

# Selected Bibliography on Language as Calculus vs. Language as Universal Medium

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## BIBLIOGRAPHY

1. Banchetti-Robino Marina, "Husserl's theory of language as calculus ratiocinator," *Synthese* 112: 303-321 (1997).  
 Abstract: "This paper defends an interpretation of Husserl's theory of language, specifically as it appears in the *Logical Investigations*, as an example of a larger body of theories dubbed 'language as calculus'. Although this particular interpretation has been previously defended by other authors, such as Hintikka and Kusch, this paper proposes to contribute to the discussion by arguing that what makes this interpretation plausible are Husserl's distinction between the notions of meaning-intention and meaning-fulfillment, his view that meaning is instantiated through meaning-intending acts of transcendental consciousness, and his view that the content of meaning-intending acts is ideal meaning simpliciter. As well, the paper argues that the phenomenological method of reduction itself presupposes the notion that reality as such can be reached by subtracting the influence of the language of the natural attitude and its ontological commitments and it, thus, presupposes the conception of language as a reinterpretable calculus."
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  11. Goldfarb Warren. Frege's conception of logic. In *Future pasts. The analytic tradition in Twentieth century philosophy*. Oxford: Oxford University Press 2001. pp. 25-41  
"The first task is that of delineating the differences between Frege's conception of logic and the contemporary one. I shall start with the latter. Explicit elaborations of it are surprisingly uncommon. (In most writing on issues in philosophical logic, it is implicitly assumed; yet many textbooks gloss over it, for one pedagogical reason or another.) There are various versions; I will lay out the one formulated by Quine in his textbooks (1) as it seems to me the clearest.  
On this conception, the subject matter of logic consists of logical properties of sentences and logical relations among sentences. Sentences have such properties and bear such relations to each other by dint of their having the logical forms they do. Hence, logical properties and relations are defined by way of the logical forms; logic deals with what is common to and can be abstracted from different sentences. Logical forms are not mysterious quasi-entities, à la Russell. Rather, they are simply schemata: representations of the composition of the sentences, constructed from the logical signs (quantifiers and truth-functional connectives, in the standard case) using schematic letters of various sorts (predicate, sentence, and function letters). Schemata do not state anything and so are neither true nor false, but they can be interpreted: a universe of discourse is assigned to the quantifiers, predicate letters are replaced by predicates or assigned extensions (of the appropriate r-ities) over the universe, sentence letters can be replaced by sentences or assigned truth-values. Under interpretation, a schema will receive a truth-value. (pp. 25-26)  
(...)  
Such a schematic conception is foreign to Frege (as well as to Russell). This comes out early in his work, in the contrast he makes between his *Begriffsschrift* and the formulas of Boole: "My intention was not to represent an abstract logic in formulas, but to express a content through written signs in a more precise and clear way than it is possible to do through words." (2) And it comes out later in his career in his reaction to Hilbert's *Foundations of Geometry*: "The word 'interpretation' is objectionable, for when properly expressed, a thought leaves no room for different interpretations. We have seen that ambiguity [*Vieldeutigkeit*] simply has to be rejected." (3) There are no parts of his logical formulas that await interpretation. There is no question of providing a universe of discourse. Quantifiers in Frege's system have fixed meaning: they range over all items of the appropriate logical type (objects, one place functions of objects, two place functions of objects, etc.). (p. 27)  
(...)  
On Frege's *universalist conception*, then, the concern of logic is the articulation and proof of logical laws, which are universal truths. Since they are universal, they are applicable to any subject matter, as application is carried out by instantiation. For Frege, the laws of logic are general, not in being about nothing in particular (about forms), but in using topic-universal vocabulary to state truths about everything. (p. 28)  
(...)  
My central aims in this paper have been to delineate Frege's universalist conception of logic and contrast it with a more familiar one, to show that this conception connects with many other points in

Frege's philosophy, and to suggest that the conception is a well-motivated one, given the nature of Frege's project. Of course, today most of us would find the schematic conception (or some variant of it) far more natural, if not unavoidable. But I hope to have caused us to reflect on how much else has to shift in order to make it." (p. 41)

(1) *Elementary Logic* (Boston: Ginn, 1941) and *Methods of Logic* (New York: Holt, 1950).

(2) "Über den Zweck der Begriffsschrift," *Jenaische Zeitschrift für Naturwissenschaft* 16, Supplement (1882): 1-10, p. 1

(3) "Über die Grundlagen der Geometrie," *Jahresbericht der Deutschen Mathematiker Vereinigung* 15 (1906): 293-309, 377-403, 423-430, p. 384

12. Haaparanta Leila. *Frege's doctrine of Being*. Helsinki: Acta Philosophica Fennica 1985.

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14. Heinekamp Albert, "Ars characteristica und natürliche Sprache bei Leibniz," *Tijdschrift voor Filosofie* 34: 446-488 (1972).

"One can distinguish two different approaches toward language in Leibniz's work. On one hand, he considers natural language insufficient and would like to replace it by a 'rational' language (*lingua philosophica*), while on the other hand, he is an empirical researcher of language who collects phenomena from the most diverse languages in order to compare them with other languages. The literature about Leibniz highlights only these two aspects of his work, and usually considers them to be incompatible. The relationship between Leibniz's remarks about '*characteristica universalis*' and his theories about natural language is explored. Even though Leibniz did not produce an explicit theory about this relationship, a difference between these two is clearly implied in his remarks. Natural language and *characteristica* are to Leibniz, basically different in their existence, their function, and their performance. Nevertheless, they both form integral components of Leibniz's monad theory."

15. Hernández Márquez Victor Manuel, "Leibniz y la lingua characterica," *Diánoia. Anuario de Filosofía* 45: 35-63 (1999).

16. Hintikka Jaakko, "Frege's hidden semantics," *Revue Internationale de Philosophie* 33: 716-722 (1979).

"From my observations, several corollaries follow for the recent discussions concerning Frege in the literature.

For instance, the truly interesting historical problem is not to find anticipations of Frege on sense and reference in earlier philosophers or, more generally, to study Frege's theory in its relation to his predecessors. The fascinating novelty which I for one would very much like to understand better is how Frege came upon his ideas about extensional logic, ideas which were radically different from the great majority of traditional philosophers. Furthermore, the deep objects of comparison and contrast in twentieth-century philosophy are not later theories of senses (or their partial dispensability as in Kripke) or other theories of intensional contexts but those recent findings which challenge Frege's treatment of first-order logic.

Among these targets of challenge, the most important ones are probably the paucity of Frege's ontology (set of categories represented by his primitive symbols), the so-called Frege principle (1), and the Frege-Russell claim that ordinary-language words like the English "is" and the German "ist" are ambiguous between the "is" of existence, identity, predication, and subsumption (2). In some ways, the true import of Frege's tacit first-order semantics is best seen from the criticisms to which these three cornerstones of Frege's semantics have been subjected." p. 722

(1) See here my paper "Theories of Truth and Learnable Languages" (forthcoming). [Stig Kanger and Sven Öhman (eds.) - *Philosophy and grammar: papers on the occasion of the Quincentennial of Uppsala University* - Dordrecht, D. Reidel Publishing Company, 1981 pp. 37-58]

(2) See my paper, "'Is', Semantical Games, and Semantical Relativity." *Journal of Philosophical Logic*. vol. 8 ( 1979), 433-468.

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"Of these essays, 1 and 5 are being published elsewhere at the same time but have not been published before. Essays 2, 4 and 6-8 are published without any changes. For technical reasons, it has not been feasible to make them completely uniform typographically or to bring their references completely up to date. Essay 3, which is the mainstay of the argumentation of this volume, has been revised for republication. In particular, its sections 9 and 12 have been thoroughly rewritten."
23. Hintikka Jaakko. The place of C. S. Peirce in the history of logical theory. In *The rule of reason. The philosophy of Charles Sanders Peirce*. Edited by Brunning Jacqueline and Forster Paul. Toronto: Toronto University Press 1997. pp. 13-33
24. Kluge Eike Henner W., "Frege, Leibniz 'et alii'," *Studia Leibnitiana* 9: 266-274 (1977).  
"Patzig has argued that Frege's use of the phrase 'lingua characterica' constitutes an insufferable pleonasm that no-one with first-hand knowledge of Leibniz's writings would have committed. On this he bases an argument to show that Frege's knowledge of Leibniz was weak and garnered from secondary sources. I show that this claim ignores certain crucial Leibniz quotes by Frege which he could have found only in the Gerhardt edition of Leibniz's mathematical works and his correspondence, and lay the foundation for an analysis of the historical influence of Leibniz on the development of Frege's thought."
25. Kluge Eike Henner W., "Frege, Leibniz and the notion of an ideal language," *Studia Leibnitiana* 12: 140-154 (1980).  
"This paper examines the question, whether and to what degree Leibniz's project of an ideal language -- of a "lingua characterica" which at the same time can also function as a "calculus ratiocinator" -- had an influence on Frege's project of a "Begriffsschrift". It concludes that not only are there sufficient conceptual similarities to warrant an hypothesis of historical connection, but that there are also historical indications in Frege's own writings to that effect."
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"Our task will be to construct portions of a directly depicting language which will enable us to represent the most general structures of reality. We shall draw not on standard logical treatments of the contents of epistemic states as these are customarily conceived in terms of propositions. Rather, we shall turn to a no less venerable but nowadays somewhat neglected tradition of formal ontology: not sentences or propositions, but maps, diagrams or pictures, shall serve as the constituents of our mirror of reality."
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"This paper investigates the role of Edmund Husserl in the development of formal or model-theoretic semantics through glasses of the distinction of language as calculus vs. language as universal medium, introduced by Jaakko Hintikka and Martin Kusch. In particular, the paper raises the question of possible Husserl's influence on the conception of language accepted in Polish philosophy, in particular by Lesniewski and Tarski."

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