Leibniz on Logic, Language and Semiotics. Annotated bibliography (First Part: A - K)

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The aim of this paper is to reassess some cardinal ideas of Leibniz in the light of the methods and goal of model theory. It is a leitmotiv in Abraham Robinson's work that, as well as Leibniz wanted logic to be an "ars inveniendi" for mathematics, model theory has to "produce useful tools for the development of actual mathematics." This paper tries to clarify the meaning and the far-reaching consequences of such a statement by comparing the method of logical analysis of the mathematical language to Leibniz's concepts of 'analysis' and 'characteristica'. Some results of Alfred Tarski and Abraham Robinson are briefly sketched in order to give evidence of the contemporary achievement of what Leibniz wished logic to be.


16. Bradley Bassler, Otto. 1998. "Leibniz on Intension, Extension, and the Representation of Syllogistic Inference." *Synthese* no. 116:117-139. "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."


20. Burkhardt, Hans. 1980. *Logik Und Semiotik in Der Philosophie Von Leibniz*. München: Philosophia Verlag. "This book provides the first account of the Janus-headed character of Leibniz's philosophy. Burkhardt presents not only an exhaustive survey of the background of Leibniz's thought in scholasticism, but also an estimation of his significance for contemporary logic and philosophy. On the one hand Leibniz is a representative of protestant Aristotelianism. His philosophical training was scholastic; his terminology is scholastic. On the other hand, it was he who developed the first logical calculi. His work on the theory of possible worlds means that he can be regarded as a precursor of possible world semantics in modal logic. And deontic logic, too, makes its first appearance in Leibniz's writings. He did original work also in probability theory, an area which at his time stand in a close relationship with logic. It was only with the development of mathematical logic by Boole and Frege that Leibniz's achievements in logic and semiotic could properly be grasped. An account of his contributions to these fields therefore presupposes a knowledge of those branches of Contemporary mathematical logic which he anticipated. Leibniz was also highly original in the area of linguistics. He put forward a series of theories and analyses in rational grammar which have hitherto been little considered in the literature. The present work offers, then, systematic discussions of the syllogism, of rational grammar, of the *characteristica universalis*, of combinatorics. It deals with the development of logical calculi, the relation between algebra and logic, geometry, ontic and deontic modal logic, the interconnections between logic and probability theory, and the relations between ontology, logic and semiotics."


"This essay tries to give a survey of the theories of modality in the philosophy of Leibniz. Leibniz distinguishes implicitly between five different kinds of modality: linguistic, logical, epistemic, ontological, and metaphysical. "Linguistic" modalities concern the different linguistic expressions of modalities. "Logical" modality concerns consistency and maximally consistent concepts in the case of individual concept. "Epistemic" modalities include understandability, thinkability, moral certainty and absolute certainty. "Ontological modalities" include compossibility, necessity and impossibility "per accidens", physical modality. "Metaphysical modality" is related to God, his thinking and his action, thus, for example, "prima possibilita", moral necessity and possible worlds."


"This work is a contribution to a new view of Leibniz's logic, pretending to show that his writings were not only rich in projects (Characteristica, Combinatoria, Mathesis), but also in concrete logico-mathematical developments. We prove that his Numerical Characteristic, assigning pairs of numbers to terms of categorical propositions, is a complete and correct semantics for aristotelian syllogistic, and the algebraic system presented in Fundamentals of Logical Calculus is essentially a complete version of boolean algebraic logic."

"Discusses Leibniz's views of concepts and their coincidence, which is, not identity of concepts as Ishiguro and others think, but Leibniz's fundamental copula linking concepts into propositions. Formulates fifteen Leibnizian theses on the topics. Examines five theses propounded by Hidé Ishiguro in "Leibniz's philosophy of logic and language" (1972) arguing that they belittle Leibniz's work in logic and misrepresent his views in the philosophy of logic and language. Opposes Ishiguro's Athenian approach, which strings together passages from anywhere in a philosopher's corpus, regardless of dates, as if the philosopher had all along before his mind a full-blown consistent system. Illustrates the contrastive Darwinian approach by staying within Leibniz's General inquiries about the analysis of concepts and of truths."

"This is a constructive appraisal of Leibniz's attempts, in three papers written in 1686-1690, at formulating an equational calculus that formalizes both classical syllogistics and propositional logic. The attempts failed to provide a calculus adequate for monadic predicate logic, because of Leibniz's inadequate treatment of existence and the particular quantifier. But Leibniz did come remarkably close to
formulating an adequate propositional calculus with biconditional and negation as primitive connectives, and some primitive rules of substitution of material equivalents. The degree of closeness can be appreciated by seeing how easy it was for Castañeda to complement Leibniz's axioms and rules in order to produce a complete propositional calculus LC with those primitives. the completeness of LC is shown, and other alternatives to LC suggested by Leibniz himself are discussed briefly."

"In this paper I present a careful examination of Leibniz's mereological views, based in large part on the theory he presents in" The Metaphysical Foundations of Mathematics" (1715). Leibniz begins with a primitive notion of compresence and, in a step by step manner, builds up more complex mereological notions culminating in his definitions of parthood, whole, and composition. I use this mereological account to clear up a confusion in the literature regarding whether or not monads can be located in space. Along the way we gain some insight into Leibniz's views on infinity and the structure of the universe."
Traduzione italiana: La logica di Leibniz - A cura di Ubaldo Sanzo - Napoli, Glaux, 1973
"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."


43. Duchesnau, François. 1988. "Leibniz on the Classificatory Function of Language." Synthese no. 75:163-181. "In the Nouveaux essais sur l'entendement humain, book III "Des mots" offers a rather closely knit presentation of Leibniz's ideas about language and its connection with knowledge. Though genuinely Leibnizian, this development is cast in a foreign mould, built out of an empiricist and analytic assessment of the twofold relationship of words with ideas and essences. Of the many issues in Locke's Essay which prompted Leibniz's antagonistic replies, I shall select this one: our natural processes of thought result in complex ideas, which, expressed in substantive terms, fall short of representing the "real essences" of things, but make it possible to classify them according to "nominal essences". In contraposition to the nominal/real essence distinction, which he disqualifies, Leibniz reintroduces and recasts for his purposes the distinction between nominal and real definitions of terms. Accordingly, a major trend of his analysis of words consists in elucidating the principle "the possible governs the real" in its application to language and to its classificatory function. I will attempt (1) to tract the origin of this doctrine back to some of Leibniz's previous reflections on language; (2) to assess Nicholas Jolley's analysis of this theme in his recent book on the Nouveaux essais;* (3) to show the possible implications of the principle for Leibniz's concept of empirical knowledge." * Leibniz and Locke. A study of the New essays on human understanding - New York, Oxford University Press, 1984.


46. 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."

47. 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. "In his Introduction to Logical Theory (London, 1952) P.F. Strawson attempted to show that traditional syllogistic logic was more reflective of various features of ordinary language than was modern mathematical logic. P. Geach, the best modern critic of traditional logic, responded to Strawson in "Mr. Strawson on Symbolic and Traditional Logic", Mind, 72 (1963). His brief remarks there show that Strawson's defense of the old logic is, at best, naive. Geach clearly believes that there just can be no sound defense of traditional logic. He even suggests that those who would persist in their allegiance to the old logic are either irrational or lazy. He says:

Many readers will vaguely think Strawson has *proved* that the traditional system with all its faults is philosophically less misleading than the new-fangled one. Those Colleges of Unreason where the pseudo-Aristotelian logic is presented as the only genuine logic, and those lecturers who would like to teach the philosophy of logic without having to learn any modern logic, may well thus have been supplied with a pretext for supine ignorance.

We believe that syllogistic logic is philosophically defensible. What Geach sees as its faults are either not faults at all or can be remedied. The result of applying such remedies is a new syllogistic - a logic which is broader and stronger than Aristotle's original. It is a logic competitive with the "new fangled" logic of today. This new syllogistic was envisaged, but not built, by Leibniz. The hope for such a logic lay dormant during the period when mathematical logic was being born and nurtured through its rapid maturity. But recently that hope has been revitalized, and virtually fulfilled, in the work of F. Sommers. The best general answer to Geach's overall charge is simply a presentation of this new syllogistic.

While the primary motive in presenting this essay is the defense of syllogistic against its modern detractors, we also believe that it is time for a concise introduction to Sommers' logical work. This work is scattered throughout a wide variety of journals and anthologies; and there is now no available account of it. Given the great originality of Sommers' ideas, and the importance of the issues he has chosen to deal with in logic, this void must be filled. Part of this essay is intended as a modest start at that task." From the Preface.

34. "Following suggestions made recently by F. Sommers it can be shown that Leibniz's law is in fact a principle of term substitutability. Terms are the same if and only if they are intersubstitutable for one another. More importantly for Leibniz's general program for syllogistic is the fact that this principle is but a special case of the dictum de omni."
"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. If 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."
"In this paper is approached the Leibnizian project for a general characteristics. Intended as a instrument to help the limitations and deficiencies of the natural human reason, the general characteristics presents itself moreover as a tool for expanding the power of the human thought by adopting and generalizing the methods of the algebraic representation. This goal however entails a difficulty when it is attempted to define with accuracy the extent of the project."
A fact generally accepted by critique is that Leibniz holds a relevant position within the history of linguistic thought and language studies. Institutional works such as those of Aarsleff (1975), Heinekamp (1992) or Rutherford (1995), as well as the more analytical studies of Heinekamp (1972, 1975), Mugnai (1976), Dascal (1978) or, more recently, Pombo (1987) and Gensini (1991) agree with this general statement. Furthermore, against Cassirer’s well known theory, developed in the first volume of his Philosophie der symbolischen Formen (1923), growing consent is given to the hypothesis of a substantial unity of Leibniz's view of language and sign systems. Whether his focus is on universal languages or on single dialects, on the general features of natural-historical languages or on the symbolic systems of chemistry and mathematics, on cryptography or on monastic languages, his notion of meaning as a flexible dimension of language and as a semiotic articulation of knowledge can be seen as the device that connects all the various stances regarding different forms of language.

Given these assumptions, this work will focus on a particular aspect of Leibniz's considerations on language, and it will be discussed with special attention to two writings (the Dialogus of August 1677 and some pages of the Nouveaux essais sur l'entendement humain, book III, 1704-1705) which differ as to date of composition and scope and therefore delimit an entire theoretical itinerary. The topic in question is the critique to the principle of arbitrariness of linguistic signs. This issue runs through Leibniz's entire philosophical and linguistic quest and it is intertwined to a number of more general problems of his system of thought such as the relationship between knowledge and truth, the limits of human cognitive skills, the need to affirm the autonomy (also in a strong semiotic sense) of thought and, the other hand, to safeguard the platonic reign of essence (or of the possibility of things) to which even God is in some way subordinated.

Inevitably, this work will focus more on the historical and theoretical impact that Leibniz's ideas had on philosophy of language than on the sophisticated internal filigree of his reflections. Hopefully, this will not obscure the complexity of Leibniz's perspective. Given that every perspective is historically determined, an approach to a classic necessarily has to face the challenge of finding a balance between the internal reconstruction of facts and the need to relate to those general theoretical issues of the tradition that still engage us to this day.


"Against the monistic conception of relations that he imputed to Leibniz, Russell defended the reality, externality and irreducibility of relations. For Russell, relations are objective and not merely mental entities; they are not always essential to the individuation of an entity; and propositions of the relational form cannot be reduced to subject-predicate propositions. My primary aim in this article is the analysis of Russell's arguments for this triple thesis. We can say that Russell was primarily concerned with issues of logic, and because of this misunderstood Leibniz's metaphysical perspective."


78. Kalinowski, Georges. 1977. "La Logique Juridique De Leibniz." *Studia Leibnitiana* no. 9:168-189. "En fait, Leibniz a apporté à la logique juridique une double contribution. D'une part, il a oeuvré à la maniere de ses devanciers et contemporains (Everardus, Freigius, Otto, Schickhardus, Vigélius, etc.) en formulant des règles d'interprétation juridique, en particulier les règles de solution des cas difficiles ("de casibus perplexis") et les règles à appliquer aux dispositions sous condition ("de conditionibus"). De l'autre, il fait figure de novateur et de precurseur en decouvrant les fondements logiques des inferences juridiques ("de legum interpretatione, rationibus, applicatione, systemate"), en particulier les principales thèses de la logique des normes ("elementa juris naturalis")."

79. Kalinowski, Georges, and Gardies, Jean-Louis. 1974. "Un Logicien Deontique Avant La Lettre: Gottfried Wilhelm Leibniz." *Archiv für Rechts und Sozialphilosophie* no. 60:79-112. "In their introduction the authors sketch the story of Robert Blanché's rediscovery of Leibniz' texts containing his logic of norms. Then G. Kalinowski analyses the Theoremata qvibus combinantur iuris modalia inter se (he draws from them Leibniz' theory of opposition of deontic statements, based on the analogy between these statements and the modal ones) and J.-L. Gardies studies the Theoremata qvibus combinantur iuris modalibus logici."  


82. ———. 1968. "Substitutivity *Salva Veritate* in Leibniz." *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 modern 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."

"I want to show that Leibnizian mode to thinking is based in a kind of logic of concepts. As an example, his first attempt to sum infinite series is analyzed. The question concerning the justification of the Leibnizian syllogism leads to the analysis of the fundamental definition. A conclusion obtained by "real-definitions" ("realdefinitionen") is logically justified. It is classified as a "vernunftwahrheit." A conclusion obtained by paradoxical definitions ("paradoxe definitionen") is classified as a "tatsachenwahrheit." according to Leibniz it has validity by contingency. A conclusion obtained by "impossible definitions" is logically unjustified."

