

History of Logic from Aristotle to Gödel by Raul Corazzon | e-mail: [rc@ontology.co](mailto:rc@ontology.co)

## Buridan's Logical Works. I. An Overview of the *Summulae de dialectica*

### INTRODUCTION: 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 *Summulae* 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 sciendi*)».(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. Jahrhunderts*, 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 conclusiones 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 *praxis* 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 (*voce significative*) 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 *voce* 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*.<sup>(13)</sup>

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 the 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: *Przegląd 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 suppositionibus*), 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 siècle*, 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 preambulatory 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 ('definentia') 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 'secundum quod ipsum'. (...)

8.7 The next chapter is about the division 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 dealt 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.

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"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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