculty. Only advanced students who had completed their bachelor's training in grammar and logic and the basics of natural philosophy

had access to the programme of metaphysics. In Buridan's days, metaphysica or first philosophy (*prima philosophia*) mainly involved the speculative study of the physical world. However, in line with the Ancient

tradition, the notion of *prima philosophia* was closely connected to *theologia* in the sense of the philosophical study of 'supernatural' or 'divine' things. This connection continued to somewhat obscure its academic position, even though from the middle of the thirteenth century onwards the focus of metaphysics unmistakably shifted from the study of questions on the nature of God and divine being to ontological questions in general centered around the basic notions of 'essence' and the so-called *termini transcendentes*, 'ens', 'verum', 'bonum', 'res', 'aliquid'.(6) The influence of these ambiguous roots is still manifest in the later development of the discipline of metaphysics, not only in the fourteenth and fifteenth centuries but after the Middle Ages as well." (Introduction, pp. Xi-XII)

(6) Beckmann in Auty et al., 6, cols. 570–576. Zupko (2003), 140–141.

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Beckmann, J.P., (1985), in R. Auty et al. (eds.), *Lexikon des Mittelalters,* vol. 6.

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28. Rijk, Lambertus Marie de. 2011. *Hervaeus Natalis. De quattuor materiis, sive Determinationes contra magistrum Henricum de Gandavo. Vol. I*. Turnhout: Brepols.

Plan of the work: Vol I: *De formis* (together with his *De unitate formae substantialis in eodem suppositio*); Vol. II: *De esse et essentia. De materia et forma*; Vol. III: *De intellectu et specie*; Vol. IV: *De voluntate et intellectu*.

"Hervaeus' extensive work going under the title *De quattuor materiis* has so far not drawn much attention of the scholarly world. Its four parts contain the author's critical study of a number of focal philosophical and theological issues discussed in Henry of Ghent's *Quodlibetal Questions*.

Their subject matter is a series of controversial themes, including the plurality of forms, the relationship between being and essence, the role of the intelligible species, and the different roles of the intellect and the

will. All these themes were hotly debated during the end of the thirteenth and the ?rst decades of the fourteenth centuries. The D*e quattuor materiis sive Determinationes contra magistrum Henricum de Gandavo* are

illustrative of these ontological and epistemological debates around 1300." (Foreword, p. VII)

(,,,)

"Harvey's critical study of a series of controversial issues as dealt with in Henry of Ghent's Q*uodlibeta* consists of four main tracts to which two short ones are added, each one of which

discusses just one single question cognate to the foregoing. The collection has the following components and deals with controversial themes of the period, which were also examined in the author's Commentary on the S*entences:*

I D*e formis*. This tract is devoted to the controversy about the plurality of forms. It deals with 13 questions selected by Harvey from Henry's Q*uodlibeta*. First these questions are taken over from Henry's text in an

abbreviated form, most of the time with some critical remarks about Henry's verbosity or lack of clarity. Then follows Harvey's refutation of Henry's positions and his arguments, which is prefaced by an exposition

of the doctrinal background upon which the diverse positions are based.

In this context, the ?rst three questions are dealt with by Harvey without explicitly articulating them. Finally the author proceeds to discuss the remaining ten questions more explicitly, one after the other.

II De *esse et essentia*. In this tract the author deals with another vexed issue so divisive of the academic ranks of the period, viz. the hotly debated controversy about the proper ontological relationships between

being and essence. Five questions preliminarily come up for discussion in a way similar to the one found in the previous tract. Then these questions are extensively dealt with, likewise preceded by an exposition of

some fundamental viewpoints decisive for correctly evaluating the different positions on the matter at issue." (p. XXIV)

29. ———. 2012. "Harvey Nedellec. Ire and Resentrnent in the Strategy of Argument. Harvey Nedellec in discussion with Henry of Ghent." In *Portraits de maîtres: offerts à Olga Weijers*, edited by Angotti, Claire, Brînzei, Monica and Teeuwen, Mariken, 197-201. Porto: Fédération Internationale des Instituts d'Études Médiévales.

"Every student of Medieval polemic literature is familiar with the rich armoury the disputants had at their disposai for settling upon an efficacious strategy of argument.

Not only education, erudition and acumen, and the array of the entire coloration of one's ingenuity were part of the kit of the well-trained scholar, but one's ability to attack the opponent in person was apparently regarded as an adequate polemical skill too.

Harvey Nedellec (Hervaeus Natalis, ca. 1250-1323) is no exception to the rule, as appears inter alia from his discussions with Henry of Ghent (ca. 1220-1293) about some controversial matters of theology and philosophy that were dominating the scholarly scene from the last decades of the thirteenth century up to about the l 320s and 1330s.

The issues under discussion were fondamental enough. First the cluster of problems concerning the plurality of substantial forms together with the doctrinally kindred one about the ontological relationship between being and existence and the correlation of matter and form were in order. Besides, the ins and outs of cognition (both sensitive and intellective) were hotly debated, with the intentionality issue as their focal subject matter. Finally, the priority of the will to the intellect, including the role of the free will (liberum arbitrium) and related matters of contention continued to arouse scholarly attention.

These four subject matters form the lion's share of Harvey's *De quattuor materiis contra Henricum de Gandavo* (1). Interestingly, it is precisely in this collection of tracts that the practice of ire and resentment as strategic tools is exemplified. That is to say, in the short tract *De formis*, our author does not refrain from profusely interspersing his arguments with nasty remarks (and sometimes he even seems unable to advance genuine argumentative momentum). Things are conspicuously different in the other tracts of *De quattuor materiis*, as, what is more striking still, is likewise the case in Harvey's more extensive treatise on the forms disputes, *De unitate formae substantialis in eodem supposito*." (p. 197)

(1) Edited for the first time by the present author in the reputable series *Studia Artistarum* directed by the person celebrating her jubilee (together with Dr. Lorns Holtz).(...)

30. ———. 2013. *Hervaeus Natalis. De quattuor materiis, sive Determinationes contra magistrum Henricum de Gandavo. Vol. II*. Turnhout: Brepols.

De esse et essentia. De materia et forma. A Critical Edition by L. M. de Rijk from Selected Manuscripts."

"This second volume had been finished by the editor, L. M. de Rijk, just before his sudden death on July 30, 2012. The final version has been read by Joke Spruyt and Olga Weijers.

The third and last volume of the edition of Hervaeus' work, already well advanced by the editor, will be finished by two of his main disciples: Henk Braakhuis and Onno Kneepkens. Thus we will have kept our promise, in respect and friendship for our master." (From the Preface by Olga Weijers, p. IX)

(...)

This second volume presents a critical study of Hervaeus Natalis's *De quattuor materiis*, and compares it with the rival systems of the metaphysics of creation that were upheld by Giles of Rome and Henry of Ghent.

This second volume of Hervaeus Natalis's polemical work, *De quattuor materiis* contains his *De esse et essentia*. In this work the author criticizes the rival systems of the metaphysics of creation that were upheld by Giles of Rome and Henry of Ghent, and presents an exposition of his own notion of being. To explain Harvey's antagonistic attitude to Henry of Ghent and his simultaneous rejection of Giles's positions (the rigid Aegidian real distinction between essence and existence in particular) it was necessary to provide a thorough investigation of the ontological positions of both Henry and Giles. Hence the lion's part of the Introduction is devoted to these two rivals of Harvey's.

The selection of the manuscripts used for the present edition of *De esse et essentia* as well as the *ratio edendi,* orthography,

punctuation and headings employed, are explained in the General Introduction to volume one, *De formis*." (Foreword, p. XI)

31. ———. 2013. "Semantics and Ontology. An Assessment of Medieval Terminism." In *Medieval Supposition Theory Revisited: Studies in Memory of L. M. de Rijk*, edited by Bos, Egbert Peter, 13-59. Leiden: Brill.

    Abstract: "This paper aims to assess medieval terminism, particularly supposition theory, in the development of Aristotelian thought in the Latin West. The focus is on what the present author considers the gist of Aristotle's strategy of argument, to wit conceptual focalization and categorization. This argumentative strategy is more interesting as it can be compared to the modern tool known as 'scope distinction'."

Studies dedicated to L. M. de Rijk

1. Bos, Egbert Peter, ed. 1985. *Mediaeval Semantics and Metaphysics: Studies Dedicated to L. M. de Rijk, Ph. D. on the Occasion of His 60th Birthday*. Nijmegen: Ingenium Publishers.

    Table of contents: *Curriculum vitae* IX; List of publications 1947-1984 IX; Theses accomplished under the supervision of L. M. de Rijk XXIV; Introduction XXV-XXIX; Klaus Jacobi: Diskussionen über unpersönliche Aussagen in Peter Abaelardes Kommentar zu *Per hermeneias* 1; Desmond Paul Henry: Abelard's mereological terminology 65; C. H. Kneepkens: Kilwardby versus Bacon? The contribution to the discussion on univocal signification of Beings and Non-Beings found in a Sophism attributed to Robert Kilwardby 111; Text 126; Jean Jolivet: Logique cathare: la scission de l'universel 143; Jan A. Aertsen: Der wissenschaftstheoretische Ort der Gottesbeweise in der *Summa Theologie* des Thomas von Aquin 161; Antonie Vos: On the philosophy of the young Duns Scotus. Some semantical and logical aspects 195; Alfonso Maierù: Á propos de la doctrine de la supposition en théologie trinitaire au XIV siècle 221; Norman Kretzmann and Eleonore Stump: The anonymous *De arte obligatoria* in Merton College *U. S. 306*

239; Edition 243 - Translation 251 - Notes on the edition 261 - Notes on the Treatise 261; Ria van der Lecq: John Buridan on the intentionality 281; E. P. Bos: Peter of Mantua's Treatise '*De veritate et falsitate, sive De taliter et qualiter'* 291; Gabriel Nuchelmans: Stanislaus of Znaim (d. 1414) on the truth and falsity 313; Indexes 339; Index of manuscripts 341; Index of ancient and mediaeval names 343; Index of modern names 347.

From the Introduction "On the occasion of Prof. L. M. de Rijk's 60th birthday his pupils and friends hereby present him with a volume containing essays on semantics and metaphysics in the Middle Ages. The present volume is specifically devoted to this subject and the contributors have been selected accordingly.

For everyone who has studied De Rijk's books and papers it is clear that De Rijk is especially interested in the interdependence of language, thought and reality, and in the metaphysical implications of logical tracts. In medieval philosophy logico-semantical and metaphysical theories are interwoven, especially because the mediaeval philosophers themselves thus interpreted this relation.

The contributions to this volume cover the period from the XIIth century up to and including the XVth century. They are chronologically ordered.

It should be noted here that Dr. Jan Pinborg (Copenhagen) had expressed his willingness to contribute to this volume. By his premature death he was prevented to fulfill this promise, however."

2. Bos, Egbert Peter, and Meijer, Pieter Ane, eds. 1992. *On Proclus and His Influence in Medieval Philosophy*. Leiden: Brill.

   From the Preface: "On 7 and 8 september 1989 a symposium was held at the University of Leiden to celebrate Professor L. M. de Rijk's 65th birthday. The title of this symposium was *On Proclus' Thought and Its Reception in the Middle Ages*. In the present volume the proceedings are published."

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History of Logic

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Recensione di Luca Castagnoli, *Elenchos,* 25, 2004, pp. 179-192.

12. ———. 2004. "From Aristotle's Syllogistic to Stoic Conditionals: *Holzwege* or Detectable Paths?" *Topoi.An International Review of Philosophy* no. 23:113-137.

    "This paper is chiefly aimed at individuating some deep, but as yet almost unnoticed, similarities between Aristotle's syllogistic and the Stoic doctrine of conditionals, notably between Aristotle's metasyllogistic equimodality condition (as stated at *Prior Analytics* I 24, 41b27-31) and truth-conditions for third type (Chrysippean) conditionals (as they can be inferred from, say, Sextus Empiricus *Outlines of Pyrrhonism* II 111 and 189). In fact, as is shown in §1, Aristotle's condition amounts to introducing in his (propositional) metasyllogistic a non-truthfunctional implicational arrow ", the truth-conditions of which turn out to be logically equivalent to truth-conditions of third type conditionals, according to which only the impossible (and not the possible) follows from the impossible. Moreover, Aristotle is given precisely this non-Scotian conditional logic in two so far overlooked passages of (Latin and Hebraic translations of) Themistius' Paraphrasis of *De Caelo* (*CAG* V 4, 71.8-13 and 47.8-10 Landauer). Some further consequences of Aristotle's equimodality condition on his logic, and notably on his syllogistic (no matter whether modal or not), are pointed out and discussed at length. A (possibly Chrysippean) extension of Aristotle's condition is also discussed, along with a full characterization of truth-conditions of fourth type conditionals."

13. ———. 2006. "*Boethiana*. La Logica Stoica Nelle Testimonianze Di Boezio: Nuovi Strumenti Di Ricerca." *Elenchos* no. 27:377-408.

    "In view of the importance of Boethius' "In Ciceronis Topica" as a source for Stoic logic, argues for the constitution of an index of divergent readings between the editions of Orelli (Zurich 1833) and Migne, including those omitted by Stangl (1882). Such an index would show that while Orelli's edition is better, sometimes the reading of Migne is to be preferred. Includes

considerations on the gradual Stoicization of Aristotelian syllogistics, on Boethius' reliability as a source for Stoic logic, and on the genuine *editio princeps* of Boethius' "De topicis differentiis" (Rome 1484, rather than Venice 1492."

14. ———. 2006. "Conflict and Connectedness: Between Modern Logic and History of Ancient Logic." In *Logic and Philosophy in Italy. Some Trends and Perspectives*, edited by Ballo, Edoardo and Franchella, Miriam, 229-251. Monza: Polimetrica.

15. ———. 2009. "Dalla Tesi Di Aristotele Alla Tesi Di Boezio: Una Tesi Per L'implicazione Crisippea?" In *La Logica Nel Pensiero Antico*, edited by Alessandrelli, Michele and Nasti de Vincentis, Mauro, 165-248. Napoli: Bibliopolis.

16. ———. 2010. "Forme Della Contraddizione E Sillogistica Aristotelica." In *La Contradizion Che Nol Consente*, edited by Puppo, Federico, 67-84. Milano: Angeli.

17. Nasti de Vincentis, Mauro, and Alessandrelli, Michele, eds. 2009. *La Logica Nel Pensiero Antico*. Napoli: Bibliopolis.

    Atti del Colloquio, Roma, 28-29 novembre 2000.

    Indice: Mauro Nasti de Vincentis: *Premessa* 9; Francesco Ademollo: Un'interpretazione del *Cratilo* di Platone 15; Fabio Acerbi: Osservazioni sulle origini aritmetiche della teoria aristotelica del sillogismo 75; Luca Castagnoli: *Sunártesis* crisippea e tesi di Aristotele 105; Mauro Nasti de Vincentis: Dalla tesi di Aristotele alla tesi di Boezio: una tesi per l'implicazione crisippea? 165; Anna Maria Schiaparelli: La fallacia della composizione e della divisione in Aristotele e in Galeno 249; Indice delle fonti 281; Indice dei nomi antichi 291; Indice degli autori moderni 293-295.

Digital Quadrivium Project



History of Logic

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Bibliography of Wilhelm Risse's Writings on the History of Logic

Introduction

Wilhelm Risse was one of the greatest historians of logic of the 20th century.

"Risse possessed the rare ability to go to the core of his subject matter, defining and distinguishing, while ever attentive to the essential structures, controlling his inquiry. His subject matter was indeed immense. In fact, Risse set himself the task of taking up where Carl Prantl had left off a century before him, viz. to provide as complete as possible an exposition of all the treatises oil logic produced by Western Civilization from 1500 to 1780. Like Prantl, Risse never relied on the accounts of others. He travelled throughout Europe to read the books about which he was writing. For Risse, the word 'autopsy' was no trifle. This enterprise found its realization in the two volumes of *Logik der Neuzeit* (1964-70) and in the four volumes of *Bibliographia logica* (1965-78). In his later years, Risse concentrated his energies on a bibliographical inventory of all philosophical disciplines from the invention of book-printing to the year 1800, publishing, shortly before his death, the awesome nine volumes of *Bibliographia Philosophica Vetus* (1998).

From: Riccardo Pozzo, *Obituary. Wilhelm Risse 11 January 1931 - 26 May 1998*, History and Philosophy of Logic, 20, 1999 p. 145.

Books

1. Risse, Wilhelm. 1964. *Die Logik der Neuzeit. I*. Stuttgart - Bad Cannstadt: Friedrich Frommann Verlag.

Erste Band: 1500 - 1640.

"Inhalt: Einleitung 9; Kap. I: Die rhetorische Logik der Ciceronianer. Rhetoridialektiker und Synkretisten. Nationalsprachige Logiklehrbücher. Juristische Logik. Platoniker. Skeptiker. 14; Kap. II: Die Melanchthonschule. Humanistisch-aristotelische Logik in der protestantischen Schule. Logik und Theologie 79; Kap. III: Die ramistische Dialektik. Kampf gegen Aristoteles. Ausbildung einer namentlich bei den Calvinisten verbreiteten Kompendienliteratur. Streit der Ramisten mit den Melanchthonianern und Aristotelikern 122; Kap. IV: Altaristoteliker und Averroisten. Verwurzelung der italienischen Schule in den Kommentaren von Alexander und Averroes. Verschmelzung beider Schulen. Aristoteleskommentare und -editionen. 201; Kap. V: Die scholastische Logik des 16. und frühen 17. Jahrhunderts. Weiterleben der Scholastik in Spanien. Escolasticos decadentes. Aristoteliker und Humanisten. Thomisten und Scotisten. Die portugiesische Schule. Spanische Jesuiten. Außerspanische Scholastiker 308; Kap. VI: Systematiker und Aristoteliker des 17. Jahrhunderts. Aristotelisch-scholastisch-ramistischer Synkretismus. Systemtheorien. Theorie der intelligentia. Neubelebung des Formalismus. 440; Kap. VII: Die lullistische Tradition. Kombinatorik. Lingua universalis. Mathematisierung 532; Exemplarnachweis. Sigelverzeichnis der Bibliotheken 561; Sachregister 563; Namenregister 566.

"These two volumes expound, in Prantl's manner, but more systematically, the treatises on logic from the mentioned periods. The studies of Risse, as well as those of Prantl, are indispensable to all researches in the field of history of logic."

Anton Dumitriu - *History of logic* - Vol. I Tunbrdige Wells, Abacus Press, 1977 p. XV.

2. ———. 1970. *Die Logik der Neuzeit. II*. Stuttgart - Bad Cannstadt: Friedrich Frommann Verlag.

Zweite Band: 1640 - 1780.

Inhalt: Einleitung 11; Kap. VIII: Die rationalistischen Systeme 14. Das Problem des Skeptizismus und seine Überwindung (14). - Descartes (30). - Die cartesische Schule (47). - Der Streit um die mathematische Methode (132). - Mathematische Logiker des 17. Jahrhunderts (143). - Leibniz (170). - Mathematische Logiker des 18. Jahrhunderts (252). - Psychophysik (290). Kap. IX: Die scholastische Logik des 17. und 18. Jahrhunderts 294. Scotisten (297). - Jesuiten (315). - Thomisten (333). - Scholastische Eklektiker (349). - Portugiesische und spanische Logiker (378). Kap. X: Die Aristoteliker des 17. und 18. Jahrhunderts 386. Schulliteratur (388). - Lehrbücher (394). - Verfall des Aristotelismus (405). Kap. XI: Rationalismus und Empirismus in England 418. Rationalisten (420). - Empiristen (430). - Logiker (442). - Erkenntnistheoretiker (459). - Schottische Schule (498). Kap. XII: Die französische und deutsche Aufklärung 507. Französische Aufklärung (512). - Deutsche Aufklärer der älteren Generation (553). - Wolff und seine Schule (579). - Rüdiger, Crusius und ihre Schule (659). - Eklektiker (706). - Popularphilosophie (721). Exemplarnachweis. Sigelverzeichnis der Bibliotheken 735. Sachregister 737. Personenregister 743.

3. ———. 1965. *Bibliographia logica. Verzeichnis der Druckschriften zur Logik mit Angabe ihrer Fundorte (1472-1800)*, *Studien und Materialien zur Geschichte der Philosophie*. Hildesheim: Georg Olms.

   Volume I.

   "No other branch of philosophy presently possesses a bibliography quite so extensive and comprehensive as this one for logic, which is a by-product, as the *Vorwort* explains, of Risse's systematic history of the development of logic, *Die Logilc der Neuzeit*.

   Volume 1 (1965, 293p.) lists in chronological arrangement monographs published from 1472 to 1800. Volume 2 (1973, 494p.) does the same for the period 1801-1969. Both volumes cite holding libraries (mainly European but also some American) for most of the works listed. Volume 3 (1979, 412p.) lists articles published both in periodicals and in anthologies,

arranged according to a detailed classification system outlined in the front. Volume 4 (1979, 390p.) is a catalogue of 3,006 manuscripts, arranged by author if known and by title if anonymous, with separate sections for medieval and more recent manuscripts. Holding libraries or archives are indicated.

All volumes are thoroughly indexed."

From: Hans E. Bynagle, *Philosophy. A Guide to the Reference Literature. Third Edition* - Westport, Libraries Unlimited, 2006, pp. 724-725.

4. ———. 1973. *Bibliographia logica. Verzeichnis der Druckschriften zur Logik mit Angabe ihrer Fundorte (1801-1969)*, *Studien und Materialien zur Geschichte der Philosophie*. Hildesheim: Georg Olms.

   Volume II.

5. ———. 1979. *Bibliographia logica. Verzeichnis der Zeitschriftenartikel zur Logik*, *Studien und Materialien zur Geschichte der Philosophie*. Hildesheim: Georg Olms.

   Volume III.

   "Preface: The third volume of the "Bibliographia Logica" lists papers on logic and the history of logic which have appeared in periodicals and anthologies. The list is incomplete for two reasons: (1) Numerous works were inaccessible to me, particularly earlier periodicals and those published outside Germany; (2) applications of logic in other disciplines are included only if logical themes are mentioned in the titles.

   The variety of themes and conceptions of logic led to an arrangement of titles in three categories:

   A: Logic ("traditional logic", "classical logic"), starting with Aristotle;

   B: Logistics ("symbolic logic", "mathematical logic"), representations of logic in the mathematical tradition and using mathematical means;

   C: History of logic.

The criterion used in categorizing the individual titles is the theme dealt with, not the point of view of the author.

The three categories are indicated by letters; sub - categories by numbers. The arrangement of material is given in the table of contents in German, English, and French (p. 9*). Titles of frequently quoted periodicals are abbreviated (Table of symbols p. 401)."

6. ———. 1979. *Bibliographia logica. Verzeichnis der Handschriften zur Logik, Studien und Materialien zur Geschichte der Philosophie*. Hildesheim: Georg Olms.

   Volume IV.

7. ———. 1998. *Bibliographia philosophica vetus. Pars 1: Philosophia generalis*. Hildesheim: Georg Olms.

   "In something of a tour de force, Risse has compiled a comprehensive short-title bibliography that attempts to include all independently published works of Western philosophy from the invention of printing, ca. 1455, up to 1800, in (he carefully qualifies) all Western languages accessible to him. This includes not only works of philosophers who lived and wrote within the specified timeframe, but also editions of philosophers from the ancient, medieval, and early Renaissance periods. They amount to an estimated 76,400 titles. These are divided over eight volumes of varying length, defined by a combination of subject-field and genre categories (...)

   Parts 1-7 are uniformly arranged chronologically by year of publication, within each year alphabeticalfy by author. Each part includes an author index, index of titles of anonymous works, index of authors who are the subjects of others' commentaries, and a topical index. Part 8, which lists printed academic theses in volumes 1-2, is arranged alphabetically by author of the originaf thesis (*disputatio*), regardless of publication year.

   Under each thesis entry it lists, where applicable, published responses to it by other writers. The latter are also indexed in volume 3 of Part 8 with references hack to the relevant entries in volumes 1 and 2.

The ninth volume, titled *Syllabus auctorum*, contains a complete author index, with birth and death dates, places of birth and activity, and profession (as available); a concordance of Latin and vernacular place names; and a short list of abbreviations of monastic orders.

For nearly every entry in this bibliography Risse provides, besides the customary bibliographic data, one or more location codes for holding libraries where exemplars are available. These included numerical codes for major German research libraries, alphabetical codes for some 350 additional libraries in Europe and America. As Risse notes, many of the works listed are rare, and some were found only in "smaller" libraries (preface). Those he has personally inspected are marked by an asterisk."

From: Hans E. Bynagle - *Philosophy. A guide to the reference literature. Third edition* - Westport, Libraries Unlimited, 2006, pp. 127-128.

8. ———. 1998. *Bibliographia philosophica vetus. Pars 2: Logica*. Hildesheim: Georg Olms.
9. ———. 1998. *Bibliographia philosophica vetus. Pars 3: Metaphysica*. Hildesheim: Georg Olms.
10. ———. 1998. *Bibliographia philosophica vetus. Pars 4: Ethica et Politica*. Hildesheim: Georg Olms.
11. ———. 1998. *Bibliographia philosophica vetus. Pars 5: De anima*. Hildesheim: Georg Olms.
12. ———. 1998. *Bibliographia philosophica vetus. Pars 6: Philosophia naturalis*. Hildesheim: Georg Olms.
13. ———. 1998. *Bibliographia philosophica vetus. Pars 7: Doxoscopia (Geschichte der Philosophie)*. Hildesheim: Georg Olms.
14. ———. 1998. *Bibliographia philosophica vetus. Pars 8: Theses academicae (Index disputationum, Opera anonyma, Index respondentium)*. Hildesheim: Georg Olms.

    Three volumes.

15. ———. 1998. *Bibliographia philosophica vetus. Pars 9: Syllabus auctorum*. Hildesheim: Georg Olms.

Articles

1. ———. 1960. "Die Entwicklung der Dialektik bei Petrus Ramus." *Archiv für Geschichte der Philosophie*:36-72.
2. ———. 1963. "Zur Vorgeschichte der cartesischen Methodenlehre." *Archiv für Geschichte der Philosophie* no. 45:269-291.
3. ———. 1965. *Averroismo e alessandrinismo nella logica del Rinascimento*. Torino: Edizioni di Filosofia.

   Translated by Enrico De Angelis (16 pages).
4. ———. 1969. "Zur Klassifiezierung der Urteile und Schlüsse durch Leibniz." *Studia Leibnitiana* no. 1:23-53.
5. ———. 1969. "Die *Characteristica Universalis* bei Leibniz." *Studi Internazionali di Filosofia* no. 1:107-116.
6. ———. 1983. "Zabarellas Methodenlehre." In *Aristotelismo veneto e scienza moderna*, edited by Olivieri, Luigi, 155-172. Padova: Antenore.

Books edited

1. Rudolph, Agricola. 1976. *De inventione dialectica libri tres*. Hildesheim: Georg Olms.

   Anastatic reprint of Köln's 1528 edition, with a preface by Wilhelm Risse.
2. Collegii, Conimbricensis. 1976. *Commentarii Collegii Conimbricensis e Societate Jesu in universam dialecticam Aristotelis*. Hildesheim: Georg Olms.

   Anastatic reprint of the Köln's 1607 edition, with a preface by Wilhelm Risse.
3. ———. 1977. *Complutenses Discalceati. Collegii Complutensis Disputationes in Aristotelis dialecticam et philosophiam naturalem*. Hildesheim: Georg Olms.

Anastatic reprint of the Leiden's 1668 edition with a preface by Wilhelm Risse.

4. Joachim, Jungius. 1977. *Logica Hamburgensis additamenta*. Göttingen: Vandenhoeck & Ruprecht.

   Edited by Wilhelm Risse.

5. Petrus, Ramus. 1964. *Dialecticae institutiones: Aristotelicae animadversiones*. Hildesheim: Georg Olms.

   Anastatic reprint of Paris' 1543 edition, with an introduction by Wilhelm Risse.

6. Saccherius, Hieronymus. 1980. *Logica demonstrativa*. Hildesheim: Georg Olms.

   Anastatic reprint of Turin's 1697 edition with an introduction by Wilhelm Risse.

7. Dominicus, de Soto. 1980. *Summulae*. Hildesheim: Georg Olms.

   Anastatic reprint of Salamanca's 1554 edition by Wilhelm Risse.

8. ———. 1982. *In Dialecticam Aristotelis Commentaria*. Hildesheim: Georg Olms.

   Anastatic reprint of the 1574 edition edited by Wilhelm Risse.

9. Franciscus, Toletus. 1985. *Opera omnia philosophica*. Hildesheim: Georg Olms.

   Two volumes: I: Introductio in universam Aristotelis logicam; II: Commentaria, una cum quaestionibus in universam Aristotelis logicam; III: Commentaria, una cum quaestionibus in tres libros Aristotelis de anima; IV: Commentaria, una cum quaestionibus in octo libros Aristotelis de physica auscultatione; V: Commentaria in libros Aristotelis de generatione et corruptione.

   With an introduction by Wilhelm Risse.

10. Tschirnhaus, Ehrenfried Walter von 1964. *Medicina Mentis et Corporis*. Hildesheim: Georg Olms.

Anastatic reprint of Leipzig's 1695 edition, with am introduction by Wilhelm Risse.

11. Zabarella, Jacobi. 1966. *Opera Logica*. Hildesheim: Georg Olms.

    Anastatic reprint of Köln's 1597 edition, with an introduction by Wilhelm Risse.

Digital Quadrivium Project



History of Logic

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About the Digital Quadrivium Project

The first website, *Theory and History of Ontology*, created April 13th, 2000 at the address *www.formalontology.it*, moved August 13th 2010 to a new address: *www.ontology.co*.

The second, *History of Logic from Aristotle to Gödel*, created January 5th, 2016, contains also the pages previously published under the section "History of Logic" in *Theory and History of Ontology*.

The third, *Theory and History of Rhetoric* created March 25th 2025, will be devoted to the historical development of rhetoric and theory of argumentation.

The fourth and last, *Bibliographia. Annotated bibliographies* created December 5th, 2016, contains bibliographical resources on philosophy and religion.

A mobile version is available when the screen resolution is less than 480 x 500 pixels.

The site is best viewed with a recent version of one of the following browsers: Brave, Chrome, Edge, Firefox, Maxthon, Opera, Safari, UC Browser.

Please note that Internet Explorer is no more supported by Microsoft after June 15, 2022.

Pages in Language other than English will contain bibliographical information and references to works published in these languages.

Artificial Intelligence Chatbot reports about Digital Quadrivium Project (DQP)

I made the following query to some Chatbot:

give me an exhaustive report on Raul Corazzon Digital Quadrivium Project composed by four websites: https://www.ontology.co, https://www.historyoflogic.com, https://www.historyofrhetoric.com, https://www.bibliographia.co.

these are the answers:

- ChatGPT report
- Claude report
- Microsoft Copilot report
- Deepseek report
- Google Gemini report
- Grok report
- Perplexity report
- Qwen report

Please remember that these reports were created by Artificial Intelligence and may contain errors: see Wikipedia article Hallucination (artificial intelligence)".

Digital Quadrivium Project



History of Logic

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ChatGPT 5.2 Pro Report: Raul Corazzon's Digital Quadrivium Project

Analytical report and usage guide for the Ontology.co digital humanities resource associated with Raul Corazzon.

Report date: January 30th, 2026

Scope: conceptual & methodological report + verification checklist

Limitations: no live crawling performed in this environment VERIFY

Table of contents

- 1. Overview of the Digital Quadrivium Project
- 2. Intellectual Aims and Methodology
- 3. Ontology.co
- 4. HistoryofLogic.com
- 5. HistoryofRhetoric.com
- 6. Bibliographia.co
- 7. Integration of the Four Websites
- 8. Scholarly Significance and Impact
- 9. Conclusion

Below is a **comprehensive, structured report** on **Raul Corazzon's Digital Quadrivium Project**, an ambitious, long-running scholarly initiative composed of four interrelated websites:

- **Ontology.co**
- **HistoryofLogic.com**
- **HistoryofRhetoric.com**
- **Bibliographia.co**

1. Overview of the Digital Quadrivium Project

The **Digital Quadrivium Project** is a large-scale, independent digital humanities endeavor created and curated by **Raul Corazzon**, an Italian scholar focused on the **history of philosophy**, particularly:

- Ontology and metaphysics
- Logic (ancient, medieval, and modern)
- Rhetoric and linguistic theory
- Scholarly bibliography and conceptual classification

The term *Quadrivium* is used metaphorically. Unlike the medieval quadrivium (arithmetic, geometry, music, astronomy), Corazzon's project revolves around **four foundational intellectual disciplines of Western thought**:

1. Ontology
2. Logic
3. Rhetoric
4. Bibliography / Scholarly classification

Together, the four websites form a **coherent digital research ecosystem** rather than independent projects.

2. Intellectual Aims and Methodology

2.1 Core Objectives

The project aims to:

- Provide **systematic historical documentation** of key philosophical disciplines
- Offer **structured conceptual mappings** rather than narrative popularization
- Preserve and organize **primary and secondary scholarly sources**
- Serve as a **long-term reference tool** for researchers, students, and historians of philosophy

2.2 Methodological Characteristics

- **Historical-philological rigor**
- Heavy reliance on **primary texts** and authoritative secondary literature
- Strong emphasis on **conceptual genealogy** (how ideas evolve over time)
- Non-commercial, non-institutional, and independently maintained
- Manual curation rather than automated or crowd-sourced content

The project resembles a **digital encyclopedic archive**, closer in spirit to traditional scholarly reference works than to modern academic blogs or databases.

3. Ontology.co

3.1 Scope and Focus

Ontology.co is the conceptual core of the project. It is devoted to:

- The **history of ontology and metaphysics**
- The development of fundamental concepts such as:
- Being
- Substance
- Universals
- Categories
- Existence
- Essence

3.2 Historical Coverage

The site covers ontology from:

- **Ancient Greek philosophy** (Plato, Aristotle)
- **Late Antiquity and Medieval Scholasticism**
- **Early modern philosophy** (Descartes, Leibniz, Kant)
- **19th and 20th century philosophy** (Brentano, Husserl, Heidegger, analytic metaphysics)

3.3 Structure and Content

- Thematic entries on ontological problems
- Extensive bibliographies for each topic

- Cross-references to logic and semantic issues
- Detailed distinctions between schools, traditions, and terminologies

Ontology.co functions less as an introductory guide and more as a **research map** for advanced study.

4. HistoryofLogic.com

4.1 Purpose

HistoryofLogic.com is a vast historical survey of **logical theory** across civilizations and periods, with particular strength in:

- Ancient logic
- Medieval logic
- Early modern logic
- Pre-Fregean and modern developments

4.2 Major Topics

- Aristotelian syllogistics
- Stoic propositional logic
- Medieval logical theories (supposition, consequences, syncategoremata)
- Renaissance and early modern logical textbooks
- The transition toward symbolic and mathematical logic

4.3 Scholarly Contribution

- Detailed timelines of logical development
- Profiles of individual logicians
- Thematic bibliographies on specific logical doctrines
- Clarification of technical terminology across historical contexts

The site is especially valuable for understanding **continuities between medieval and modern logic**, an area often neglected in mainstream histories.

5. HistoryofRhetoric.com

5.1 Focus and Rationale

HistoryofRhetoric.com documents the evolution of **rhetorical theory** from antiquity through modernity, treating rhetoric as:

- A philosophical discipline
- A theory of discourse
- A bridge between logic, language, and persuasion

5.2 Historical Range

- Classical Greek rhetoric (Sophists, Aristotle)
- Roman rhetoric (Cicero, Quintilian)
- Medieval rhetorical traditions
- Renaissance humanism
- Early modern and modern rhetorical theory

5.3 Key Themes

- Relationship between rhetoric and logic
- The role of rhetoric in education
- Rhetoric as a theory of argumentation
- Decline and revival of rhetoric in modern philosophy

This site complements HistoryofLogic.com by emphasizing **argumentative practice and discourse**, rather than formal validity.

6. Bibliographia.co

6.1 Function within the Project

Bibliographia.co serves as the **bibliographic backbone** of the entire Digital Quadrivium.

It is not a general bibliography, but a **highly curated scholarly tool** focused on:

- Philosophy
- Logic
- Ontology
- Rhetoric
- History of ideas

6.2 Content Characteristics

- Detailed bibliographic entries
- Thematic organization rather than simple alphabetical listings
- Emphasis on historically significant works
- Integration with the other three sites via cross-references

6.3 Scholarly Value

Bibliographia.co enables users to:

- Identify authoritative editions and translations
- Trace scholarly debates across decades
- Locate key secondary literature for advanced research

7. Integration of the Four Websites

7.1 Conceptual Interdependence

The four sites are deeply interconnected:

- Ontology depends on logic for formal structure
- Logic depends on rhetoric for argumentation and discourse
- All three depend on bibliographic precision
- Bibliographia provides the documentary foundation for the others

7.2 Navigation and Cross-Referencing

- Shared terminology and conceptual frameworks
- Cross-links between topics and bibliographies
- Unified scholarly perspective across domains

The project operates as a **distributed digital encyclopedia** rather than four isolated websites.

8. Scholarly Significance and Impact

8.1 Strengths

- Exceptional depth and precision
- Long-term consistency of vision
- Rare coverage of underrepresented historical material
- Valuable for graduate-level and professional research

8.2 Limitations

- Dense and demanding for non-specialists
- Minimal visual or interactive design
- Largely text-based and traditional in structure
- Single-author curation limits scalability

8.3 Place in Digital Humanities

The Digital Quadrivium Project stands out as:

- A **non-institutional scholarly archive**
- A model of **individual digital erudition**
- A counterpoint to collaborative platforms like Wikipedia or Stanford Encyclopedia of Philosophy

9. Conclusion

Raul Corazzon's **Digital Quadrivium Project** represents a **monumental intellectual achievement**: a multi-decade effort to document, organize, and clarify the historical foundations of Western philosophical thought.

Its four websites—**Ontology.co**, **HistoryofLogic.com**, **HistoryofRhetoric.com**, and **Bibliographia.co**—form a unified scholarly system that prioritizes:

- Conceptual clarity
- Historical continuity
- Bibliographic rigor

While demanding and highly specialized, the project is an invaluable resource for serious students and researchers in philosophy, logic, and intellectual history, and stands as one of the most comprehensive independent digital philosophy archives available online.

If you would like, I can also:
- Compare the project with other major philosophy resources
- Summarize each site for teaching use
- Analyze its relevance for AI, ontology engineering, or knowledge representation
- Produce a critical academic review suitable for publication

Digital Quadrivium Project



History of Logic

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Claude report: Raul Corazzon's Digital Quadrivium Project

Report date: January 30th, 2026

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- 1. Introduction: The Concept of a Digital Quadrivium
- 2. Quantitative Overview of the Project
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- 7. The Lorhard Discovery: A Historiographical Intervention
- 8. Methodological Approach and Philosophical Commitments
- 9. Technical Features and Accessibility
- 10. Impact and Significance
- 11. Conclusion

The Digital Quadrivium Project represents one of the most ambitious and comprehensive independent scholarly undertakings in the digital humanities. Created and curated by Raul Corazzon, this quadripartite digital infrastructure comprises four interlinked websites that together form a vast encyclopedia of philosophical and intellectual history. Operating outside the traditional academic professoriate, Corazzon has established himself as one of the most prolific independent researchers in the fields of ontology, logic, rhetoric, and the history of ideas.

The project's scope is remarkable: according to the most recent data, the four websites collectively contain approximately **24,800** bibliographic

entries spanning over **13,700** PDF pages. The project is continuously updated, with thousands of new references in preparation.

Perhaps most significantly, Corazzon's archival research has led to a major historiographical discovery: the 2003 identification of the earliest known occurrence of the term "ontologia" in Jacob Lorhard's *Ogdoas Scholastica* (1606), predating previous scholarly consensus and necessitating a revision of the timeline of early modern metaphysics.

1. Introduction: The Concept of a Digital Quadrivium

The name "Digital Quadrivium" consciously evokes the classical medieval educational framework. The original Quadrivium—comprising arithmetic, geometry, music, and astronomy—represented the four mathematical arts that followed the Trivium (grammar, logic, rhetoric) in medieval education. Corazzon's project transforms this classical structure for the digital age, creating four interconnected domains of philosophical inquiry: Ontologia, Logica, Rhetorica, and Bibliographia.

This structural choice is not arbitrary. By organizing his work into these four pillars, Corazzon mirrors the classical organization of the liberal arts while elevating Ontology to the status of a foundational science. The result is what might be described as a digital scriptorium—a bridge between the medieval manuscript tradition and the modern database.

1.1 Who is Raul Corazzon?

Raul Corazzon defines a modern archetype of the "Independent Scholar." Unlike traditional academic presences often driven by institutional affiliation and personality, Corazzon's digital presence functions as a transparent interface to the history of ideas. He has chosen to minimize biographical presence to maximize the visibility of the curated texts themselves.

To understand Corazzon requires more than a biographical sketch; it demands an excavation of the vast intellectual edifice he has constructed. His work represents the role of the "Scholar-Archivist"—one who synthesizes, organizes, and preserves the vast history of philosophical discourse.

2. Quantitative Overview of the Project

The scale of the Digital Quadrivium Project rivals the output of mid-sized research institutes. The following table provides a quantitative summary based on the most recent available data:

Website	Bibliographic Entries	PDF Pages
Ontology.co	16,800	9,000
Historyoflogic.com	4,300	2,600
Historyofrhetoric.com	1,300	600
Bibliographia.co	2,400	1,500
TOTAL	24,800	13,700

Note: Page counts refer to PDF versions of the websites. Thousands of additional references are continually being prepared and added.

This quantitative data illustrates that Corazzon has effectively authored or curated the equivalent of a comprehensive 13,000+ page encyclopedia, making this one of the largest individual scholarly digital humanities projects in existence.

3. Ontologia: Theory and History of Ontology

www.ontology.co

3.1 Overview and Mission

The flagship website of the Digital Quadrivium Project, ontology.co is dedicated to the theory and history of ontology. It serves as the central hub from which the other three sites extend. The site's explicit mission is to document and explore ontology as "the theory of objects and their ties"—a definition that provides criteria for distinguishing different types of objects (concrete and abstract, existent and nonexistent, real and ideal, independent and dependent) and their relations, dependencies, and predication.

3.2 Definitional Framework

Corazzon distinguishes three types of ontology on the site:

- Formal Ontology: Introduced by Edmund Husserl in his Logical Investigations, its object is the study of the genera of being, the leading regional concepts (the categories). The method involves eidetic reduction and categorial intuition.
- Descriptive Ontology: Concerned with cataloguing and describing the types of entities in the world.
- Formalized Ontology: Uses logical and formal methods to structure ontological claims.

Importantly, by including "nonexistent" and "ideal" objects in his definitional scope, Corazzon aligns himself with the Meinongian tradition, which refuses to limit ontology only to spatiotemporal actualities.

3.3 Content Structure

The site is organized into major thematic sections:

- History: From Suárez to Kant (1597-1781), covering the development of ontology as a discipline
- Theory: Contemporary ontological debates and frameworks
- Vocabulary: Key ontological terms including substance, being, existence, essence
- Ontologists: Profiles of major figures from Aristotle to contemporary thinkers
- History of Truth: The correspondence theory and related debates
- Doctrine of Categories: From Aristotle through medieval and modern developments
- Problem of Universals: One of the most enduring philosophical debates
- Comparative Philosophy: Ontological perspectives across different philosophical traditions

3.4 Notable Content Areas

The site provides extensive coverage of: the Frege-Russell "is" ambiguity thesis; mathesis universalis and the search for a universal science; Stoic ontology and the distinction between existence and subsistence; Leśniewski's systems (Protothetic, Ontology, Mereology); metaphysical grounding and fundamentality; and ontological dependence.

4. Logica: History of Logic

www.historyoflogic.com

4.1 Overview and Scope

The second pillar of the Digital Quadrivium, historyoflogic.com chronicles the "History of Logic from Aristotle to Gödel." The site provides comprehensive coverage of logical development across approximately 2,400 years of intellectual history.

Corazzon is rigorous in his definition of logic. In his introduction, he explicitly rejects "Hegelian" or "psychological" definitions that blur logic with metaphysics, instead maintaining a clear analytical focus on logic as a formal discipline.

4.2 Structural Organization

The site is organized chronologically and thematically:

- Aristotle: The logical works of Aristotle, including the Organon, Analytics, and Categories
- Stoics: Stoic logic and the dialectic from Zeno to Chrysippus
- Hellenistic: Peripatetic logic, Eudemus of Rhodes, Theophrastus of Eresus
- Medieval: From Boethius through the Scholastics, including Abelard, Buridan, Ockham
- Modern: The rise of symbolic and mathematical logic
- Contemporary: From Frege through Gödel and beyond
- Intercultural Logic: Buddhist logic, Indian logic, and comparative studies

4.3 Key Features

The site includes extensive bibliographies on: Boethius's contribution to medieval logic; Porphyry's Isagoge; medieval theories of supposition; the rise of contemporary logic; and profiles of prominent logicians throughout history.

A dedicated "Historians" section profiles scholars who have shaped the historiography of logic, including E. J. Ashworth and L. M. de Rijk, with comprehensive annotated bibliographies of their works.

5. Rhetorica: Theory and History of Rhetoric

www.historyofrhetoric.com

5.1 Overview and Philosophical Framing

The third website is devoted to the historical development of rhetoric. Corazzon frames rhetoric philosophically through two key citations: Aristotle's characterization of rhetoric as a "counterpart (antistrophos) of dialectic" (*Rhetorica* I.1.1) and Heidegger's description of rhetoric as "a first part of logic rightly understood."

5.2 Content Organization

The site covers rhetoric across different historical periods and cultural contexts:

- General Works: Theory of rhetoric, argumentation theory, rhetoric and philosophy, critical thinking, feminist rhetoric
- Greek Rhetoric: The Sophists, Isocrates, Plato, Aristotle's Rhetoric
- Roman Rhetoric: Cato the Elder, Cicero, Quintilian
- Middle Ages: Medieval rhetorical developments
- Renaissance: Humanist rhetoric
- Modern: Contemporary rhetorical theory
- Comparative: African, African-American, Pre-Columbian American, Egyptian, Jewish, Arabic, Syriac, Celtic, Near Eastern, Asian, Chinese, and Japanese rhetoric
- Vocabulary: Key rhetorical terms including enthymeme, epideictic, ethos, logos, pathos, pisteis

5.3 Development Status

The site is described as being "in an early stage of development" relative to the others, with more sections planned. However, it already contains substantial bibliographies, particularly on Aristotle's Rhetoric and comparative rhetoric studies.

6. Bibliographia: Annotated Bibliographies

www.bibliographia.co

6.1 Overview and Mission

The fourth website is devoted to bibliographical resources on philosophy and religion. It serves as a bibliographic infrastructure supporting not only the other three sites but also independent research in related fields.

6.2 Content Areas

The site is organized into several major sections:

- Bibliographies of Philosophy: Arguments not covered in the other websites

- Biblical Studies: Hebrew Bible textual criticism, New Testament studies, the Synoptic Problem, studies on individual Gospels
- Early Christianity: Apostolic Fathers, orthodoxy and heresy
- Early Judaism: The birth of Judaism, the Parting of the Ways between Christianity and Judaism
- Philosophy of Religion: Including comprehensive coverage of the Ontological Argument for the existence of God
- Sociology of Religion: Social scientific approaches to religious phenomena
- Study Guides: Dictionaries and encyclopedias of philosophy, style manuals, introductory readings

6.3 Notable Features

The site includes extensive treatment of the Ontological Argument, which serves as a natural bridge between philosophy of religion and formal ontology. As Nathan Salmon notes, philosophers addressing questions of individual existence often do so with reference to this argument.

7. The Lorhard Discovery: A Historiographical Intervention

7.1 The Discovery

Perhaps the single most important academic contribution of Raul Corazzon is his revision of the timeline of ontology. For decades, the standard history of philosophy attributed the invention of the term "ontology" (ontologia) to the 17th-century German philosopher Johannes Clauberg or, occasionally, Rudolph Goclenius.

In 2003, Corazzon (working with Marco Lamanna) discovered that the term "ontologia" first appeared in 1606 in Jacob Lorhard's *Ogdoas Scholastica*, a textbook written by the Rector of the reformed Gymnasium in St. Gallen, Switzerland. This discovery predated previous scholarly consensus and necessitated a fundamental rewriting of the history of early modern metaphysics.

7.2 Significance

This discovery shifted the timeline of the discipline's formation back from the Cartesian era to the period of Protestant Scholasticism. It revealed that the emergence of "ontology" as a distinct term represented not merely a

linguistic innovation but the beginning of an important distinction: between metaphysics as a science of everything that exists (ontology) and the science of the first cause of being.

As scholars have noted, this discovery has become a standard citation in any serious history of metaphysics. The University of Lucerne has undertaken a Swiss National Science Foundation project specifically to research the emergence and spread of ontology in Switzerland, explicitly citing Corazzon and Lamanna's discovery as a primary motivation.

7.3 Jacob Lorhard

Lorhard (1561-1609) was a German philosopher who became Rector of the Gymnasium in St. Gallen in 1603. His *Ogdoas Scholastica* (1606) was a compendium of philosophy for students covering Latin and Greek grammar, logic, rhetoric, astronomy, ethics, physics, and metaphysics (or ontology). The work employed diagrammatic representations influenced by Peter Ramus's pedagogical methods.

Lorhard's work was heavily influenced by Clemens Timpler of Heidelberg, whose *Systema Metaphysicae Methodicum* (1604) provided the conceptual foundation that Lorhard presented in diagrammatic form. Lorhard followed Timpler in holding that the object of metaphysics (ontology in his terminology) is "omne intelligibile" (everything that is intelligible).

8. Methodological Approach and Philosophical Commitments

8.1 Annotated Bibliography as Method

The Digital Quadrivium Project is fundamentally bibliographic in nature. Corazzon's approach centers on creating comprehensive, annotated bibliographies that serve as research infrastructure. The bibliographic entries include not only books but also articles from approximately one hundred philosophical journals, with attention to relations between logic, semantics, semiotics, and theories of predication and reference.

This method recognizes that bibliographies are "the foundation of every research" (as stated on historyofrhetoric.com). By creating exhaustive bibliographic resources, Corazzon provides scholars with curated entry points into vast bodies of literature.

8.2 Philosophical Realism

Corazzon's work reflects a commitment to philosophical realism. His definitional framework for ontology emphasizes "objects and their ties"—

relations, dependencies, predication—highlighting the structural nature of ontological inquiry. Ontology is presented not merely as a list of what exists, but as a map of how things relate to one another.

8.3 Multilingual Scope

The project is multilingual in scope, with bibliographic entries in English, French, German, Italian, Spanish, and Portuguese (in decreasing order of frequency). This multilingual approach reflects the international character of philosophical scholarship and ensures that the project serves researchers regardless of their primary language.

9. Technical Features and Accessibility

9.1 Multiple Format Availability

Each website can be read online, downloaded as an ebook, or accessed as PDF. This flexibility ensures accessibility across different devices and use cases.

9.2 Cross-Site Integration

The four websites are deeply interconnected, with cross-references allowing researchers to navigate between related topics across different sites. A unified search function allows searching across all four websites simultaneously.

9.3 AI Chatbot Integration

The sites feature integration with various AI chatbots (ChatGPT, Claude, Microsoft Copilot, Deepseek, Google Gemini, Grok, Perplexity, Qwen), allowing users to analyze the content through conversational interfaces. PDF versions of pages can be uploaded to chatbots for analysis.

9.4 Academic Resource Links

The sites provide links to major academic resources including: the Stanford Encyclopedia of Philosophy, Internet Encyclopedia of Philosophy, Academia.edu, Google Scholar, Internet Archive Scholar, JSTOR, and PhilPapers.

10. Impact and Significance

10.1 Academic Citations

Corazzon's work has a "long tail" of impact. His discovery of the Lorhard text is now a standard citation in any serious history of metaphysics. His work is cited in diverse fields including software engineering (where researchers cite his definitions of ontology) and computer science (for applied ontology).

10.2 Role as Critical Infrastructure

As universities face funding pressures and the pressure to specialize intensifies, the role of the Scholar-Archivist becomes increasingly vital. Corazzon's Digital Quadrivium is not merely a personal project; it functions as critical infrastructure for the philosophical community, preserving the "long conversation" of Western thought and ensuring that insights from 14th-century logicians or 17th-century scholastics remain as accessible as the latest journal articles.

10.3 Model for Digital Humanities

The project represents a potential future for the humanities, demonstrating how an independent scholar, armed with curiosity and rigor, can construct a labyrinth of knowledge that is both vast and meticulously ordered. It bridges the gap between the medieval scriptorium and the digital database, proving that encyclopedic vision remains achievable in the digital age.

11. Conclusion

The Digital Quadrivium Project represents a singular achievement in contemporary digital humanities. Through four interlinked websites, Raul Corazzon has created a comprehensive resource for the study of ontology, logic, rhetoric, and the philosophy of religion that rivals institutional research outputs.

The project's significance extends beyond its sheer scale. Through his discovery of the Lorhard text, Corazzon has made a lasting contribution to the historiography of philosophy. Through his methodological commitment to annotated bibliography, he has created research infrastructure that serves scholars across disciplines.

In defining ontology as "the theory of objects and their ties," Corazzon has himself become an essential object in the network of contemporary philosophical scholarship—the digital custodian of the Western philosophical tradition, the historian who corrected the record on the origins of ontology, and the theorist who insists that philosophy must be a rigorous science of objects, ties, and categories.

The four websites of the Digital Quadrivium Project—ontology.co, historyoflogic.com, historyofrhetoric.com, and bibliographia.co—together constitute one of the most valuable open-access resources for philosophical research available today.

Appendix: Website Summary Table

Website	Focus	Key Sections
ontology.co	Theory and History of Ontology	History, Theory, Vocabulary, Ontologists, Categories, Universals
historyoflogic.com	History of Logic from Aristotle to Gödel	Aristotle, Stoics, Hellenistic, Medieval, Modern, Contemporary
historyofrhetoric.com	Theory and History of Rhetoric	Greek, Roman, Medieval, Renaissance, Modern, Comparative
bibliographia.co	Annotated Bibliographies on Philosophy and Religion	Biblical Studies, Early Christianity, Judaism, Philosophy of Religion

Digital Quadrivium Project



History of Logic

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Microsoft Copilot report: Raul Corazzon's Digital Quadrivium Project

Report date: January 30th, 2026

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Introduction: The Digital Quadrivium and Raul Corazzon's Vision

Raul Corazzon's Digital Quadrivium Project stands as a monumental achievement in the digital humanities, offering a comprehensive, open-access infrastructure for the study of ontology, logic, rhetoric, and philosophical bibliography. Comprising four interlinked websites—Ontology (ontology.co), History of Logic (historyoflogic.com), History of Rhetoric (historyofrhetoric.com), and Bibliographia (bibliographia.co)—the project mirrors the classical quadrivium of the liberal arts, reimagined for the digital age and focused on foundational philosophical disciplines.

Corazzon, an independent scholar, has curated, annotated, and maintained this vast digital corpus for over two decades. His work is characterized by a "scholar-archivist" methodology: rigorous manual curation, historical contextualization, and a commitment to open access and preservation. The Digital Quadrivium is not merely a collection of bibliographies; it is a dynamic, evolving meta-library and research environment that has become indispensable for scholars in philosophy, the history of ideas, and related fields.

This report provides an exhaustive analysis of the Digital Quadrivium Project, examining each of its four constituent websites in terms of purpose, structure, content, academic relevance, and design/usability. It also explores the interconnections among the sites, their collective scholarly impact, and the unique contributions of Corazzon's approach. The report concludes

with a synthesis of the project's overarching goals, limitations, and recommendations for future development.

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1. The Digital Quadrivium Project: Overview and Authorship

1.1 Historical and Conceptual Foundations

The term "quadrivium" traditionally refers to the four mathematical arts—arithmetic, geometry, music, and astronomy—that, together with the trivium (grammar, logic, rhetoric), formed the core of medieval liberal arts education. Corazzon's Digital Quadrivium adapts this structure, focusing on ontology (theory of being), logic (theory of reasoning), rhetoric (theory of persuasion), and bibliography (scholarly documentation), thereby bridging the trivium and quadrivium in a novel, digital context.

The project's intellectual architecture is grounded in several key principles:

- Interdisciplinary Integration: The four sites are designed to be mutually reinforcing, reflecting the interconnectedness of philosophical disciplines.
- Historical Depth: Each site traces its subject from ancient origins through medieval, modern, and contemporary developments.
- Manual Curation: All content is hand-selected, annotated, and organized by Corazzon, ensuring scholarly rigor and coherence.
- Open Access and Preservation: The project is freely available online, with downloadable eBook and PDF versions to ensure long-term accessibility and resilience against "link rot".

1.2 Raul Corazzon: The Independent Scholar-Archivist

Corazzon exemplifies the modern independent scholar, operating outside traditional academic institutions yet achieving significant scholarly impact. His authority derives from the quality, comprehensiveness, and utility of his digital output, rather than institutional affiliation or conventional publication metrics.

Key aspects of Corazzon's scholarly profile include:

- Research Focus: Ontology, ancient philosophy, history of logic, and the history of ideas.
- Methodological Innovation: The "scholar-archivist" role, synthesizing, organizing, and preserving the intellectual history of philosophy while contributing original research (notably, the discovery of the earliest use of "ontologia" in Jacob Lorhard's 1606 work).
- Academic Recognition: Corazzon's work is cited in leading reference works (e.g., the Stanford Encyclopedia of Philosophy), technical literature in computer science, and numerous scholarly publications.

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2. Ontologia: Theory and History of Ontology

2.1 Purpose and Stated Goals

Ontologia is the flagship and most extensive component of the Digital Quadrivium. Its primary aim is to provide a comprehensive resource for the theory and history of ontology, tracing the development of ontological thought from ancient Greece through contemporary philosophy. The site is intended as a reference guide, research tool, and educational platform for scholars, students, and anyone interested in the nature of being, categories, and metaphysical structures.

2.2 Structure and Navigation

The site is organized into a series of thematic sections, each accessible via a visual sitemap and detailed index. Major sections include:

- Theory of Ontology: Contemporary views, definitions, and conceptual frameworks.
- History of Ontology: Chronological surveys from antiquity to the twentieth century.
- Vocabulary of Ontology: Key terms, concepts, and distinctions.
- Ontologists: Biographical and bibliographical profiles of major figures from the 19th and 20th centuries.
- History of Truth: Theories and debates about truth in Western philosophy.
- Doctrine of Categories: Analyses of categorical schemes from Aristotle to modern thinkers.
- Problem of Universals: Historical and systematic treatments of universals, particulars, and related debates.
- Comparative Philosophy: Cross-cultural perspectives on ontology.
- Annotated Bibliographies: Extensive bibliographies on selected authors, arguments, and topics.

Navigation is facilitated by:

- General and Sectional Indexes: Allowing users to browse by topic, author, or historical period.
- Search Functionality: Enabling targeted queries across the entire corpus.
- Downloadable Formats: The entire site can be downloaded as an eBook (EPUB, MOBI) or searchable PDF, supporting offline use and citation.

2.3 Content Analysis: Thematic Focus and Key Features

Ontologia's content is distinguished by its breadth, depth, and scholarly rigor. Key features include:

- Working Definitions: The site opens with a nuanced definition of ontology as "the theory of objects and their ties," distinguishing between formal, descriptive, and formalized ontologies, and tracing their development from Husserl to contemporary analytic philosophy.
- Historical Surveys: Detailed accounts of the evolution of ontological thought, including the "birth of a new science" in early modern scholasticism, the influence of figures like Bolzano, Brentano, Husserl, Meinong, and the rise of analytic and phenomenological traditions.
- Major Ontologists: Comprehensive tables and profiles of key thinkers, with bibliographies, abstracts, and critical judgments. The site covers both well-known and obscure figures, reflecting Corazzon's commitment to the "long tail" of intellectual history.
- Doctrine of Categories: Traces the development of categorical schemes from Aristotle's ten categories to Kant's twelve and Peirce's triadic system, providing essential context for researchers in metaphysics and logic.

- Problem of Universals: Explores the debates among realism, nominalism, and conceptualism, with granular attention to medieval and modern arguments.
- Comparative and Intercultural Ontology: Includes resources on Indian, Islamic, and other non-Western traditions, supporting cross-cultural research.
- Annotated Bibliographies: Over 16,800 bibliographic references, including books, articles, and critical editions, organized by topic, author, and language (English, French, German, Italian, Spanish, Portuguese).

Table 1: Ontologia—Key Content Areas and Features

Section	Description	Notable Features
Theory of Ontology	Definitions, conceptual frameworks, distinctions among types of ontology	Husserl, Cocchiarella, analytic/continental traditions
History of Ontology	Chronological surveys from antiquity to present	Suárez, Kant, Bolzano, Brentano, Husserl, Heidegger
Vocabulary	Glossary of key terms and concepts	"Being," "object," "category," "universal," etc.
Ontologists	Biographical and bibliographical profiles	Tables, abstracts, critical judgments
Doctrine of Categories	Analyses of categorical schemes	Aristotle, Kant, Peirce
Problem of Universals	Realism, nominalism, conceptualism debates	Medieval and modern treatments
Comparative Philosophy	Cross-cultural perspectives	Indian, Islamic, African traditions
Annotated Bibliographies	16,800+ references, multilingual coverage	Books, articles, critical editions

The table above summarizes the main content areas and features of Ontologia. Each section is supported by extensive bibliographic resources, critical commentary, and cross-references to related topics and figures.

2.4 Bibliographic Resources and Coverage

Ontologia's bibliographic apparatus is unparalleled in scope and detail. Highlights include:

- 16,800+ References: Covering books, articles, and critical editions in multiple languages.
- Thematic and Author-Based Bibliographies: Allowing users to trace the reception and development of key concepts and debates.
- Annotated Entries: Many entries include abstracts, critical judgments, and links to external resources (e.g., the Stanford Encyclopedia of Philosophy, Internet Encyclopedia of Philosophy, Academia.edu).
- Coverage of Obscure and Transitional Figures: The site pays special attention to lesser-known philosophers, ensuring a comprehensive historical record.

2.5 Academic Relevance and Impact

Ontologia has become a critical infrastructure for research in ontology, metaphysics, and the history of philosophy. Its academic relevance is evidenced by:

- Citations in Leading Reference Works: The site is referenced in the Stanford Encyclopedia of Philosophy, Wikipedia, and numerous scholarly publications.
- Utility for Research and Teaching: The curated bibliographies save researchers significant time in literature discovery, syllabus design, and conceptual mapping.
- Influence on Canon Formation: By including both canonical and marginal figures, Ontologia shapes the field's understanding of its own history and boundaries.

2.6 Design and Usability Assessment

Ontologia's design philosophy prioritizes content, accessibility, and preservation:

- Text-Based, Minimalist Interface: Clear section headers, indexes, and navigation menus facilitate browsing and deep research.
- Unified Search and Cross-Site Navigation: Users can search across all four Digital Quadrivium sites from any page, supporting interdisciplinary inquiry.
- Downloadable Formats: The site is available as an eBook and searchable PDF, supporting offline use and citation management.
- Regular Updates: "What's New" sections document ongoing maintenance and expansion, with updates as recent as January 2026.
- Accessibility: The site is mobile-friendly and designed to be usable across devices and browsers, with explicit guidance on font support for ancient Greek, Arabic, and logical symbols.

While the design is intentionally minimalist, some users may find the dense text and lack of visual or interactive features challenging. However, this approach aligns with the project's "slow web" aesthetic, emphasizing reading, reflection, and long-term preservation over transient web trends.

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3. Logica: History of Logic from Aristotle to Gödel

3.1 Purpose and Stated Goals

Logica is dedicated to the comprehensive study of the history of logic, tracing its development from Aristotle through the medieval period, the rise of symbolic logic, and into the twentieth century. The site aims to provide scholars with detailed bibliographies, historical surveys, and critical commentary on key figures, schools, and debates in logic.

3.2 Structure and Navigation

Logica is organized into chronological and thematic sections, each with its own index and bibliography. Major sections include:

- Aristotle's Logic: General surveys, syllogistic theory, De Interpretatione, Prior and Posterior Analytics.
- Stoic Logic: Dialectic from Zeno to Chrysippus, doctrine of Lekta (sayables), philosophy of language.
- Ancient Logic after Aristotle: Hellenistic developments, Peripatetic logic, Megarians, Dialectical School.
- Medieval Logic: Theories of supposition, properties of terms, logic of Abelard, Buridan, and others.

- Modern and Contemporary Logic: Renaissance to 1850, Leibniz, symbolic logic from Boole to Gödel.
- Intercultural Logic: Chinese, Indian, Islamic traditions.
- Historians of Logic: Annotated bibliographies of major historians (e.g., E.J. Ashworth, L.M. de Rijk, Wilhelm Risse).

Navigation is supported by:

- General and Sectional Indexes: Allowing users to browse by period, school, or figure.
- Search Functionality: Enabling targeted queries across the site and the entire Digital Quadrivium.
- Downloadable Formats: The site can be downloaded as an eBook or PDF, supporting offline research and citation.

3.3 Content Analysis: Thematic Focus and Key Features

Logica's content is notable for its historical depth, philological rigor, and comprehensive coverage. Key features include:

- Aristotle's Logic: Detailed analysis of syllogistic theory, modal logic, and the Organon, with annotated bibliographies on each major work and its commentaries.
- Stoic Logic: Coverage of the dialectic tradition, the doctrine of Lekta, and the influence of Stoicism on later developments in logic and semantics.
- Medieval Logic: Extensive treatment of the theory of supposition, properties of terms, and the semantic and syntactic innovations of medieval logicians. The site highlights the sophistication of medieval theories of reference, connotation, and mental language, drawing on recent scholarship and critical editions.
- Modern and Contemporary Logic: Traces the evolution of logic from the Renaissance through the symbolic revolution, with bibliographies on Boole, Peirce, Frege, Russell, Gödel, and others.
- Intercultural Logic: Annotated bibliographies on Chinese, Indian, and Islamic logic, supporting comparative and global research.
- Historians of Logic: Dedicated sections for major historians, with bibliographies and critical commentary on their contributions to the field.

Table 2: Logica—Key Content Areas and Features

Section	Description	Notable Features
Aristotle's Logic	Syllogistic theory, De Interpretatione, Prior/Posterior Analytics	Annotated bibliographies, critical editions
Stoic Logic	Dialectic, Lekta, philosophy of language	Source fragments, testimonia, secondary literature
Medieval Logic	Supposition theory, properties of terms, semantic analysis	Abelard, Buridan, Ockham, connotation, mental language
Modern/Contemporary	Symbolic logic, algebra of logic, 19th–20th century developments	Boole, Peirce, Frege, Russell, Gödel
Intercultural Logic	Chinese, Indian, Islamic traditions	Annotated bibliographies, comparative studies

Historians of Logic	Bibliographies of major historians	E.J. Ashworth, L.M. de Rijk, Wilhelm Risse

3.4 Bibliographic Resources and Coverage

Logica offers approximately 4,300 bibliographic references, organized by topic, period, and language. Features include:

- Comprehensive Coverage: From ancient Greece to the twentieth century, including lesser-known figures and schools.
- Multilingual Bibliographies: Entries in English, French, Italian, German, Spanish, and Portuguese.
- Critical Editions and Translations: Guides to primary sources, commentaries, and modern editions.
- Annotated Entries: Many entries include abstracts, critical judgments, and links to external resources.

3.5 Academic Relevance and Impact

Logica is widely recognized as a premier resource for the history of logic. Its academic impact is reflected in:

- Citations in Reference Works: The site is referenced in the Stanford Encyclopedia of Philosophy and other scholarly publications.
- Utility for Research and Teaching: The curated bibliographies and historical surveys are invaluable for scholars, instructors, and students.
- Influence on Canon Formation: By documenting both mainstream and marginal traditions, Logica shapes the field's understanding of its own history.

3.6 Design and Usability Assessment

Logica shares the design philosophy of Ontologia:

- Minimalist, Text-Based Interface: Prioritizing content and navigability.
- Structured Indexes and Tables of Contents: Facilitating browsing by period, school, or figure.
- Unified Search and Cross-Site Navigation: Supporting interdisciplinary research across the Digital Quadrivium.
- Downloadable Formats: eBook and PDF versions for offline use.
- Regular Updates: Documented in "What's New" sections, with updates as recent as January 2026.

The site's design supports both deep scholarly research and quick reference, though, as with Ontologia, some users may find the dense text and lack of interactive features challenging.

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4. Rhetorica: Theory and History of Rhetoric

4.1 Purpose and Stated Goals

Rhetorica is the newest addition to the Digital Quadrivium, launched in 2025. Its purpose is to provide a comprehensive resource for the theory and history of rhetoric, tracing its

development from classical antiquity to the present and exploring its intersections with logic, philosophy, and argumentation theory.

The site is explicitly framed as a counterpart to the logic and ontology sites, reflecting Aristotle's characterization of rhetoric as "antistrophos" (counterpart) to dialectic. It aims to document the evolution of rhetorical theory, its practical applications, and its relationship to other disciplines.

4.2 Structure and Navigation

Rhetorica is organized into thematic and historical sections, with a focus on bibliographic resources and annotated guides. Major sections include:

- General Works: Theory of rhetoric, argumentation theory, rhetoric and philosophy, critical thinking, feminist rhetoric.
- History of Rhetoric: Greek, Roman, medieval, Renaissance, and modern rhetoric.
- Comparative Rhetoric: Methodologies and traditions from Africa, Asia, the Near East, and other cultures.
- Vocabulary of Rhetoric: Key terms such as enthymeme, epideictic, ethos, logos, pathos, pisteis.
- Annotated Bibliographies: Extensive bibliographies on major figures, schools, and topics in rhetoric.

Navigation is supported by:

- Sectional Indexes and Menus: Allowing users to browse by topic, period, or tradition.
- Unified Search: Enabling queries across all four Digital Quadrivium sites.
- Downloadable Formats: The site can be downloaded as an eBook or PDF, supporting offline research.

4.3 Content Analysis: Thematic Focus and Key Features

Rhetorica's content is distinguished by its historical breadth, cross-cultural scope, and bibliographic depth. Key features include:

- Historical Surveys: Coverage of Greek rhetoric (Sophists, Isocrates, Plato, Aristotle), Roman rhetoric (Cicero, Quintilian), medieval and Renaissance traditions, and modern developments.
- Comparative Rhetoric: Annotated bibliographies on African, Asian, Jewish, Arabic, and other rhetorical traditions, supporting global and intercultural research.
- Theory and Practice: Exploration of key concepts such as the enthymeme, argumentation schemes, and the relationship between rhetoric, logic, and ethics.
- Annotated Bibliographies: Extensive bibliographies on Aristotle's Rhetoric, the history of rhetorical theory, and major figures and schools.

Table 3: Rhetorica—Key Content Areas and Features

Section	Description	Notable Features
General Works	Theory, argumentation, critical thinking, feminist rhetoric	Annotated bibliographies, theoretical overviews
History of Rhetoric	Greek, Roman, medieval, Renaissance, modern traditions	Chronological surveys, key figures

Comparative Rhetoric	African, Asian, Near Eastern, Jewish, Arabic, etc.	Annotated bibliographies, cross-cultural analysis
Vocabulary	Key terms and concepts	Enthymeme, ethos, logos, pathos, etc.
Annotated Bibliographies	Major figures, schools, topics	Aristotle, Cicero, Quintilian, etc.

4.4 Bibliographic Resources and Coverage

Rhetorica offers approximately 1,300 bibliographic references, organized by topic, period, and tradition. Features include:

- Comprehensive Coverage: From classical antiquity to the present, including non-Western traditions.
- Annotated Entries: Many entries include abstracts, critical judgments, and links to external resources.
- Downloadable Formats: eBook and PDF versions for offline use and citation management.

4.5 Academic Relevance and Impact

Rhetorica fills a significant gap in digital resources for the history and theory of rhetoric. Its academic relevance is reflected in:

- Utility for Research and Teaching: The site provides curated bibliographies and historical surveys for scholars, instructors, and students.
- Support for Comparative and Intercultural Research: By including non-Western traditions, Rhetorica supports global and cross-cultural scholarship.
- Integration with Logic and Ontology: The site's focus on the intersections of rhetoric, logic, and philosophy enhances its value for interdisciplinary research.

4.6 Design and Usability Assessment

Rhetorica shares the design philosophy of the other Digital Quadrivium sites:

- Minimalist, Text-Based Interface: Prioritizing content and navigability.
- Structured Indexes and Menus: Facilitating browsing by topic, period, or tradition.
- Unified Search and Cross-Site Navigation: Supporting interdisciplinary research.
- Downloadable Formats: eBook and PDF versions for offline use.
- Regular Updates: Documented in "What's New" sections, with ongoing expansion and maintenance.

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5. Bibliographia: Annotated Bibliographies

5.1 Purpose and Stated Goals

Bibliographia serves as the bibliographic backbone of the Digital Quadrivium, focusing on annotated bibliographies in philosophy and religion, including areas that do not fit neatly under ontology, logic, or rhetoric. The site's purpose is to provide structured, curated lists of works with annotations that highlight content, relevance, and interpretive context, supporting both specialized and cross-disciplinary research.

5.2 Structure and Navigation

Bibliographia is organized into thematic sections, each with its own index and bibliography. Major sections include:

- Bibliographies of Philosophy: Covering arguments and topics not treated in the other three sites.
- Biblical Studies: Bibliographies on the formation of the Pentateuch, the Canon, pseudepigrapha, textual criticism, and the history of research.
- Early Christianity and Judaism: Bibliographies on the Apostolic Fathers, orthodoxy and heresy, the birth of Judaism, and the "Parting of the Ways."
- Philosophy and Phenomenology of Religion: Definitions, analytic and continental perspectives, debates over the existence of God.
- Sociology of Religion: Studies on charisma, routinization, messianism, and millenarianism.
- Study Guides: Bibliographies on dictionaries, encyclopedias, manuals of style, and introductory readings.
- Other Religions: Planned sections on major world religions beyond Christianity and Judaism.

Navigation is supported by:

- Sectional Indexes and Menus: Allowing users to browse by topic or tradition.
- Unified Search: Enabling queries across all four Digital Quadrivium sites.
- Downloadable Formats: The site can be downloaded as an eBook or PDF, supporting offline research.

5.3 Content Analysis: Thematic Focus and Key Features

Bibliographia's content is notable for its breadth, cross-disciplinary scope, and scholarly rigor. Key features include:

- Annotated Bibliographies: Covering philosophy, biblical studies, early Christianity and Judaism, philosophy of religion, sociology of religion, and study guides.
- Cross-Disciplinary Coverage: The site includes topics that intersect ontology, logic, theology, and religious studies, supporting interdisciplinary research.
- Planned Expansion: The site is in an early stage of development, with ongoing additions and planned sections on other religions and topics.

Table 4: Bibliographia—Key Content Areas and Features

Section	Description	Notable Features
Philosophy	Arguments and topics not covered elsewhere	Annotated bibliographies, cross-references
Biblical Studies	Pentateuch, Canon, pseudepigrapha, textual criticism	Chronological and thematic organization
Early Christianity	Apostolic Fathers, orthodoxy, heresy	Annotated bibliographies, historical surveys
Early Judaism	Birth of Judaism, Parting of the Ways	Cross-cultural and historical analysis

Philosophy of Religion	Definitions, analytic/continental perspectives, existence of God	Annotated bibliographies, critical debates
Sociology of Religion	Charisma, routinization, messianism, millenarianism	Thematic bibliographies, sociological analysis
Study Guides	Dictionaries, encyclopedias, manuals, introductory readings	Resources for students and researchers
Other Religions	Planned coverage of major world religions	Ongoing expansion

5.4 Bibliographic Resources and Coverage

Bibliographia offers approximately 2,400 bibliographic references, organized by topic and tradition. Features include:

- Comprehensive Coverage: Philosophy, biblical studies, early Christianity and Judaism, philosophy of religion, sociology of religion.
- Annotated Entries: Many entries include abstracts, critical judgments, and links to external resources.
- Downloadable Formats: eBook and PDF versions for offline use and citation management.

5.5 Academic Relevance and Impact

Bibliographia is a valuable resource for scholars working at the intersection of philosophy, religion, and the history of ideas. Its academic relevance is reflected in:

- Utility for Research and Teaching: The site provides curated bibliographies and study guides for scholars, instructors, and students.
- Support for Interdisciplinary Research: By covering topics that cross disciplinary boundaries, Bibliographia supports innovative and cross-cutting scholarship.
- Integration with the Digital Quadrivium: The site's unified search and cross-references facilitate movement between specialized and general topics.

5.6 Design and Usability Assessment

Bibliographia shares the design philosophy of the other Digital Quadrivium sites:

- Minimalist, Text-Based Interface: Prioritizing content and navigability.
- Structured Indexes and Menus: Facilitating browsing by topic or tradition.
- Unified Search and Cross-Site Navigation: Supporting interdisciplinary research.
- Downloadable Formats: eBook and PDF versions for offline use.
- Regular Updates: Documented in "What's New" sections, with ongoing expansion and maintenance.

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6. Interconnections and Thematic Integration

6.1 Structural and Thematic Integration

The four Digital Quadrivium sites are structurally and thematically integrated in several ways:

- Unified Branding and Navigation: Each site prominently lists the other three, reinforcing their identity as a single, multifocal research environment. Cross-site search

and navigation bars allow users to move seamlessly between domains.
- Shared Design Philosophy: All sites employ a minimalist, text-based interface, structured indexes, and downloadable formats, ensuring consistency and ease of use.
- Cross-Referencing and Conceptual Mapping: Key topics (e.g., the relationship between logic and ontology, the role of rhetoric in argumentation, the intersection of philosophy and religion) are explored across multiple sites, with cross-references and bibliographic links supporting interdisciplinary research.
- Collective Coverage of the Liberal Arts: The project mirrors the classical quadrivium and trivium, providing a comprehensive digital infrastructure for foundational philosophical disciplines.

Table 5: Comparative Overview of the Four Sites

Site (Latin Name)	URL	Thematic Focus	Approx. References	Approx. Pages
Ontologia	https://www.ontology.co	Theory and history of ontology, metaphysics	16,800	9,000
Logica	https://www.historyoflogic.com	History of logic, ancient to modern	4,300	2,600
Rhetorica	https://www.historyofrhetoric.com	Theory and history of rhetoric, argumentation	1,300	600
Bibliographia	https://www.bibliographia.co	Annotated bibliographies in philosophy/religion	2,400	1,500

This table summarizes the thematic focus, bibliographic scale, and page equivalency of each site, highlighting their collective scope and integration.

6.2 Collective Academic Relevance and Unique Contributions

The Digital Quadrivium's collective academic relevance is multifaceted:

- Critical Infrastructure: The project functions as a meta-library and research environment, rivaling the output of a mid-sized research institute.
- Canon Formation and Scholarly Mediation: By curating both canonical and marginal figures, the project shapes the field's understanding of its own history and boundaries.
- Support for Interdisciplinary and Comparative Research: The integration of ontology, logic, rhetoric, and bibliography enables cross-disciplinary inquiry and comparative studies.
- Open Access and Preservation: The project's commitment to open access and offline preservation ensures long-term availability and resilience against digital obsolescence.

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7. Design, Usability, and Technical Architecture

7.1 Design Philosophy and User Experience

The Digital Quadrivium's design is intentionally minimalist, prioritizing content, navigability, and preservation:

- Text-Based Interface: Clear section headers, indexes, and navigation menus support both browsing and deep research.
- Unified Search and Cross-Site Navigation: Users can search across all four sites from any page, facilitating interdisciplinary inquiry.
- Downloadable Formats: All sites are available as eBooks (EPUB, MOBI) and searchable PDFs, supporting offline use and citation management.
- Mobile-Friendly and Accessible: The sites are designed to be usable across devices and browsers, with explicit guidance on font support for ancient Greek, Arabic, and logical symbols.
- Regular Updates and Maintenance: "What's New" sections document ongoing expansion and maintenance, with updates as recent as January 2026.

7.2 Technical Architecture

The project's technical architecture reflects its scholarly and preservationist goals:

- Static HTML and Lightweight Design: Ensures fast loading, printability, and long-term accessibility.
- Manual Curation and Annotation: All content is hand-selected, annotated, and organized by Corazzon, ensuring scholarly rigor and coherence.
- Offline-First Philosophy: Downloadable formats and guidance on archiving support resilience against "link rot" and digital obsolescence.
- Cross-Site Integration: Unified navigation bars, search functionality, and consistent design elements reinforce the project's identity as a single, multifocal research environment.

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8. Limitations, Gaps, and Recommendations for Improvement

8.1 Limitations and Gaps

Despite its many strengths, the Digital Quadrivium faces several limitations:

- Single-Curator Model: The project's reliance on a single maintainer (Corazzon) introduces risks of uneven coverage, slower updates in some areas, and long-term sustainability concerns.
- Coverage Gaps: Some areas, especially in Rhetorica and Bibliographia, are still under development, with planned sections not yet fully populated.
- Design Constraints: The minimalist, text-based design may be challenging for users accustomed to more interactive or visually engaging interfaces.
- Update Lag: While updates are regular, some bibliographies may lag behind the latest scholarship, especially in rapidly evolving fields.
- Lack of Usage Metrics: The sites do not provide detailed metrics on usage, citations, or scholarly impact, making it difficult to assess their reach and influence quantitatively.

8.2 Recommendations for Improvement

To address these limitations, several recommendations can be made:

- Collaborative Expansion: Inviting contributions from other scholars or establishing an editorial board could enhance coverage, sustainability, and update frequency.
- Enhanced Interactivity: Incorporating interactive features (e.g., dynamic tables, visualization tools) could improve user engagement without sacrificing the project's scholarly rigor.
- Usage Metrics and Analytics: Implementing basic analytics could provide insights into user demographics, popular topics, and citation patterns.
- Integration with Reference Managers: Providing export options (e.g., RIS, BibTeX) for bibliographic entries would facilitate integration with citation management tools.
- Long-Term Preservation Strategies: Partnering with digital libraries or institutional repositories could ensure the project's preservation beyond the lifespan of its current maintainer.

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9. Metrics and Evidence of Usage, Citations, and Scholarly Recognition

9.1 Usage and Impact Metrics

While the Digital Quadrivium does not provide detailed usage metrics, several indicators attest to its scholarly impact:

- Estimated Scale: The project comprises nearly 25,000 bibliographic references and approximately 13,700 pages of content, rivaling the output of a mid-sized research institute.
- Citations in Academic Works: Corazzon's sites are cited in over 100 academic works, including leading reference works such as the Stanford Encyclopedia of Philosophy, Wikipedia, and technical literature in computer science and knowledge representation.
- Global Reach: The sites are accessed by scholars, students, and researchers worldwide, serving as critical infrastructure for research and teaching in philosophy, logic, and the history of ideas.

9.2 Scholarly Recognition

Corazzon's work has been recognized by:

- Integration into Reference Works: The sites are referenced in the Stanford Encyclopedia of Philosophy (entries on "Existence," "Categories," "Mereology," etc.), Wikipedia, and other authoritative resources.
- Original Scholarly Contributions: Corazzon's discovery of the earliest use of "ontologia" in Jacob Lorhard's 1606 work has fundamentally altered the historiography of early modern metaphysics and is now standard in the field.
- Cross-Disciplinary Impact: The project's definitions and distinctions are cited in computer science, musicology, and other fields requiring rigorous classification systems.

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10. Synthesis: The Digital Quadrivium's Collective Contribution

10.1 Thematic and Methodological Integration

The Digital Quadrivium Project achieves a rare synthesis of historical depth, conceptual rigor, and open-access dissemination. By integrating ontology, logic, rhetoric, and bibliography, Corazzon provides a unified framework for understanding the evolution of philosophical thought and its foundational categories.

Key contributions include:

- Bridging Classical and Modern Traditions: The project traces the development of key concepts from ancient Greece through medieval scholasticism, early modern philosophy, and contemporary analytic and phenomenological traditions.
- Supporting Interdisciplinary Research: The integration of logic, ontology, rhetoric, and bibliography enables cross-disciplinary inquiry and comparative studies.
- Preserving Intellectual Heritage: The project's commitment to open access, manual curation, and offline preservation ensures that the "long conversation" of Western (and global) thought remains accessible to future generations.
- Empowering Independent Scholarship: Corazzon's work demonstrates the potential for independent scholars to make significant contributions to the digital humanities and the history of ideas.

10.2 Unique Value Proposition

The Digital Quadrivium stands out for:

- Scale and Depth: Nearly 25,000 references, 13,700 pages, and coverage of both canonical and marginal figures.
- Manual Curation and Scholarly Rigor: All content is hand-selected, annotated, and organized by a single expert, ensuring coherence and depth.
- Open Access and Preservation: Free availability, downloadable formats, and guidance on archiving support long-term accessibility.
- Interdisciplinary and Comparative Scope: The project supports research across philosophy, logic, rhetoric, religious studies, and beyond.

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11. Conclusion: Legacy and Future Prospects

Raul Corazzon's Digital Quadrivium Project represents a landmark in the digital humanities and the history of philosophy. By combining rigorous manual curation, historical contextualization, and a commitment to open access and preservation, Corazzon has created a resource that rivals institutional libraries in scope and utility.

The project's four interlinked sites—Ontologia, Logica, Rhetorica, and Bibliographia—provide comprehensive coverage of foundational philosophical disciplines, supporting research, teaching, and interdisciplinary inquiry. Its impact is evidenced by widespread academic recognition, citations in leading reference works, and adoption by scholars worldwide.

While the project faces challenges related to sustainability, coverage, and design, its strengths far outweigh its limitations. With continued maintenance, collaborative expansion, and technical enhancements, the Digital Quadrivium is poised to remain an indispensable resource for scholars and students for years to come.

In an era of rapid digital change and institutional flux, Corazzon's work stands as a testament to the enduring value of independent scholarship, manual curation, and the preservation of intellectual heritage. The Digital Quadrivium not only documents the history of ideas—it actively shapes the future of philosophical research and digital humanities.

Key Takeaway:

Raul Corazzon's Digital Quadrivium Project is a pioneering, open-access digital infrastructure for the study of ontology, logic, rhetoric, and philosophical bibliography. Through meticulous manual curation, historical depth, and interdisciplinary integration, it has become a critical resource for scholars worldwide, exemplifying the potential of independent scholarship in the digital age.

Digital Quadrivium Project



History of Logic

Raul Corazzon || e-mail: rc@ontology.co

Deepseek report: Digital Quadrivium Project

Report date: January 30th, 2026

Status: Ongoing Development

Category: Digital Humanities

Focus: Classical Education Modernization

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- **Project overview**: Introduction to the Digital Quadrivium Project's structure and purpose.

- **Core websites**: Detailed analysis of each website's content and scholarly focus.

- **Interconnections**: How the four sites form a cohesive philosophical framework.

- **Methodology**: Examination of Corazzon's bibliographic and historical approach.

- **Significance**: Assessment of the project's contributions to digital humanities and philosophy.

Comprehensive Analysis of Raul Corazzon's Digital Quadrivium Project: An Exhaustive Report on Four Interconnected Philosophical Websites

1. Project Overview: The Digital Quadrivium Concept

The **Digital Quadrivium Project** represents a monumental scholarly undertaking by Italian researcher **Raul Corazzon**, consisting of four interconnected websites dedicated to foundational philosophical disciplines. This project revives the classical concept of the quadrivium—the fourfold path of advanced learning in medieval education—but adapts it for the digital age with a philosophical focus. Unlike the original quadrivium (arithmetic, geometry, music, astronomy), Corazzon's digital counterpart comprises **ontology**, **logic**, **rhetoric**, and **bibliography** as its core disciplines. The project functions as an integrated digital ecosystem where each website complements the others, creating a comprehensive resource for philosophical research. According to project documentation, these websites collectively contain over **24,800 annotated bibliographic references** spanning approximately 13,700 pages in PDF format, with thousands more references in preparation. This massive scale positions the Digital Quadrivium as one of the most extensive freely available philosophical resources on the internet, particularly notable for its multilingual approach (English, French, German, Italian, Spanish, Portuguese) and its deep historical perspective spanning from ancient to contemporary philosophy.

2. Ontology.co: Theory and History of Ontology

2.1 Structure and Content Scope

The **ontology.co** website serves as the cornerstone of the Digital Quadrivium, offering the most extensive resources among the four sites. With approximately 16,800 bibliographic entries (9,000 pages in PDF format), this site provides a comprehensive exploration of **ontological theory** and its historical development. The site organizes content around several key conceptual frameworks, beginning with a working definition that distinguishes between **formal ontology** (introduced by Husserl and further developed in contemporary philosophy), **descriptive ontology** (concerning the classification of objects), and **formalized ontology** (constructing formal codifications). A particularly valuable feature is the "Table of Ontologists," which traces intellectual links from major 19th-century thinkers like **Bernard Bolzano**, **Franz Brentano**, and **Gottlob Frege** to contemporary philosophers. The site systematically addresses the relationship between **metaphysics** (studying being qua being) and the **theory of objects** (encompassing both existent and nonexistent objects, following Meinong's formulation), while also exploring formal ontology as a potential *characteristica universalis* in the Leibnizian tradition.

2.2 Philosophical Approaches and Historical Coverage

The website meticulously documents the evolution of ontological thought through several philosophical traditions. The phenomenological approach receives significant attention, beginning with **Edmund Husserl's** introduction of formal ontology in his *Logical Investigations* (1900), where he describes it as "the result of combining the intuitive, informal method of classical ontology with the formal, mathematical method of modern symbolic logic" (Formal and Transcendental Logic, 1929). The analytic tradition is equally well-represented through thinkers like **Nino Cocchiarella**, whose work examines the logical features of predication and theories of universals using the tools of formal logic. The site also explores the continental-analytic divide in ontological methodology, presenting formal ontology as developing along two principal lines: the logical analysis of predication using set theory paradigms, and the Husserlian analysis of fundamental categories (object, state of affairs, part, whole) and their laws of dependence.

Historical coverage extends from Aristotelian foundations through medieval Scholasticism (including Christian Wolff's 1730 *Ontologia*) to 20th-century developments, with particular attention to the **Brentano School** and its influence on both phenomenological and analytic traditions. The site's bibliographic entries are notably detailed, including not only major philosophical works but also selections from approximately one hundred philosophical journals, with explicit attention to "the relations with logic, semantics and semiotics, in particular to the theories of predication and reference and to the relation between thought, language and the world."

3. Historyoflogic.com: The History of Logic from Aristotle to Gödel

3.1 Conceptual Framework and Historical Trajectory

The **historyoflogic.com** website provides an extensive examination of logical development spanning from **Aristotelian foundations** to **Gödelian completeness and incompleteness theorems**. With approximately 4,300 bibliographic entries (2,600 PDF pages), the site approaches its subject through a carefully defined conceptual framework that distinguishes logic proper from broader philosophical applications. As articulated through Joseph Bochenski's definition, the site focuses primarily on "those problems which have developed from" the problematic presented in Aristotle's *Organon*, particularly the *Prior Analytics* with its treatment of syllogistic reasoning as "logos in which if something is posited, something else necessarily follows." This focused approach allows the site to trace a coherent historical trajectory while acknowledging the "considerable confusion" that has historically surrounded the definition and scope of logic as a discipline. The site addresses the fundamental relationship between **logic and ontology** as a central problematic, noting that "almost any imaginable answer has been proposed by one or another philosopher," ranging from complete identity (Scholz) to complete separation (Nagel). This meta-philosophical awareness adds depth to the historical presentation, situating logical developments within broader philosophical contexts and debates.

3.2 Key Historical Periods and Philosophical Schools

The website organizes logical history into major periods with particular attention to paradigm shifts and conceptual innovations. **Aristotelian logic** receives foundational treatment, with analysis of how Aristotle "left an ontology conceived as a theory of real entities in general and of their most general aspects" alongside "two quite different systems of logic: a technology of discussion and an object-linguistic formal logic." The site documents how this dual inheritance created ambiguities that would influence subsequent Western philosophy. **Stoic logic** is presented as a crucial development that "opt[s] for 'dialectics,' the art of arguing" while simultaneously developing sophisticated propositional logic and establishing "the first known philosophy of logic" that emphasized "the radical difference and independence of logic as regards ontology." **Scholastic logic** receives detailed attention for its "very much un-Aristotelian" methodological innovations despite incorporating Aristotelian doctrines, particularly in semantic theory and supposition theory. The site traces the development of **modern formal logic** through Leibniz's characteristica universalis, Boolean algebra, Fregean predicate logic, and the Hilbert program, culminating in Gödel's incompleteness theorems. Throughout this historical narrative, the site maintains focus on the enduring tension between logic as formal calculus (calculus ratiocinator) and logic as universal language (characteristica universalis), a dichotomy that structures much of the presented historical development.

4. Historyofrhetoric.com: Theory and History of Rhetoric

4.1 Scope and Organizational Structure

The **historyofrhetoric.com** website, while still in development according to its own assessment, provides substantial resources on rhetorical theory and history. With approximately 1,300 bibliographic entries (600 PDF pages), this component of the Quadrivium explores rhetoric as both an independent discipline and in its philosophical contexts. The site adopts **Aristotle's definition** of rhetoric as "a counterpart (antistrophos) of dialectic" (Rhetorica I.1.1) and "a sort of offshoot of dialectic and of work in ethics, which it is right to call politics" (Rhetorica I.1356a25-26), while also acknowledging **Martin Heidegger's** characterization of rhetoric as "a first part of logic rightly understood." This dual

philosophical positioning informs the site's structure, which begins with general bibliographies on rhetorical theory before proceeding to historical development. The historical coverage is remarkably comprehensive, beginning with **Greek rhetorical traditions** (Protagoras, Gorgias, Isocrates, Plato, Aristotle), progressing through **Roman adaptations** (Cicero, Quintilian), medieval developments (Augustine, ars dictaminis, ars predicandi), Renaissance humanist rhetoric (Valla, Agricola, Erasmus, Ramus), and modern elocutionary theories (Campbell, Blair, Smith). A particularly distinctive feature is the inclusion of **comparative rhetoric** encompassing African, African-American, Pre-Columbian American, Ancient Egyptian, Jewish, Arabic, Syriac, Celtic, Near Eastern, Asian, Chinese, and Japanese traditions—an unusually global perspective for a philosophical resource.

4.2 Philosophical Connections and Conceptual Framework

The website emphasizes rhetoric's philosophical dimensions and interdisciplinary connections. The section on **rhetoric and philosophy** explicitly addresses how rhetorical theory intersects with epistemology, ethics, and political philosophy. Key rhetorical concepts receive detailed treatment through a dedicated vocabulary section covering **enthymeme** (rhetorical syllogism), **epideictic** (ceremonial rhetoric), and the Aristotelian persuasive appeals of **ethos** (character), **logos** (reason), and **pathos** (emotion). The site contextualizes rhetorical theory within broader philosophical movements, noting connections between **Sophistic rhetoric** and early Greek philosophy, **Augustinian rhetoric** and Christian theology, **Renaissance humanist rhetoric** and epistemological debates, and **Enlightenment rhetorical theories** and emerging empirical psychology. Although less bibliographically extensive than the ontology and logic sites, this component of the Quadrivium importantly completes the classical trivium (grammar, logic, rhetoric) within the larger project, while also establishing connections to the fourth component (bibliography) through its reference sections. The site's developmental status ("early stage of development") suggests potential for future expansion, particularly in connecting rhetorical theory to contemporary philosophical movements such as hermeneutics, discourse ethics, and postmodern textual theory.

5. Bibliographia.co: Annotated Bibliographies on Religion and Philosophy

5.1 Structure and Thematic Organization

The **bibliographia.co** website serves as the bibliographic foundation for the entire Digital Quadrivium Project while also extending into religious studies. With approximately 2,400 bibliographic entries (1,500 PDF pages), this component provides specialized bibliographic resources organized thematically rather than historically. The site's structure reflects a methodological division between **philosophical bibliography** (covering arguments not treated in the other three websites) and **religious studies bibliography** (focused primarily on early Christianity and Judaism). The religious studies section is particularly detailed, with planned subsections on Hebrew Bible (Pentateuch formation, canon development, textual criticism), New Testament (synoptic problem, gospel scholarship, Pauline epistles), early Christian literature (Apostolic Fathers, orthodoxy/heresy debates), and early Jewish literature (development of Rabbinic Judaism, parting of ways between Christianity and Judaism). Additional sections address **philosophy of religion** (analytic and continental perspectives, sacred/profane dichotomy, existence of God debates), **sociology of religion** (early Christian sociology, charisma and routinization, messianism and millenarianism), and **study guides** (philosophical dictionaries, style manuals, introductory readings). This organizational structure facilitates specialized research while maintaining connections to the philosophical frameworks established in the other Quadrivium components.

5.2 Methodological Significance and Interdisciplinary Connections

The bibliographia website serves several crucial methodological functions within the larger Quadrivium Project. First, it provides **transparent scholarly documentation** for the other three websites, allowing users to verify sources and pursue specialized research. Second, it establishes **interdisciplinary connections** between philosophy and religious studies, particularly valuable for historical research on medieval philosophy, philosophical theology, and the intellectual history of religious concepts. Third, the annotated nature of the bibliographies adds significant scholarly

value, offering not just citations but contextual information about each entry's content, methodology, and scholarly significance. The site's structure implicitly acknowledges the historical intertwining of philosophical and religious thought, particularly in Western traditions where "theology was the queen of sciences" throughout much of the medieval period. By including comparative religion sections covering "other religions" beyond Christianity and Judaism (though not yet developed), the site gestures toward a more global philosophical perspective. The study guide section serves an important pedagogical function, providing entry points for students and non-specialists while maintaining the scholarly rigor characteristic of the entire Quadrivium Project. Although less conceptually focused than the ontology, logic, and rhetoric sites, the bibliographia component provides essential infrastructure for the entire digital ecosystem, embodying the project's commitment to comprehensive, well-documented scholarly resources.

6. Comparative Analysis: Interdisciplinary Connections and Methodological Synthesis

6.1 Thematic Integration Across the Quadrivium

The true scholarly value of the Digital Quadrivium Project emerges not merely from the individual websites but from their **interdisciplinary connections** and **thematic integration**. The four components collectively address fundamental questions about **being** (ontology), **reasoning** (logic), **persuasion** (rhetoric), and **scholarly documentation** (bibliography)—the essential elements of philosophical inquiry. These connections are explicitly acknowledged in cross-references throughout the sites, with ontology.co noting attention to "the relations with logic, semantics and semiotics," historyoflogic.com extensively analyzing "the relations between logic and ontology," historyofrhetoric.com positioning rhetoric in relation to dialectic and logic, and bibliographia.co providing foundational resources for all three philosophical disciplines. This integration creates a **synergistic scholarly resource** where research in one domain naturally leads to related materials in others. For example, a researcher studying medieval ontological arguments might begin with ontology.co's resources on Scholastic metaphysics, proceed to historyoflogic.com

for medieval logical theory (supposition theory, consequences), consult historyofrhetoric.com for medieval ars predicandi, and use bibliographia.co for specialized bibliography on theological metaphysics. This interconnected structure reflects a sophisticated understanding of philosophical inquiry as necessarily multidisciplinary, resisting artificial compartmentalization while maintaining disciplinary specificity where methodologically appropriate.

6.2 Methodological Consistency and Scholarly Approach

Across all four websites, several consistent methodological approaches establish the Digital Quadrivium's distinctive scholarly character. First, each site prioritizes **historical contextualization**, tracing conceptual developments from ancient origins through contemporary manifestations. Second, all components maintain a **multilingual perspective**, incorporating resources in six major European languages while acknowledging the limitation of the editor's linguistic capabilities (primarily Italian and English). Third, the project demonstrates remarkable **bibliographic comprehensiveness**, with over 24,800 annotated entries collectively—a scale unmatched by most open-access philosophical resources. Fourth, the sites balance **expository content** (historical narratives, conceptual explanations) with **reference functions** (bibliographies, study guides, vocabulary sections). Fifth, the project maintains a consistent **scholarly tone** that is rigorous without being inaccessible, technical without being obscurantist. This methodological consistency is particularly noteworthy given the project's essentially solo authorship, suggesting a remarkably systematic approach to knowledge organization. The shared interface design, navigation structure, and documentation format across all four sites further enhance usability and reinforce the integrated nature of the Quadrivium. The project's self-presentation as continuously developing ("Thousands of new references are in preparation") and its invitation for user patience with under-development sections reflects an understanding of digital scholarship as necessarily iterative and collaborative, even when primarily driven by individual effort.

7. Critical Evaluation: Strengths, Limitations, and Scholarly Impact

7.1 Significant Contributions and Strengths

The Digital Quadrivium Project makes several substantial contributions to digital humanities and philosophical scholarship. Its most obvious strength is **unprecedented scale**, with over 24,800 annotated bibliographic entries spanning four disciplinary domains—a collection that would be impressive even for institutional rather than individual effort. The project's **multilingual approach** significantly expands its utility beyond Anglophone scholarship, particularly valuable for historical research requiring engagement with untranslated primary and secondary sources. The **historical depth** of coverage, spanning from ancient to contemporary philosophy with particular attention to medieval and early modern transitions, addresses significant gaps in many digital philosophy resources that often focus disproportionately on contemporary analytic philosophy. The **integrative interdisciplinary approach** that connects ontology, logic, rhetoric, and bibliography reflects sophisticated understanding of philosophical methodology rarely achieved in digital resources. The project's **open-access model** removes financial barriers to high-quality philosophical research materials, democratizing access to specialized knowledge. The **annotated bibliography format** adds exceptional scholarly value beyond mere citation lists, providing context, evaluation, and thematic grouping that facilitates efficient research. The project's **continuous updating** (with last updates indicated as January 29, 2026—tomorrow's date from the current perspective) suggests active maintenance rather than archival stagnation.

7.2 Limitations and Areas for Development

Despite its considerable strengths, the Digital Quadrivium Project exhibits certain limitations that warrant acknowledgment. The most significant is **uneven development** across the four components, with ontology.co being exceptionally comprehensive (16,800 entries) while historyofrhetoric.com remains in "early stage of development" (1,300 entries). This imbalance potentially skews the Quadrivium's interdisciplinary balance toward metaphysics at the expense of rhetoric and communication theory. The **solo authorship model**, while impressive in scale, creates potential vulnerabilities regarding sustainability, peer review, and updating consistency. The project's

linguistic range, while broader than most English-language resources, remains confined to six European languages, excluding important philosophical traditions in Slavic, Asian, and other language families. The **visual presentation** is functional but aesthetically minimal, lacking interactive features common in contemporary digital humanities projects (visualizations, timelines, network graphs). The **search functionality**, while present, appears relatively basic compared to sophisticated semantic search capabilities available in some institutional digital humanities projects. The project's **theoretical frameworks** occasionally reflect particular philosophical commitments (especially phenomenological orientations) that might not align with all users' approaches, though generally presented with scholarly objectivity. Some sections contain placeholder language ("I will begin with," "planned sections are") that suggests ambitions not yet fully realized, particularly in the comparative religion components of bibliographia.co.

7.3 Scholarly Impact and Future Potential

The Digital Quadrivium Project represents a significant achievement in **digital philosophy scholarship**, demonstrating how individual initiative can produce resources comparable to institutional digital humanities projects. Its impact is evidenced by its substantial scale, multilingual accessibility, and integrative interdisciplinary approach. The project aligns with several important trends in contemporary digital scholarship: open access publishing, bibliographic database development, historical resource digitization, and interdisciplinary knowledge integration. Future development might address current limitations through **collaborative expansion** (incorporating contributions from additional scholars), **technological enhancement** (improved search, visualization, and interactive features), **broader linguistic inclusion** (particularly for non-Western philosophical traditions), and **more balanced development** across the four Quadrivium components. The project's foundational structure facilitates such expansion, with clear organizational frameworks that could accommodate additional content without structural redesign. Particularly promising would be enhanced **cross-linking between sites** (currently somewhat limited), **integration with external digital resources**

(philosophical encyclopedias, journal databases, primary source repositories), and development of **pedagogical applications** (course materials, study guides, interactive exercises). Despite current limitations, the Digital Quadrivium Project already stands as one of the most comprehensive freely available philosophical resources on the internet, offering exceptional value to students, researchers, and anyone interested in the historical and conceptual dimensions of philosophical inquiry. Its continuation and development warrant attention from the broader philosophical community as a model of ambitious, accessible, integrative digital scholarship.

8. Conclusion

Raul Corazzon's **Digital Quadrivium Project** represents a monumental achievement in digital philosophical scholarship, providing an integrated ecosystem of resources covering ontology, logic, rhetoric, and bibliography. Through approximately 24,800 annotated bibliographic entries spanning over 13,700 PDF pages, the project offers unprecedented access to philosophical scholarship across historical periods, linguistic traditions, and disciplinary boundaries. While exhibiting some limitations inherent in solo-authored digital projects, its strengths in comprehensiveness, multilingual accessibility, historical depth, and interdisciplinary integration significantly outweigh these constraints. The project exemplifies how digital technologies can facilitate new forms of philosophical research and education, reviving the classical quadrivium ideal for the digital age while expanding its scope beyond the original medieval curriculum. For philosophers, historians, rhetoricians, and interdisciplinary researchers, the Digital Quadrivium provides an invaluable resource that combines the depth of specialized scholarship with the breadth of integrative perspective. Its continued development promises to further enhance its utility and impact within the global community of philosophical scholarship.

Digital Quadrivium Project



History of Logic

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Google Gemini report: Raul Corazzon's Digital Quadrivium Project

Report date: January 30th, 2026

The Digital Quadrivium Project is a large-scale, independent digital humanities initiative created and maintained by the Italian scholar Raul Corazzon. The project reimagines the classical medieval "Quadrivium" (originally Arithmetic, Geometry, Music, and Astronomy) as a modern, digital framework for the philosophical humanities, comprising four interconnected disciplines: Ontology, Logic, Rhetoric, and Bibliography.

The project serves as an extensive, open-access research infrastructure, offering tens of thousands of annotated bibliographic references, historical surveys, and theoretical essays. As of early 2026, the project continues to be updated, providing resources in multiple languages (primarily English, with content in Italian, French, German, and Spanish).

1. Project Overview & Philosophy

- Creator: Raul Corazzon (Independent Researcher).
- Core Concept: The project organizes philosophical knowledge into four "thematically distinct but structurally interwoven sites," mirroring the interconnected nature of the liberal arts.
- Scale: The combined corpus includes over 24,000 bibliographic references and thousands of pages of content available for online reading or PDF download.

- Mission: To provide a comprehensive "map" of the history of ideas, specifically focusing on the intersection of formal systems (logic/ontology) and their historical development from Antiquity to the 20th century.

1. Detailed Analysis of the Four Websites

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- 1. Executive Summary
- 2. Ontologia: Theory and History of Ontology
- 3. Logica: History of Logic from Aristotle to Gödel
- 4. Rhetorica: Theory and History of Rhetoric
- 5. Bibliographia: Annotated Bibliographies on Philosophy and Religion
- 6. Technical & Structural Features
- 7. Scholarly Significance

This exhaustive report details the **Digital Quadrivium Project**, a large-scale digital humanities initiative created and maintained by the independent Italian scholar **Raul Corazzon**.

1. 1. Executive Summary

The **Digital Quadrivium Project** reimagines the medieval *Quadrivium* (originally Arithmetic, Geometry, Music, and Astronomy) as a modern, digital infrastructure for the philosophical humanities. It organizes knowledge into four interconnected disciplines: **Ontology**, **Logic**, **Rhetoric**, and **Bibliography**.

- Creator: Raul Corazzon (Independent Researcher).
- Mission: To provide a comprehensive, open-access "map" of the history of ideas, focusing on the intersection of formal systems (logic/ontology) and their historical development from Antiquity to the 20th century.
- Scale: Over **24,800** annotated bibliographic references and **13,700** pages of content (available for online reading or PDF download).

- Structure: Composed of four distinct but interlinked websites with a unified design and search functionality.

1. 2. Ontologia: Theory and History of Ontology

- Status: The flagship and most mature site of the project (created in 2000).
- Focus: It serves as the project's theoretical core, defining "Ontology" not just as metaphysics, but specifically as the **Theory of Objects** (Gegenstandstheorie) and **Formal Ontology**.
- Key Content Areas:
- Formal Ontology: Extensive coverage of Edmund Husserl, the breakdown of "Formal" vs. "Material" ontology, and modern developments by figures like Nino Cocchiarella.
- History of Ontology: Traces the discipline from its 17th-century coinage (Jacob Lorhard) through the Scholastic period to modern analytic philosophy.
- Specific Dossiers:
- *The Problem of Universals:* Detailed history from Ancient Realism/Nominalism to modern debates.
- *Doctrine of Categories:* Historical analysis of categorial schemes (Aristotle, Kant, Peirce, etc.).
- *History of Truth:* Bibliographies and essays on correspondence, coherence, and deflationary theories of truth.

Key Philosophers: Dedicated sections for **Husserl**, **Meinong**, **Brentano**, **Bolzano**, **Frege**, **Leibniz**, and **Wolff**.

1. 3. Logica: History of Logic from Aristotle to Gödel

- Status: A comprehensive historical survey (created in 2016).
- Focus: The historical and conceptual development of formal logic, distinguishing it from psychology and epistemology.
- Key Content Areas:

- Aristotelian Logic: Detailed analysis of the *Organon*, specifically the *Prior Analytics* and the theory of the syllogism.
- Stoic Logic: Exploring the Stoic distinction between logic (dialectics) and ontology, and their development of propositional logic.
- Medieval/Scholastic Logic: Coverage of the *Logica Modernorum*, "Syncategoremata," and the works of figures like Ockham and Buridan.
- Modern Logic: The rise of mathematical logic, covering Boole, Frege, Russell, and Gödel.
- Logic vs. Ontology: A recurring theme is the historical relationship between the two fields—sometimes conflated (Scholasticism), sometimes sharply separated (Stoicism).
- Intercultural Logic: Sections dedicated to non-Western traditions, including **Indian** (Nyaya, Buddhist) and **Chinese** logic.

1. 4. Rhetorica: Theory and History of Rhetoric

- Status: A newer addition (created/revamped in 2025), currently in active development.
- Focus: The history of rhetoric as a philosophical discipline, closely tied to dialectic and argumentation theory.
- Key Content Areas:
- Greek Rhetoric: From the Sophists (Protagoras, Gorgias) to Aristotle's *Rhetoric* and the Hellenistic schools.
- Roman Rhetoric: Cicero, Quintilian, and the Second Sophistic.
- Medieval to Modern: Covers the *Ars dictaminis*, Renaissance humanism (Valla, Erasmus), and modern rhetorical theorists (Perelman, Toulmin).
- Vocabulary: Explanations of key terms like *enthymeme*, *ethos*, *logos*, *pathos*, and *stasis* theory.

1. 5. Bibliographia: Annotated Bibliographies on Philosophy and Religion

- Status: A specialized resource for **Philosophy and Religion** (distinct from the formal focus of the other sites).
- Focus: Annotated bibliographies on specific religious and philosophical topics, often filling gaps not covered by the other three sites.
- Key Content Areas:
- Early Christianity & Judaism: Detailed bibliographies on the "Parting of the Ways," Patristics, and the formation of the Canon.
- Philosophy of Religion: Analytic and Continental perspectives, arguments for the existence of God, and the sacred/profane dichotomy.
- Sociology of Religion: Weberian analysis, messianism, and millenarianism.
- Study Guides: Manuals of style, dictionaries, and encyclopedias of philosophy.
- Status: Also in an early development stage, focusing on building high-quality, annotated lists rather than narrative essays.

1. 6. Key Features & Methodology

- Unified Design: All four websites share a consistent, minimalist "scholarly" aesthetic designed for readability. They feature a common top-level menu allowing instant navigation between the four "Quadrivium" branches.
- Downloadable Content: A unique feature of the project is the ability to download the entire content of the websites as **eBooks or PDF files**, catering to researchers who need offline access or wish to archive the material.
- "A.I. Reports": The project hosts a meta-section containing reports *about* itself generated by various AI models (ChatGPT, Claude, Gemini, etc.). This serves as a fascinating experiment in how artificial intelligence synthesizes the project's own data.

- Formal & Historical Approach: Corazzon’s methodology is distinctively "historico-formal." He is interested in the *formal structures* of thought (logic, ontology) but approaches them through a rigorous *historical* lens, tracing concepts like "predication" or "universals" across millennia.
- Update Frequency: The project is active, with "What's New" sections indicating updates as recently as January 2026, ensuring the bibliographies reflect recent scholarship.

1. 7. Scholarly Significance

The **Digital Quadrivium Project** is significant for being one of the few large-scale, single-author digital archives in philosophy. It is particularly valued for:

1. Bibliographic Depth: The annotated bibliographies are often more detailed than standard encyclopedia entries, listing editions, translations, and critical studies.
2. Historical Continuity: It effectively bridges the gap between **Medieval Scholasticism** and **Contemporary Analytic Philosophy**, showing the continuity of problems like "universals" or "logical consequence" across centuries.
3. Accessibility: By providing open access to such specialized organizational structures, it serves as a crucial tool for graduate students and researchers in the history of ideas.

Digital Quadrivium Project



History of Logic

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Grok report: Overview of the Digital Quadrivium Project

Report date: January 30th, 2026

The Digital Quadrivium Project (DQP) is a comprehensive, independent scholarly initiative created and maintained by Raul Corazzon, an Italian independent scholar whose native language is Italian. It represents a large-scale, interlinked corpus of online resources focused on the history and theory of ontology, logic, rhetoric, and bibliographical studies in philosophy and religion. The project draws its name from the medieval "quadrivium," which encompassed arithmetic, geometry, music, and astronomy, but here it metaphorically structures four interconnected websites as a modern digital equivalent for philosophical and humanistic disciplines. Launched progressively, with the rhetoric component added on March 25, 2025, the DQP aims to revitalize and modernize classical scholarly pursuits through annotated bibliographies, historical surveys, and analytical essays, making them accessible in a digital format. ontology.co

Corazzon, contactable via email at rc@ontology.co, curates the content with a focus on multilingual sources (primarily English, French, German, Italian, Spanish, and Portuguese), acknowledging limitations in non-Western languages. The project totals over 24,800 annotated bibliographical references across approximately 13,700 pages in PDF format, with thousands more in preparation. It emphasizes historical accuracy, philosophical depth, and interconnections between disciplines, such as ontology's ties to logic and rhetoric. Unique to the DQP is its integration of AI-generated reports (e.g., from Claude, Gemini, Grok, Qwen, and Perplexity)

evaluating the project itself, hosted on the sites to reflect on its scope and impact. The entire corpus can be downloaded as ebooks or PDFs, and a unified search function spans all four sites. Privacy policies are available in English and Italian, and uptime monitoring ensures reliability. ontology.co

The project's ambition lies in its expert curation, longevity (maintained over years), and role as a bridge between historical scholarship and digital humanities, often correcting misconceptions (e.g., the origins of terms like "ontologia"). It has been praised by AI analyses for its depth, such as being "one of the most ambitious and comprehensive independent scholarly projects in the history of digital humanities." ontology.co

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- 1. Executive Summary
- 2. Ontologia: Theory and History of Ontology
- 3. Logica: History of Logic from Aristotle to Gödel
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- 5. Bibliographia: Annotated Bibliographies
- 6. Interconnections, Impact, and Future Directions

Executive Summary

The Digital Quadrivium Project is a comprehensive, independent digital humanities initiative spearheaded by Italian scholar Raul Corazzon. Launched in the early 2000s, it comprises four interconnected websites dedicated to the theory and history of ontology, logic, rhetoric, and curated bibliographies in philosophy and religion. The project draws its name metaphorically from the classical quadrivium (the four liberal arts of arithmetic, geometry, music, and astronomy), but adapts it to philosophical disciplines, positioning ontology as a foundational science alongside logic and rhetoric, with bibliography serving as a supportive meta-resource. This structure creates a "quadripartite digital corpus" of interlinked scholarly resources, emphasizing curated bibliographies, historical surveys, structured indexes, and links to primary and secondary

literature. As of January 2026, the project boasts nearly 25,000 bibliographic references across approximately 13,700 pages of equivalent content, rivaling the output of a mid-sized research institute. It functions as an open-access meta-library, maintained solely by Corazzon, and is designed for scholars, students, and enthusiasts in philosophy, logic, and related fields.

The project's scale and longevity highlight its role in bridging traditional academic scholarship with digital open-access infrastructure. It includes features like cross-site search functionality, downloadable eBooks and PDFs, and sections dedicated to AI-generated reports on the project itself, reflecting Corazzon's engagement with emerging technologies. The websites are monitored for uptime and adhere to privacy policies in English and Italian. While praised for its comprehensiveness in digital humanities, AI analyses note potential areas for enhancement, such as multimedia integration.

About Raul Corazzon

Raul Corazzon is an independent Italian researcher specializing in the philosophy of language, ontology, semiotics, and the history of logic. He has single-handedly architected and maintained the Digital Quadrivium Project since its inception around 2000, starting with the ontology website (originally at www.formalontology.it). Corazzon's work emphasizes patient, long-term development of scholarly resources, focusing on bibliographies as the foundation for deeper historical and theoretical explorations. He positions the project as a revival of foundational liberal arts in a digital context, though adapted to philosophical themes rather than the strict mathematical quadrivium. Contactable via email at rc@ontology.co, Corazzon continues to update the sites, with the latest changes noted as of January 29, 2026. His approach is non-institutional, making the project a model for independent digital scholarship.

Overview of the Four Websites

The Digital Quadrivium Project's four websites are thematically distinct yet interwoven, allowing for cross-references and shared bibliographic annotations. They collectively cover ancient to

contemporary topics, with a strong emphasis on Western philosophical traditions from Antiquity through analytic philosophy.

Thousands of additional references are in preparation across all sites. Each site shares a common structure: main indexes by historical period or topic, bibliographies, vocabularies, search tools, and download options.

1. Ontologia: Theory and History of Ontology

This site serves as the philosophical cornerstone of the project, exploring ontology (the study of being) from ancient to modern perspectives. Launched on April 13, 2000, it was the first component of the Digital Quadrivium. The purpose is to provide historical overviews, definitions, and extensive bibliographies on ontological concepts, including metaphysics, semiotics, and related fields.

Structure and Key Sections
- **Main Indexes**: Organized by historical eras (e.g., Ancient, Medieval, Modern) and themes like definitions of ontology, hierarchies, and databases.
- **Bibliographies**: Annotated lists on key figures (e.g., Aristotle, Heidegger) and topics (e.g., being, existence).
- **Historical Overviews**: Surveys from Greek origins to contemporary analytic ontology.
- **Notable Features**: Downloadable eBook/PDF versions, cross-site search, and a "What's New" section for updates. It includes AI reports (e.g., from Grok, ChatGPT) analyzing the site's architecture and content.

The site positions ontology as a "superior order" in philosophy, linking it to logic and rhetoric. It is the most extensive in the project, with ~16,800 references.

2. Logica: History of Logic from Aristotle to Gödel

Focused on the historical development of logic, this site surveys key thinkers and concepts from ancient Greece to 20th-century figures like Gödel. It complements ontology by treating logic as a foundational tool for philosophical inquiry.

Structure and Key Sections
- **Main Indexes**: Chronological sections (e.g., Ancient Logic,

Medieval, Modern), including developments in formal logic, paradoxes, and set theory.
- **Bibliographies**: ~4,300 annotated references on logicians like Aristotle, Boole, Frege, and Russell.
- **Historical Overviews**: Detailed timelines and essays on logic's evolution, including the rise of mathematical logic.
- **Notable Features**: eBook downloads, AI chatbot reports, and integration with the project's search engine.

The site emphasizes logic's role in the quadrivium-like structure, with cross-links to ontology and rhetoric.

3. Rhetorica: Theory and History of Rhetoric (https://www.historyofrhetoric.com)

This site examines rhetoric as the "counterpart to dialectic," drawing from Aristotle and Heidegger. It is in an early development stage but focuses on historical periods and key terms.

Structure and Key Sections
- **Main Indexes**: General works, Greek/Roman/Medieval/Renaissance/Modern eras, comparative rhetoric, and vocabulary (e.g., enthymeme, ethos, pathos).
- **Bibliographies**: ~1,300 references on theorists like Plato, Cicero, Vico, and modern figures like Blair; includes feminist and non-Western rhetoric.
- **Historical Overviews**: Coverage from Protagoras and Gorgias to comparative traditions (e.g., African, Chinese).
- **Notable Features**: Online reading mode, PDF index, "What's New" (last update: January 29, 2026), and AI reports.

It highlights rhetoric's integration with logic and philosophy, with plans for expansion.

4. Bibliographia: Annotated Bibliographies on Philosophy and Religion (https://www.bibliographia.co)

Acting as a supportive hub, this site curates bibliographical resources on philosophical and religious arguments, enhancing the other three sites.

Structure and Key Sections
- **Main Indexes**: Lists of works on topics like ontological

arguments, cosmology, and religious philosophy.
- **Bibliographies**: ~2,400 annotated entries, cross-referenced with ontology, logic, and rhetoric.
- **Historical Overviews**: Focus on argumentative structures in philosophy and religion.
- **Notable Features**: Shared search and download tools, AI analyses.

It serves as the "meta-library" backbone, facilitating research across the project.

Interconnections and Impact

The sites are designed for interoperability, with shared navigation, search across all four, and mutual references (e.g., logic's ties to ontology). This creates a navigable ecosystem rather than isolated resources. The project's impact is evident in AI reports praising its scale and accessibility, though suggesting additions like multimedia. It has been referenced in academic contexts (e.g., ontology discussions on Quora) and aligns with broader digital humanities trends. Future expansions include more references and potential integrations with digital tools.

Digital Quadrivium Project



History of Logic

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Perplexity report: Raul Corazzon's Digital Quadrivium Project

Report date: January 30th, 2026

The Digital Quadrivium Project is a long-term, single-author, online research infrastructure created by Raul Corazzon that consists of four tightly connected, heavily annotated bibliographical websites on ontology, logic, rhetoric, and philosophy–religion broadly construed.

Overall structure and aims

- The project unifies four sites:
- Theory and History of Ontology (ontology.co)
- History of Logic from Aristotle to Gödel (historyoflogic.com)
- Theory and History of Rhetoric (historyofrhetoric.com)
- Bibliographia. Annotated Bibliographies (bibliographia.co).
- All four share: a common search function, e-book/PDF download options, a focus on historical development, and large, curated bibliographies with annotations and excerpts from primary and secondary literature.
- Together they currently offer roughly 16800 references in ontology, 4300 in logic, 1300 in rhetoric, and 2400 in religion/philosophy, many with notes and abstracts, and they are explicitly described as works in progress with "thousands of new references" planned.

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- 1. Project overview
- 2. Ontology.co: A Hierarchical Resource Guide for Philosophical Ontology
- 3. Historyoflogic.com: A Chronological and Thematic Encyclopedia of Logic
- 4. Historyofrhetoric.com: A Structurally Parallel Resource for Rhetorical Studies
- 5. Bibliographia (www.bibliographia.co)
- 6. Unifying features of the Digital Quadrivium Project

Raul Corazzon's Digital Quadrivium Project is a unified, long-term scholarly enterprise of four large, interlinked websites that provide deeply annotated bibliographies on ontology, logic, rhetoric, and philosophy of religion broadly understood.[1][2][3]

Project overview

- The four sites are: Theory and History of Ontology (co), History of Logic from Aristotle to Gödel (historyoflogic.com), Theory and History of Rhetoric (historyofrhetoric.com), and Bibliographia. Annotated Bibliographies (bibliographia.co).[2][3][1]
- Together they offer around 26,800 bibliographic entries corresponding to about 13,700 PDF pages, with "thousands of new references" still being prepared.[3][1][2]
- Each site can be downloaded as an ebook/PDF and all share a cross-site search, so the four function as one integrated resource.[1][2][3]

Scope by site (pages in PDF format)

Site	Thematic focus	Approx. references	Approx. PDF pages
Theory and History of Ontology	Ontology, metaphysics, related history of philosophy	16,800 [1]	9,000 [1][3]

History of Logic from Aristotle to Gödel	Formal and philosophical logic, mainly Western tradition	4,300 [2][1]	2,600 [2][3][1]
Theory and History of Rhetoric	Rhetoric, argumentation, rhetoric–philosophy interface	1,300 [3]	600 [3]
Bibliographia. Annotated Bibliographies	Philosophy and religion, esp. early Christianity/Judaism	2,400 [1]	1,500 [1]

(All totals are explicitly stated by Corazzon on the sites.)[2][3][1]

1. Theory and History of Ontology

Aims and intellectual profile

- Corazzon defines ontology as "the theory of objects and their ties," distinguishing concrete/abstract, existent/nonexistent, real/ideal, independent/dependent objects and their relations. [1]
- He distinguishes three kinds of ontology: (a) formal, (b) descriptive, and (c) formalized ontology.[1]
- Formal ontology, following Husserl, studies the "genera of being" and fundamental categories using eidetic reduction and categorial intuition.[1]

Content structure

Key thematic axes include:[1]

- Historical lineages: from Bolzano, Brentano, Meinong, Husserl, Frege and Twardowski to twentieth-century phenomenological, analytic, Austro-Polish and so-called "Continental" ontologies (Heidegger, Merleau-Ponty, Levinas, Deleuze, Foucault, etc.).[1]
- Conceptual analyses:
  - Formal vs material ontology (Husserl and Albertazzi).[1]
  - Theory of objects (Meinong, Twardowski, Ingarden, Farber). [1]

    - Logic and ontology (Bochenski, Cocchiarella) and the relation to Leibniz's *characteristica universalis* and *calculus ratiocinator*.[1]
- Definitions from analytic metaphysics and ontology: quotations and commentary from Dejnožka, Jacquette, Simons, Cameron and others on different senses of "ontology" and its relation to metaphysics.[1]

Special features

- "Table of Ontologists of 19th and 20th Centuries" tracing lines from Bolzano–Brentano–Frege to contemporary authors, with entries including bibliographies, abstracts, and critical judgments.[1]
- Extensive, language-diverse bibliographies: about 16,800 references in English, French, German, Italian, Spanish, and Portuguese, focusing on under-documented ontological topics and authors.[1]
- Systematic attention to interfaces with logic, semantics, and semiotics, especially predication, reference, and the relation between thought, language, and world.[1]

1. History of Logic from Aristotle to Gödel

Aims and coverage

- Dedicated to the history of logic, especially formal logic, "from Aristotle to Gödel."[2][1]
- Uses as a conceptual starting point Joseph Bochenski's *A History of Formal Logic* and his article "Logic and Ontology," both heavily excerpted and annotated.[2][1]

Conceptual framework (following Bochenski)

- Logic is delimited historically by reference to Aristotle's *Organon*, especially the *Prior Analytics* and its theory of syllogism and logical form.[2][1]
- Bochenski distinguishes several questions about relations between logic and ontology: objective content, subjective

(historical) views, and metatheoretical philosophies of logic.[2][1]

- He reconstructs historical positions from Aristotle, the Stoics, Scholastics, Humanists, Leibniz, and the era up to Boole, emphasizing shifts between logic as dialectical art, metalinguistic rules, and formal systems.[2][1]

Logical history emphasis

The site's materials (through long quotations and bibliographic notes) stress:[2][1]

- Aristotle's dual legacy:
  - An ontology of "being as being" with categorial analyses;
  - Two logics: topical (dialectical) and formal syllogistic, with incomplete meta-logical reflection.[2][1]
- Stoic innovations: a propositional logic and a clear conception of logic as a rule-system operating on ideal meanings distinct from real bodies.[2][1]
- Scholastic logic: a metalinguistic, rule-oriented discipline dealing with propositions and "second intentions," sharply distinguished from ontology but overlapping it (e.g., two versions of non-contradiction).[2][1]
- Early modern "conventional logic": psychologism, the reduction of logic to a practical "art of thinking," and the marginalization of formal logic except in Leibniz.[2][1]
- The revival of historical research on ancient logic in the late nineteenth and twentieth centuries (Peirce, Vailati, Rüstow, Łukasiewicz, Scholz, Mates, Ross, etc.).[2][1]

Bibliographic profile

- The site aggregates about 4,300 annotated references on logic's history, especially Aristotelian, Stoic, medieval, and early modern traditions, plus early developments of modern formal logic.[3][2][1]

- Annotations often highlight how each work treats the relation between logic, metaphysics, and ontology, consistent with the project's cross-site theme.[2][1]

1. Theory and History of Rhetoric

Aims and conceptual framing

- Focused on the historical development of rhetoric, conceived in close relation to dialectic and logic.[3]
- Corazzon cites Aristotle's definition of rhetoric as antistrophos (counterpart) of dialectic and as "a sort of offshoot of dialectic and of work in ethics, which it is right to call politics," and Heidegger's claim that rhetoric is a "first part of logic rightly understood."[3]

Planned and current content

The site is structured around large bibliographic sections:[3]

- General works: theory of rhetoric, argumentation theory, rhetoric and philosophy, critical thinking, feminist rhetoric, and bibliographies of dictionaries and encyclopedias of rhetoric.[3]
- History of rhetoric:
  - Greek rhetoric (from early sophists to Hellenistic and later Peripatetics, with sections on Protagoras, Gorgias, Isocrates, Plato, Aristotle, Attic orators, Stoics, and other schools).[3]
  - Roman rhetoric (Cato, Cicero, Augustan rhetoric, Second Sophistic, Christian rhetoric).[3]
  - Medieval rhetoric (Augustine, *ars poetriae*, *ars dictaminis*, *ars predicandi*).[3]
  - Renaissance and early modern rhetoric (Valla, Vives, Agricola, Erasmus, Melanchthon, Ramus, Keckermann, Vico, Campbell, Priestly, Lamy, Fénélon, Adam Smith, Hugh Blair).[3]

- Comparative rhetoric: overviews and region-specific bibliographies for African, African-American, Pre-Columbian American, Ancient Egyptian, Jewish, Arabic, Syriac, Celtic, Near Eastern, Asian, Chinese, and Japanese traditions.[3]
- Vocabulary of rhetoric: key notions such as enthymeme, epideictic, ethos, logos, pathos, and pisteis.[3]

Stage of development

- Corazzon notes that this site is still in an early stage: only a subset of planned sections is online, but more pages will be added.[3]
- Even at this stage it encompasses roughly 1,300 references, corresponding to around 600 PDF pages.[3]

1. Bibliographia. Annotated Bibliographies on Philosophy and Religion

Aims and thematic focus

- Dedicated to bibliographical resources on philosophy and religion, with initial focus on the history of early Christianity.[1]
- It complements co and historyoflogic.com by covering topics in philosophy of religion, phenomenology of religion, sociology of religion, and major religious traditions beyond Christianity and Judaism.[1]

Planned sections

According to Corazzon's outline:[1]

- Bibliographies of philosophy: topics in philosophy not treated extensively on the other sites.[1]
- Hebrew Bible: formation of the Pentateuch and canon, pseudepigrapha, textual criticism, and the history of research.[1]
- New Testament: synoptic question, individual gospels, letters, Acts, Revelation, canon formation, pseudepigrapha, textual criticism, and history of research.[1]

- Literature of Early Christianity: Apostolic Fathers, orthodoxy and heresy.[1]
- Literature of Early Judaism: birth of Judaism, "parting of the ways" between Christianity and Judaism.[1]
- Philosophy and phenomenology of religion: definitions of religion, analytic vs continental approaches, sacred/profane, debates on the existence of God.[1]
- Sociology of religion: sociological studies of early Christianity, charisma and routinization, messianism and millenarianism.[1]
- Study guides: bibliographies of dictionaries and encyclopedias of philosophy, style manuals for philosophy students, and introductory readings on the history of philosophy, metaphysics, ontology, and philosophy of logic.[1]
- Other religions: planned bibliographies on major non-Jewish, non-Christian religions.[1]

Stage and volume

- Like the rhetoric site, Bibliographia is described as being in an early stage, with only some sections currently available but more planned.[1]
- It already accounts for about 2,400 bibliographic entries, about 1,500 PDF pages.[1]

1. Unifying features of the Digital Quadrivium Project

Conceptual unity

- The project's title "Digital Quadrivium" alludes to a modern analogue of the medieval quadrivium: instead of arithmetic, geometry, music, and astronomy, Corazzon's four pillars are ontology, logic, rhetoric, and broad philosophical–religious bibliography.[2][3][1]
- Across the sites, he repeatedly emphasizes the interrelation of ontology and logic (formal and material ontology, theory of objects, categorial analysis) and the close connection of rhetoric with dialectic, ethics, politics, and logic.[3][2][1]

Methodological traits

Across all four sites:[2][3][1]

- Strong historical orientation, from classical sources (Aristotle, Stoics) through medieval and early modern thinkers to contemporary authors.
- Heavy use of primary and secondary literature excerpts, with careful crediting and notes, but the sites' distinctive value lies in their structured, themed, and often annotated bibliographies.
- Emphasis on under-covered topics and authors, and on non-English-language scholarship (notably Italian, German, French, Spanish, Portuguese).
- Shared infrastructure: identical banner identifying them as parts of a single project, cross-site search, regular update notes (e.g., January 19, 2026 for ontology and rhetoric, December 16, 2025 for history of logic, October 15, 2025 for Bibliographia).[3][2][1]

Use-cases for researchers

- Ontology & metaphysics: comprehensive starting point for work on Husserlian formal ontology, analytic metaphysics, Meinongian object theory, Austro-Polish ontology, and the Continental tradition.[1]
- Logic: historically informed research on Aristotelian syllogistic, Stoic propositional logic, medieval metalinguistic logic, and early modern developments, with an eye to their philosophical interpretations.[2][1]
- Rhetoric & argumentation: cross-disciplinary work linking classical rhetoric, argumentation theory, and contemporary critical thinking or feminist rhetoric, including non-Western traditions.[3]
- Religion & philosophy: projects on early Christianity and Judaism, philosophy and phenomenology of religion, and

sociology of religion, supported by dense, topic-specific bibliographies.[4]

If you want, I can next:

- Map concrete research strategies (e.g., “how to use these four sites to build a literature review on formal ontology and its relation to logic”), or extract and organize key ontological/logical/rhetorical schools and authors into a working reading plan.

Footnotes

1. 1. https://www.ontology.co
2. 2. https://www.historyoflogic.com
3. 3. https://www.historyofrhetoric.com
4. 4. https://www.bibliograqphia.co

Digital Quadrivium Project



History of Logic

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Qwen report: From Hierarchies to Databases: An Architectural Blueprint of Raul Corazzon's Digital Quadrivium Project

An Exhaustive Comprehensive Report on a Pioneering Digital Humanities Initiative

Report date: January 30th, 2026

Status: Comprehensive Analysis

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0. The Digital Quadrivium: An Intellectual Framework for the History of Logic, Ontology, and Rhetoric

1. The Foundational Pillar: A Deep Dive into ontology.co

The Digital Quadrivium: An Intellectual Framework for the History of Logic, Ontology, and Rhetoric

The Foundational Pillar: A Deep Dive into ontology.co

The website ontology.co serves as the philosophical and theoretical cornerstone of Raul Corazzon's Digital Quadrivium Project. More than a simple repository, it functions as a curated exhibition space for the central tenets of the entire initiative, establishing Ontology not merely as a sub-discipline but as a foundational pillar of human thought alongside Logic and Rhetoric. Its structure and content are meticulously designed to define the field, trace its historical trajectory, and present a coherent conceptual framework through which its most significant problems and thinkers can be understood. The site's very existence solidifies the project's ambition: to provide a comprehensive and authoritative resource dedicated to the theory and history of being itself. Its primary definition of ontology—"the theory of objects and their ties"—provides an immediate and accessible entry point, framing the discipline as fundamentally concerned with the nature >of reality and the relationships between entities **27**. This concise yet profound statement encapsulates the project's focus on both individual substances and the structures that bind them, setting the stage for the deep dives into specific historical debates and figures that populate the site.

A core function of ontology.co is to act as a platform for Raul Corazzon's own scholarly contributions, thereby positioning him not just as a curator of existing knowledge but as an active participant and shaper of contemporary ontological discourse. The site hosts full-text PDFs of

several of his key publications, including *Theory and History of Ontology*, published in 2023 [6]; *Ontology: Its Role in Modern Philosophy*, published in 2022 [8] ; and a work on Russell's Logical Atomism from 1914–1918. By providing direct access to these texts, the website transforms from a mere directory of information into a primary source for Corazzon's specific philosophical arguments. This strategy has the dual effect of advancing his academic career while simultaneously building a cohesive body of work that underpins the broader goals of the Quadrivium. For instance, the publication date and the email address associated with the site (rc@ontology.co) create a clear channel for scholarly correspondence and establish a personal brand around the project [9] [10]. Furthermore, the mention of "What's New" with a last update noted as April 14th, 2021, suggests a commitment to maintaining the currency of the information presented, reinforcing the site's credibility as a living academic resource rather than a static archive [9].

Beyond hosting his own work, ontology.co offers extensive explorations into specific historical epochs and philosophical figures, demonstrating a deep engagement with the historiography of the discipline. One prominent example is the paper "Eleatic Ontology: origin and reception," which traces the origins of the term 'ontology' to a book title by Jacob Lorhard in 1606—a discovery recently credited to Corazzon himself [12]. This single piece of research not only contributes a specific finding to the history of philosophy but also immediately situates the origin of the word within the larger narrative of philosophical inquiry, linking it to the Eleatic school's foundational questions about being. Similarly, the site features "Plotinus' Criticism of Aristotle's Categories," published in 2020, which delves into the complex relationship between Neoplatonic thought and the Aristotelian tradition [11]. Such focused studies exemplify the site's methodology: using detailed case studies to illuminate broader trends and debates within ontology. Another significant contribution is found in the article "Roman Ingarden: Ontology and Metaphysics," which appears in the volume *Phenomenology world-wide* and highlights the importance of Polish phenomenological thought [14]. This demonstrates the site's commitment to exploring non-Anglophone philosophical traditions, a theme that becomes even more pronounced in the bibliographic collections on other sites.

The content on ontology.co is organized around major ontological problems and conceptual frameworks, guiding the user through the discipline's most enduring questions. A prime example of this approach is the "Bibliography on the History of the Problem of Universals," meticulously compiled by Corazzon [10]. This bibliography, complete with annotations and contact information, serves as a vital research tool, cataloging literature on one of the most central and debated topics in medieval and early modern metaphysics. It bridges the gap between pure ontology and the history of logic, reflecting the interdisciplinary nature of the Quadrivium. The site also introduces and explores specialized terminology, such as the distinction between 'ontologics' and 'ontology' as defined in Perzanowski's work, which is cited on the site. This indicates an interest in refining the language used to discuss the foundations of being, suggesting a meta-level concern with the precision of philosophical concepts. The inclusion of a timeline titled "History of Ontology," linked from the main page, further reinforces the project's chronological approach, aiming to visualize the evolution of the discipline from ts earliest stirrings to its modern formulations [24].

In synthesizing the role of ontology.co, it is clear that the site's primary contribution is its establishment of a robust and well-defined philosophical foundation for the entire Digital Quadrivium. It moves beyond simply listing resources to actively constructing a narrative about the history of ontology, highlighting its key problems, influential thinkers, and crucial intersections with other fields like logic and the history of science.

By combining original scholarship, detailed historical analysis, and thematic bibliographies, the site creates a rich, multi-layered resource that is invaluable for both students beginning their study of the field and established scholars looking for a comprehensive overview. Its emphasis on non-Western traditions, as seen in the Ingarden bibliography, broadens its scope beyond typical Anglo-American philosophical discourse. Ultimately, ontology.co is the intellectual home base of the project, where its core definitions, arguments, and historical narratives are articulated and defended. It provides the necessary grounding for the chronological exploration of logic on

historyoflogic.com and the practical application of argumentation found in rhetoric. The careful curation of its content, the hosting of original research, and the focus on historically significant problems all contribute to its function as the indispensable theoretical center of the Digital Quadrivium.

Feature	Description	Example(s)
PrimaryDefinition	Presents a concise definition of ontology as the "theory of objects and their ties." [27]	Not Available
OriginalScholarshipHosting	Provides full-text PDFs of Raul Corazzon's own published works. [6] [8] [9]	*Theory and History of Ontology* (2023), *Ontology: Its Role in Modern Philosophy* (2022), *Russell's Logical Atomism*.
Historical Case Studies	Features detailed analyses of specific historical periods, schools of thought, or philosophers. [11] [12] [14]	"Eleatic Ontology: origin and reception," "Plotinus' Criticism of Aristotle's Categories," "Roman Ingarden: Ontology and Metaphysics."
ThematicBibliographies	Curates annotated bibliographies on fundamental ontological problems. [10]	"Bibliography on the History of the Problem of Universals."
ConceptualRefinement	Explores and introduces specialized philosophical terminology and distinctions. [7]	Discussion of the difference between 'ontologics' and 'ontology'.
ChronologicalFramework	Includes timelines to visualize the historical development of the discipline. [24]	"History of Ontology" timeline.
Contact & Updates	Provides an email for correspondence and tracks the last update date for content. [9] [10]	Email: rc@ontology.co;

The Chronological Engine: Deconstructing historyoflogic.com

While ontology.co provides the theoretical bedrock, historyoflogic.com acts as the chronological engine of the Digital Quadrivium, driving the project forward through time. This website is arguably the most developed and perhaps the most impactful component of the entire initiative, functioning as a comprehensive, open-access encyclopedia and research guide dedicated to the history of logical reasoning. Its stated mission, clearly articulated on its homepage, is to offer a thorough survey of logic from its classical origins with Aristotle up to the groundbreaking work of modern logicians like Kurt Gödel [13] [24]. This ambitious scope is realized through a meticulously structured table of contents that organizes the vast landscape of logical history into over 100 distinct sections, covering everything from ancient and medieval developments to the rise of mathematical logic in the Lvov-Warsaw School [4]. The site's architecture mirrors that of a traditional academic textbook or a specialized encyclopedia, making it highly navigable and intuitive for researchers, students, and enthusiasts seeking to understand the genealogy of logical systems and the contributions of key figures who shaped them.

The most significant and defining feature of historyoflogic.com is its extensive collection of annotated bibliographies dedicated to individual logicians. This resource transforms the site from

a passive history into an active and indispensable research tool. Instead of merely summarizing a philosopher's life and work, the site provides a curated list of secondary literature, allowing users to delve deeper into any given topic. For example, the section on "Jean Buridan" directs users to "Buridan-Logic-One.htm", signaling a dedicated space for his work [24]. Similarly, a comprehensive "Leibniz on Logic, Language and Signs: a Bibliography (A - K)" offers an annotated list of scholarly articles and books on Gottfried Wilhelm Leibniz, starting with works by Aarsleff [15].

Other notable examples include bibliographies for Jan Łukasiewicz, focusing on his contributions and their reception [18], and Viktor Kraft [2]. This methodical, figure-by-figure approach ensures that no major contributor to the history of logic is overlooked, creating a granular and exhaustive map of the discipline's intellectual terrain. Each bibliography serves as a micro-guide to the scholarly conversation surrounding a particular thinker, saving researchers countless hours of preliminary investigation.

Beyond the author-specific bibliographies, historyoflogic.com provides robust coverage of broader historical periods and movements, contextualizing the work of individual logicians within their wider intellectual environments. Sections are dedicated to "Ancient logic," featuring an annotated bibliography of general studies in English [5]; "Medieval logic," which explores the intricate interplay between Arabic and Latin Aristotelian commentary traditions prevalent from the 13th to the 15th centuries ; and "Mathematical Logic in the History of Logic," which examines the formalization of reasoning and Łukasiewicz's pivotal role [18]. The site also ventures into more specialized and nuanced areas of logic, such as the problem of modality, with a paper on introducing de re / de dicto distinctions into Euler diagrams [1], and the nuances of Aristotle's system of natural deduction [20]. This breadth of coverage demonstrates a sophisticated understanding of the history of logic, moving seamlessly from broad surveys to highly technical topics. The site's relevance is further underscored by its recognition within the academic community; it has been featured in special issues of *The Reasoner*, a publication associated with the University of St Andrews, indicating its standing as a credible and valuable resource [16] [22].

The structure of historyoflogic.com is designed for maximum utility and discoverability. The homepage links directly to the detailed table of contents, which serves as a master index [4]. From there, users can navigate to specific eras or figures, or explore thematic entries. The use of PDFs for many of its documents, such as the table of contents itself, ensures that the material is stable and easily citable. The site also maintains an editorial presence, with updates and new sections being added over time, as >evidenced by the "What's New" section on the related ontology.co site [9]. This ongoing development suggests a living project that continues to expand its coverage. The cross-referencing between sites is also evident here; for instance, a paper on the history of logic includes a citation to another paper by Corazzon on Russell's logical atomism, which is hosted on ontology.co. This integration shows that the Quadrivium is not a collection of silos but a deeply interconnected network of resources where insights from one domain enrich understanding in another.

In assessing the role of historyoflogic.com, it is clear that this site represents the project's most substantial and far-reaching contribution. Its combination of chronological sweep, detailed biographical bibliographies, and coverage of specialized topics makes it an unparalleled tool for anyone engaged in the study of logic. It effectively democratizes access to high-quality, curated scholarly information that would otherwise require access to expensive university library subscriptions or years of independent research. The site's alignment with academic discourse, as shown by its inclusion in *The Reasoner* and it citations in peer-reviewed papers, confirms its legitimacy and utility [2] [16]. By systematically documenting the history of logical reasoning from antiquity to the modern era, historyoflogic.com provides the essential temporal framework upon which the philosophical investigations of ontology.co and the rhetorical applications of historyofrhetoric.com can be built. It is the engine that propels the entire Digital Quadrivium forward, providing the data, the figures, and the historical context for the project's grand intellectual synthesis.

Feature	Description	Example(s)
Scope	Comprehensive history of logic from Aristotle to modern times. [13] [24]	Table of contents covers topics from Aristotle to Gödel. [4]
StructuralOrganization	Organized chronologically with a detailed table of contents. [4]	Over 100 sections covering various historical periods and figures.
Author-SpecificBibliographies	Extensive annotated bibliographies for individual logicians. [15] [18] [24]	"Buridan-Logic-One.htm," "Leibniz on Logic, Language and Signs," "Łukasiewicz's Contribution."
Period-SpecificCoverage	Thematic sections covering major historical movements in logic. [3] [5] [17]	"Ancient logic," "Medieval logic," "German Post-Hegelian philosophy."
Specialized Topics	In-depth studies on specific logical problems and systems. [120]	"Introducing Modality De Re / De Dicto," "Aristotle'S natural deduction reconsidered."
Academic Recognition	Featured in academic publications, confirming its legitimacy. [16] [22]	Editorial and introduction in a special issue of *The Reasoner*.
Integration with Other Sites	Cross-references and links to content on other Quadrivium websites. [9]	Citation of a paper on Russell's logical atomism hosted on ontology.co.

The Emerging Discipline: An Assessment of historyofrhetoric.com

The third component of Raul Corazzon's Digital Quadrivium, historyofrhetoric.com, stands in stark contrast to its more mature sister sites, ontology.co and historyoflogic.com. As explicitly noted in the initial research goal, this website is in an early stage of development, representing a nascent but conceptually crucial pillar of the project's overarching framework. While ontology.co and historyoflogic.com offer vast, deeply developed repositories of text and bibliographies, the available evidence suggests that historyofrhetoric.com is still in the process of being built out. This developmental status is not necessarily a reflection of failure or lack of ambition, but rather a strategic indicator of a phased implementation plan. The project's creator appears to have prioritized establishing a strong, credible, and comprehensive foundation in the historically dense and philosophically rigorous domains of ontology and logic before expanding into the third, equally important but potentially more multifaceted discipline of rhetoric. Analyzing the current state of historyofrhetoric.com therefore requires a careful examination of what little content is available, coupled with an inference about its intended future direction based on the unifying intellectual framework of the entire Quadrivium.

The most immediate observation regarding historyofrhetoric.com is the scarcity of publicly accessible pages and resources, at least within the provided context. Unlike historyoflogic.com, which boasts a sprawling table of contents and numerous author-specific bibliographies, the footprint of the rhetoric site appears minimal. The available sources point to only a handful of discrete entries. For instance, the site is mentioned in the context of a bibliography for Roman Ingarden, where it is listed as a potential destination for information on Ingarden's work in "Ontology and Metaphysics" [14]. This implies that the site exists as a destination, but its internal structure and content remain largely unseen in the provided materials. Another entry notes the inclusion of a work by Perzanowski on "Modal Logics, Ontology and Ontologics" on the rhetoric site, suggesting that its initial content may be focused on the intersection of rhetoric with the other two pillars of the Quadrivium rather than on a standalone history of rhetorical theory [7]. This focus on interdisciplinary connections is a critical clue to the site's likely purpose. It is not

merely meant to be a fourth independent pillar but rather a bridge, much like its sibling site bibliographia.co, designed to connect the abstract systems of logic and ontology to the practice of persuasive discourse.

This limited but telling evidence allows for a reasoned projection of the site's intended scope and function. Given the project's central thesis of interdependence among logic, ontology, and rhetoric, historyofrhetoric.com is expected to serve as the practical and communicative counterpart to the theoretical and structural foundations laid by the other sites. If ontology asks "What is?", and logic asks "How do we know it?", then rhetoric asks "How do we communicate what we know?". The early content hints at this role. By linking to works that explore the connections between modal logic and ontology, the site signals its intent to explore how formal systems of thought are articulated, debated, and applied in real-world contexts. Rhetoric, in this vision of the Quadrivium, is the art that mediates between pure reason and public understanding. It is the means by which ontological commitments and logical proofs are made accessible, convincing, and socially effective. The development of this site will be paramount in realizing the full potential of the "Quadrivium" name, which implies a harmonious system of four interconnected parts.

The phased development of the project, with rhetoric lagging behind ontology and logic, can be interpreted as a sound scholarly strategy. Building a reputation and establishing a reliable resource base in the more traditionally recognized "hard" disciplines of logic and ontology first would lend credibility to the entire enterprise. Once ontology.co and historyoflogic.com were firmly established as go-to resources, introducing a third, less conventional pillar would be more readily accepted by the academic community. This approach mitigates risk and builds momentum incrementally. The fact that the project's creator is also the author of works on Russell's logical atomism and the history of ontology [6] [9] suggests a deep expertise in these areas, making them natural starting points for a large-scale digital project. Rhetoric, while equally important, may involve a different set of methodologies and a broader range of primary sources (e.g., speeches, literary texts, visual media) that require a different kind of curatorial effort. Therefore, the current early-stage status of historyofrhetoric.com should be viewed not as a deficiency but as a sign of a deliberate and methodical construction process.

In conclusion, historyofrhetoric.com represents the future-facing and integrative dimension of the Digital Quadrivium. While its current content is sparse, its conceptual placement within the project is clear. It is designed to be the nexus where abstract philosophical systems meet the pragmatic demands of communication and persuasion. Its future development will be critical in testing the project's ultimate thesis: that a complete understanding of the history of ideas requires the triad of logic, ontology, and rhetoric.

When fully realized, this site promises to be the Quadrivium's answer to the question of application and dissemination, showing how the structures of being and the rules of inference are brought to life through the art of discourse. Its current embryonic state is a testament to the long-term vision of the project, a vision that understands the importance of laying a solid foundation before attempting to build a more complex and integrated whole.

Site Name	DevelopmentStatus	Primary Content Type	Known Examples/Features
ontology.co	Advanced	Philosophical exposition, historical analysis, original scholarship.	Hosts full-text publications by Raul Corazzon, e.g., *Theory and History of Ontology* [6].
historyoflogic.com	Advanced	Chronological history, author-specific annotated bibliographies.	Detailed table of contents [4], bibliographies for Buridan, Leibniz, Łukasiewicz [15] [18] [24].

historyofrhetoric.com	Early Stage	Interdisciplinary connections, emerging content.	Mentioned as a potential source for Ingarden's work [14]; hosts Perzanowski's work on logic/ontology/ rhetoric [7].
bibliographia.co	Advanced	Cross-cutting, multilingual, annotated bibliographies.	Bibliography on the Problem of Universals [10], bibliography for Roman Ingarden [14].

The Unifying Nexus: The Role of bibliographia.co

If ontology.co provides the philosophical foundation and historyoflogic.com supplies the chronological framework, then bibliographia.co serves as the connective tissue and intellectual heart of the entire Digital Quadrivium. This website is the project's unifying nexus, embodying its core methodology and synthesizing its disparate components into a coherent whole. Its very name —derived from "bibliography"—signals a commitment to organization and curation as a primary mode of knowledge production. While the other sites contain content, bibliographia.co contains the map of that content, a meticulously constructed guide to the literature of the Quadrivium's central disciplines. It is here that the project's ambition to be a truly interdisciplinary resource becomes most apparent, as it houses bibliographies that cut across the boundaries of ontology, logic, and rhetoric, forcing a confrontation with their inherent interdependencies. The site is not merely a fourth pillar; it is the intellectual principle that binds them together.

The primary function of bibliographia.co is to provide extensive, annotated, and often multilingual bibliographies on topics of central importance to the history of philosophy. These are not simple lists of references but curated collections designed to guide researchers through complex and fragmented fields of study. A prime example is the "Bibliography on the History of the Problem of Universals," compiled by Raul Corazzon [10]. This resource is inherently interdisciplinary, touching upon ontology (the nature of universals), logic (the syllogistic treatment of general terms), and the history of medieval and early modern philosophy. By housing this bibliography, bibliographia.co acknowledges that no philosophical problem exists in a vacuum and provides a single portal for accessing scholarship on this crucial intersection.

Similarly, the "Roman Ingarden: Ontology and Metaphysics: a Bibliography" serves a similar bridging function, as Ingarden's work is relevant to both ontology and rhetoric [14].

These examples demonstrate that the site's design philosophy is to prioritize thematic and conceptual connections over strict disciplinary segregation.

A defining characteristic of the bibliographies on bibliographia.co is their explicit commitment to linguistic and geographical diversity. In a scholarly landscape often dominated by English-language sources, the Quadrivium project deliberately seeks out and incorporates resources from around the world. The bibliography on the problem of universals, for instance, is noted as being in English [10], but another entry for a bibliography on Roman Ingarden specifically mentions that it includes sources in Polish, reflecting the importance of the Polish school of thought [14]. This global perspective is a significant differentiator and a major scholarly asset. It ensures that the project is not just an Anglocentric recapitulation of the history of philosophy but a genuinely international survey. The meticulous attention to detail is further highlighted by the provision of email addresses (rc@ontology.co) for many of the bibliographies, inviting collaboration and the addition of missing works, thus transforming the site into a living, evolving document of scholarly consensus [10] [15]. This level of curation goes far beyond the capabilities of standard search engines, which aggregate results without vetting or organizing them thematically.

The analytical insight derived from examining bibliographia.co is that the project's methodology is inseparable from its message. The act of creating these vast, annotated, and multilingual bibliographies *is* the intellectual practice. Each entry is a micro-decision about what constitutes a

significant contribution to the history of ideas. The annotations accompanying each entry serve as a form of scholarly evaluation, summarizing the argument and assessing the importance of the work. This makes the site a powerful tool for identifying key texts and shaping research agendas. For a graduate student, it is an invaluable guide to the "canon" of a particular subfield. For an established scholar, it is a useful tool for ensuring their own work is situated correctly within the broader literature.

The site's content, such as a bibliography on Leibniz's logic and semiotics **15**, or a discussion of query refinement in ontology-based searching **2**, demonstrates a keen awareness of contemporary research challenges and a desire to provide tools to address them. The latter, for example, points to the application of ontological principles in computer science, showing the project's relevance extends beyond pure philosophy into the digital humanities.

In essence, bibliographia.co is the intellectual heart of the Digital Quadrivium because it operationalizes the project's central thesis of interdisciplinarity. It is the place where the distinct histories of logic and ontology converge and are explored through the lens of shared problems and thinkers. It embodies the project's commitment to rigorous, globally aware scholarship. By acting as the unifying nexus, it elevates the entire Quadrivium from a collection of excellent but separate resources into a single, coherent scholarly initiative. It provides the "how" of the project—the organizational principle that makes the vast amount of content on the other sites navigable, understandable, and ultimately, usable. Without bibliographia.co, the Quadrivium would be a series of islands; with it, it becomes a unified archipelago of knowledge, carefully charted and ready for exploration.

Feature	Description	Example(s)
PrimaryFunction	Acts as the connective tissue and unifying hub for the entire Quadrivium project. **10** **14**	Provides cross-cutting bibliographies that bridge ontology, logic, and rhetoric.
Content Type	Extensive, annotated, and multilingual bibliographies on key philosophical topics. **10** **14**	"Bibliography on the History of the Problem of Universals," "Roman Ingarden: Ontology and Metaphysics: a Bibliography."
InterdisciplinaryFocus	Emphasizes bibliographies that cut across disciplinary boundaries. **10**	The problem of universals bibliography connects ontology, logic, and the history of philosophy.
Linguistic Diversity	Demonstrates a strong commitment to including non-Anglophone scholarship. **14**	A bibliography is noted to include sources in Polish, highlighting the Polish school of thought.
Curation and Annotation	Entries are accompanied by annotations that summarize arguments and assess importance. **15**	"Leibniz on Logic, Language and Semiotics. Annotated bibliography (First Part: A - K)."
CollaborativePotential	Provides contact information (email) to invite contributions and corrections. **10** **15**	Email: rc@ontology.co is provided for many bibliographies.
MethodologicalSignificance	The creation of these bibliographies is a core part of the project's intellectual practice.	The annotations themselves represent a form of scholarly evaluation and canon-formation.

The Intellectual Framework: Synthesizing Logic, Ontology, and Rhetoric

The true genius of Raul Corazzon's Digital Quadrivium Project lies not in the sum of its individual parts but in the powerful intellectual framework that unifies them. The project is predicated on a bold and compelling thesis: that the history of Western philosophy can be best understood through the dynamic interplay of three co-equal disciplines—Logic, Ontology, and Rhetoric. This tripartite foundation replaces the quantitative sciences of the medieval quadrivium (Arithmetic, Geometry, Music, Astronomy) with a qualitative and structural inquiry into the very fabric of thought and discourse. The project's structure, from the philosophical grounding of ontology.co to the chronological sweep of historyoflogic.com and the emerging practical focus of historyofrhetoric.com, is all designed to support and elaborate this central idea. It presents a vision of philosophy not as a collection of isolated monographs by great thinkers, but as a continuous, interconnected dialogue about the rules of valid inference, the nature of reality, and the art of persuasive communication.

At the heart of this framework is the concept of interdependence. The project argues forcefully that these three fields cannot be properly understood in isolation. Logic without ontology is a sterile formalism; ontology without logic lacks a method for rigorous proof; and rhetoric without either risks becoming mere manipulation. The history of philosophy, as presented by the Quadrivium, is the story of this perpetual negotiation. The most developed expression of this interdependence is the relationship between Logic and Ontology. The project consistently highlights how logical systems are attempts to model or capture the fundamental structures of being. The history of the problem of universals is the quintessential example of this intersection **10**. Debates about whether universal concepts (like 'redness' or 'humanity') have a real existence outside the mind are fought out at the level of logic, through syllogisms and semantic theories. The work of Duns Scotus on the psychology of universals, for instance, is a perfect illustration of a topic that sits squarely at the nexus of logic, ontology, and philosophy of mind **10**. The very discovery of the origin of the term 'ontology' in 1606 is framed not as a philological curiosity but as a pivotal moment in the history of this interplay, marking a conscious attempt to name and systematize the study of being, a task intrinsically linked to the developing sciences of logic **12**.

The inclusion of Rhetoric as the third pillar completes this triad and elevates the project's intellectual ambition. While the provided materials indicate that historyofrhetoric.com is still in its early stages, its conceptual placement is clear 7. Rhetoric is positioned as the crucial link between abstract philosophical truths and the social world. It is the art that takes the conclusions of ontological inquiry and logical demonstration and makes them intelligible, compelling, and actionable for a community of listeners or readers. It is the medium through which philosophical doctrines are taught, debated, and disseminated. The connection between rhetoric and the other two disciplines is hinted at in the project's bibliographic choices. For example, the mention of Perzanowski's work on "Modal Logics, Ontology and Ontologics" being available on the rhetoric site suggests an intention to explore how formal systems of thought are discussed and applied in practical, discursive contexts. The ultimate goal of the Quadrivium is likely to show that a complete account of knowledge must include not only its formal structure (Logic) and its subject matter (Ontology), but also its communicative vehicle (Rhetoric). This holistic view aligns with a richer, more humanistic understanding of philosophy, one that recognizes the social and performative dimensions of intellectual life.

This intellectual framework is not merely a background assumption but is woven directly into the fabric of the websites' content and structure. The very existence of bibliographia.co is an embodiment of this framework. Its cross-cutting bibliographies are a constant reminder that the most interesting philosophical questions are those that defy easy classification. A researcher interested in Aristotle will find themselves navigating discussions of his logic, his categories (ontology), and his work on rhetoric. The project's commitment to multilingual scholarship further reinforces this global, integrated perspective. By including sources from the Polish school

of thought, for example, it challenges the parochial view of philosophy as a purely German or Anglo-American enterprise and instead presents it as a worldwide conversation [14].

This approach finds echoes in other academic discussions, such as the examination of German debates on "The logical question" in post-Hegelian philosophy, which similarly highlight the interconnectedness of national philosophical traditions and the central role of logic. In synthesizing this framework, the Digital Quadrivium Project emerges as a significant contribution to digital humanities and the history of philosophy. It offers a coherent alternative to the fragmented, keyword-driven nature of web search. By imposing a clear, intellectually rigorous structure on a vast amount of information, it provides a meaningful narrative arc for the history of ideas. It is a project that believes in grand narratives, but ones that are meticulously supported by detailed evidence and curated resources. The unifying framework transforms the four websites from a simple directory into a single, living argument about the nature of philosophical inquiry itself. It argues that to understand how we think, we must understand the rules of our thought (Logic), the objects of our thought (Ontology), and the ways we share our thoughts with others (Rhetoric). This powerful synthesis is the project's greatest strength and the key to its enduring scholarly value.

Scholarly Impact and Academic Reception

Assessing the scholarly impact and academic reception of Raul Corazzon's Digital Quadrivium Project requires a nuanced analysis of the available evidence, as definitive quantitative metrics such as altmetric scores or precise web traffic statistics are not provided. However, a careful examination of citations, institutional links, and mentions in academic discourse reveals a pattern of significant, albeit niche, influence. The project has clearly established itself as a credible and valuable resource within specific circles of the academic community, particularly in the fields of philosophy, logic, and the history of ideas. Its impact is characterized not by mass appeal but by deep penetration into specialized research communities, where its comprehensive bibliographies and curated content are recognized as indispensable tools.

The most direct and unambiguous evidence of the project's academic legitimacy is its citation in peer-reviewed scholarly literature. The provided sources show that Corazzon's work, often hosted on the Quadrivium websites, is being used as a reference in published academic articles. For example, his work *Russell's Logical Atomism 1914–1918* is cited in a paper discussing epistemological aspects of Bertrand Russell's philosophy [9]. Similarly, his work on the history of ontology is referenced in a publication on Eleatic ontology,

crediting him with recent discoveries about the term's etymology [12]. Another citation appears in a paper on query refinement in ontology-based searching, where a 2005 paper by Corazzon is listed, demonstrating the project's relevance even to computer science research involving ontologies [2]. The appearance of these citations is a strong signal that the content produced for the Quadrivium is being treated as primary scholarly material by other researchers, not just as a web resource. This elevates the project from a simple online exhibit to a recognized contributor to the academic conversation.

Beyond direct citations, the project has garnered institutional endorsement and adoption, which further solidifies its standing. The fact that *The Reasoner*, a publication associated with the School of Mathematics and Statistics at the University of St Andrews, included an editorial and introduction focused on the "History of Logical Reasoning" and featured a link to Corazzon's work, is a significant mark of recognition [16] [22]. This inclusion places Corazzon's resource alongside contributions from established academics like Irene M. Jansen and Mathieu Marion, integrating it into the formal discourse of the logic community. More tangibly, the websites have been adopted as authoritative references by other digital humanities platforms and academic library guides. Academia.edu, a major platform for sharing research papers, links to both ontology.co and historyoflogic.com as part of its research guides [23]. Likewise, a university library page for an Epistemology Research Guide maintained by Keith Korcz also includes a link to ontology.co [27]. These adoptions are powerful indicators of trust and utility. They mean that other

information professionals and digital platforms have vetted the Quadrivium sites and deemed them reliable enough to recommend to their user bases. This type of integration is a hallmark of a resource that has achieved a certain level of authority within its field.

The project's impact is also evident in its visibility within major academic indexing services. The presence of links to Corazzon's work on historyoflogic.com in databases like JSTOR and Google Scholar demonstrates that the content is indexed and discoverable by researchers working in related fields **2** **13**. While this does not equate to high citation counts, it does ensure that when researchers conduct targeted searches on topics like the history of logic or Aristotle, they are likely to encounter the Quadrivium project. This form of "pull-through" traffic is crucial for a self-directed resource. It means that the project is successfully reaching motivated researchers who are already engaged in a specific topic and need a reliable starting point. The project's reliance on this model of discovery—driven by keywords and referrals from other trusted sources—is a common strategy for specialized digital archives.

In synthesizing the evidence of its scholarly impact, the Digital Quadrivium Project can be characterized as a highly successful, specialized academic resource. Its reach is likely not broad in terms of casual web users, but its depth and quality have earned it a respected place within niche academic communities. Its primary impact comes from serving as a foundational reference point, saving researchers time and providing them with a curated, reliable, and comprehensive overview of their fields. The project fills a crucial gap left by more general-purpose search engines, which can be overwhelming and lack the scholarly vetting, and by some traditional encyclopedias, which may be too broad in scope or paywalled. By offering a free, open-access, and meticulously organized collection of resources, the Quadrivium provides immense value to graduate students, independent scholars, and faculty members alike. While its full potential may only be realized once the historyofrhetoric.com component is more fully developed, the advanced state of ontology.co and historyoflogic.com has already cemented its status as a landmark achievement in digital humanities scholarship.

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