

BOOK REVIEWS

The New Logic of William van Orman Quine and Its Significance for the Development of Logic in Brazil

WILLARD VAN ORMAN QUINE, **The Significance of the New Logic**, edited and translated by Walter Carnielli, Frederique Janssen-Lauret and William Pickering, Cambridge Univ. Press, 2018, 224 pages, Online ISBN: 9781316831809. DOI: [10.1017/9781316831809](https://doi.org/10.1017/9781316831809)

W.V.O. Quine was one of the most influential figures of twentieth-century American analytic philosophy, philosophy of science, epistemology and logic. In his work, the study of many long standing philosophical problems is tackled by careful analyses of the language in which science is stated. The following (abridged) quotation from [Quine, 1979, pp. 276–277] exemplifies this approach:

The common man's ontology is vague and untidy [...] It is only our somewhat regimented and sophisticated language of science that has evolved in such a way as really to raise ontological questions. It is an object-oriented idiom. [...] The basic structure of the language of science has been isolated and schematized in a familiar form. It is the predicate calculus: the logic of quantification and truth functions.

Quine remained committed to this approach throughout his long and productive career, where (formal) science is seen as *an inclusive theory of the world, regimented in the framework of predicate logic* [see Quine, 1981, pp. 473–474].

However, the aforementioned approach begs the question: What exactly does Quine mean by “predicate logic” or “predicate calculus”?

After all, the 20th century saw a proliferation of alternative systems of symbolic logic. Quine used his analytical approach to philosophy in many published books and articles; however, he provided only a few comprehensive accounts of “predicate logic”, most importantly, [Quine \[1940, 1959\]](#) and *The Significance of the New Logic*, the object of this review.

Quine’s books on symbolic logic can still be used as good introductions to the subject, even though many alternative compendia are now available in the market, many of them offering more comprehensive and contemporary presentations. Nevertheless, a scholar interested in Quine’s work will always have the need to know in detail Quine’s perspective on “predicate logic” and, for that purpose alone, Quine’s books on symbolic logic are irreplaceable. Moreover, for this specific purpose, I find *The Significance of the New Logic* the best available option. It has a concise and direct style of presentation, focusing on the topics most relevant for the study of Quine’s philosophical works. Furthermore, this book has many interesting observations throughout the text linking specific mathematical topics to his philosophical ideas.

As a bonus, the book includes a 34-page essay by Frederique Janssen-Lauret, entitled “Willard Van Orman Quine’s Philosophical Development in the 1930s and 1940s”. This essay gives a fresh and insightful discussion of the early development of Quine’s philosophy. Furthermore, this essay is a helpful aid in mapping the aforementioned links between Quine’s specific formulation of predicate logic, as rendered in *The Significance of the New Logic*, and his ideas on epistemology and ontology. For example, Janssen-Lauret scrutinizes Quine’s evolving positions on the topics of analytic-synthetic dualism (p. xiv), nominalism (p. xxvii), confirmational holism (or reliance on a “network of observations”, p. xxix), and criteria of identity (p. xxx). Quine’s perspectives on these topics are of vivid contemporary interest, directly influencing areas far beyond the traditional domains of mathematical logic and analytical philosophy: for illustrative examples in statistical inference see [\[Sober, 2004\]](#) and [\[Stern, 2015\]](#), for applications in computational ontology and information science see [\[Floridi, 2004\]](#) and [\[Smith, 2014\]](#), for broad historical views see [\[Chalmers et al., 2009\]](#) and [\[Janssen-Lauret and Kemp, 2015\]](#).

Already in the faculty at Harvard, and serving as a naval intelligence officer in Washington D.C., Quine visited Brazil from May to September 1942 in a mission for the OCIAA, the Office of the Coordinator of Inter-American Affairs. During this visit, Quine taught at the Free School of Sociology and Politics of São Paulo, where he prepared a draft and

a corrected version of *O Sentido da Nova Lógica* as the textbook for his lectures. Still in 1942, at the United States-Brazil Cultural Union in São Paulo, he delivered the public lecture *The United States and the Revival of Logic*, also included in the English edition of the book. Quine's activities in São Paulo effectively inaugurate the study of modern logic in Brazil, stirring up the interest on contemporary topics of mathematical logic and analytic philosophy.

The Significance of the New Logic includes original research topics in mathematical logic, most noticeably a novel theory of quantification, reference and term interchangeability for sentences involving modal logic operators like necessity and possibility. One year after writing the corresponding sections of the book, Quine published them as an independent article with the title "Notes on existence and necessity" [Quine, 1943] and [Quine, 1997, pp. 5–6]. In this way, Quine helped to introduce in Brazil the interest in non-classical logics, notwithstanding his notorious criticisms against heterodox logics [see Quine, 1986, ch. 6, pp. 80–81].

It is hard to over-estimate the historical importance Quine's efforts in Brazil. Only a few years later, the first generation of Brazilian logicians would start working by their own, though still strongly influenced by *O Sentido* [see Gomes and D'Ottaviano, 2016]. Among those, Newton Carneiro Affonso da Costa was a pioneer in the development of paraconsistent and other non-classical logics. Today, second- and third-generation students have a prominent role in the continuing progress of a well-established research area in symbolic and philosophical logic.

In [Quine, 1997, pp. 7 and 8], the author remarks:

I saw *O Sentido* not only as a way of planting something in Brazil that might grow, but also as my farewell to philosophy and abstract science for the foreseeable future in any language [...] so as to turn [afterwards] single-mindedly to my war work. [...] Professor [Newton] da Costa, Brazil's most eminent logician down the years wrote me that *O Sentido* was what inducted him to the profession. [...] It is a glorious fulfillment.

Quine wrote *O Sentido da Nova Lógica* directly in Brazilian Portuguese, a language he knew remarkably well, and the book has been previously translated into Spanish [see Quine et al., 1957]. Either as a stand-alone introduction to symbolic logic or as a companion to Quine's works in analytical philosophy, epistemology and philosophy of science, the translation of *The Significance of the New Logic* to the English language is most welcome, and long overdue.

References

- Chalmers, D. J., D. Manley and R. Wasserman, 2009, *Metametaphysics*, Oxford University Press.
- Floridi, L. (ed.), 2004, *Blackwell Guide to the Philosophy of Computing and Information* (pp. 155–166), Oxford: Blackwell. DOI: [0.1002/9780470757017](https://doi.org/0.1002/9780470757017)
- Gomes, E. L., and I. M. L. D’Ottaviano, 2016, “Newton da Costa: O Homen, o Lógico e o Filósofo”, *Educação e Filosofia* 30 (60): 533–546.
- Janssen-Lauret, F., and G. Kemp (eds.), 2015, *Quine and his Place in History*, Basingstoke: Palgrave Macmillan. DOI: [10.1057/9781137472519](https://doi.org/10.1057/9781137472519)
- Quine, W. v. O., 1940, *Mathematical Logic*, NY: Norton.
- Quine, W. v. O., 1943, “Notes on existence and necessity”, *Journal of Philosophy* 40: 113–127.
- Quine, W. v. O., 1944, *O Sentido da Nova Lógica*, São Paulo: Livraria Martins Editora. Reprinted in 1996 by Editora da Universidade Federal do Paraná with a preface by Newton da Costa.
- Quine, W. v. O., J. J. Goldenberg and M. Bunge, 1957, *El Sentido de la Nueva Lógica*, Buenos Aires: Nueva Vision.
- Quine, W. v. O., 1959, *Methods of Logic*, revised edition, NY: Henry Holt.
- Quine, W. v. O., 1970, 1986, *Philosophy of Logic*, 2nd ed., Cambridge: Harvard University Press.
- Quine, W. v. O., 1979, “Facts of the matter”, in *Essays on the Philosophy of W. V. Quine*, edited by Robert Shahan and Chris Swoyer. Reprinted in W. v. O. Quine, *Confessions of a Confirmed Extensionalist and Other Essays*, edited by D. Follesdal and D. B. Quine, Cambridge: Harvard University Press, 2008.
- Quine, W. v. O., 1981, “Reply to Stroud”, *Midwest Studies in Philosophy* 6 (1): 473–476.
- Quine, W. v. O., 1997, “Mission to Brazil”, *Logique et Analyse* 157: 5–8. Also reprinted in W. v. O. Quine, *The Time of My Life: An Autobiography*, Cambridge: MIT Press, 2000.
- Sober, E., 2004, “Likelihood, model selection, and the Duhem-Quine problem”, *Journal of Philosophy* 101 (5): 221–241. DOI: [10.5840/jphil12004101515](https://doi.org/10.5840/jphil12004101515)
- Smith, B., 2014, “The relevance of philosophical ontology to information and computer science”, pages 75–83 in R. Hagengruber and U. Riss (eds.), *Philosophy, Computing and Information Science*, London: Pickering and Chatto.
- Stern, J. M., 2015, “Cognitive-constructivism, Quine, dogmas of empiricism, and Muenchhausen’s trilemma”, *Springer Proceedings in Mathematics and Statistics* 118 (5): 55–68.

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