

The Conceptual Realism of Nino Cocchiarella

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Annotated Bibliography of Nino Cocchiarella

I wish to thank Professor Cocchiarella for helping me to complete this bibliography.

INTRODUCTION

"Research Profile: Cocchiarella proved the first completeness theorems in tense logic and second-order modal logic. He was the first to develop several second-order logics with nominalized predicates as abstract singular terms and then to use those systems in a consistent logical reconstruction of both Frege's and Russell's early logics and in the application of those reconstructions to the semantic analysis of natural language. This work also led to Cocchiarella's development of formal theories of predication and comparative formal ontology, including especially logical reconstructions of nominalism, conceptualism, logical realism, and the logic of natural kinds. Cocchiarella also showed how logical atomism is compatible with logical necessity as a modality, and that it is the only ontology in which logical necessity, as opposed to other kinds of modalities, makes sense. Cocchiarella's own preferred ontological framework is conceptual realism, which he has been formally developing for many years, and which contains a logic of both actualism and possibilism in terms of a distinction between concepts that entail concrete existence and those that do not. It also contains a logic of classes as many as plural objects, which is the basis of Cocchiarella's semantics for plurals and mass nouns in natural language, and in which the Leonard-Goodman calculus of individuals (and therefore Lesniewski's mereology as well) is reducible. Cocchiarella has also shown that Lesniewski's ontology, which is also called a logic of names, is reducible to his theory of reference in conceptual realism, and that the medieval suppositio theories of Ockham, Buridan, and other medieval logicians can be logically reconstructed in terms of this theory of reference. Cocchiarella is currently continuing his work on different subsystems of conceptual realism, including in particular a logic of events as truth-makers.

Teaching: Cocchiarella has taught introductory, intermediate, and advanced courses in logic, semantics, set theory and Montague Grammar, as well as seminars on some of the most recent areas of research in logic. He has placed an emphasis in his teaching on the logical analysis of natural language and the ontological interpretations of both scientific and mathematical language.

Vision Statement: Cocchiarella sees logic as a powerful tool for the analysis of our scientific theories and the structures that underlie natural language and our commonsense understanding of the world. The study of logical categories in particular provides an important way to study the semantic and ontological categories underlying our scientific and commonsense world views."

From: Dov M. Gabbay & Joh Woods, eds. - *The International Directory of Logicians. Who's Who in Logic* - LKondon, College Publications, 2009 pp. 52-53

"Conceptual realism, as opposed to conceptualism *simpliciter*, does provide the general framework of a formal ontology that can accommodate both a natural realism and an intensional realism, as in *conceptual natural realism* and *conceptual Platonism* -- or, instead of conceptual Platonism, as in *conceptual intensional realism*, where abstract objects are intensional objects that come about as products of cultural evolution. But the

representation of the different ontological categories by logico-grammatical categories is not given in the direct and simple way in conceptual realism as it is in logical realism or nominalism. Instead, conceptual realism must represent the different formal modes of being in an indirect way. It is the explanation of this indirect way that is our primary concern in this essay."

From: Nino Cocchiarella - *Conceptual Realism as a Formal Ontology* (1996) p. 4.

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1. "Tense Logic: A Study of Temporal Reference", 1966.
Ph. D. Dissertation, UCLA (1966), Richard Montague, Dissertation Director.
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Co-author Max A. Freund.

PUBLICATIONS AVAILABLE ON LINE (PDF)

[Conceptual Realism as a Formal Ontology](#) - in: Roberto Poli & Peter Simons (eds.) "Formal Ontology" - Kluwer, Dordrecht/Boston/London 1996) pp. 27-60 - Nijhoff International Philosophy Series. vol. 53. (256 KB) - This essay is reproduced with the kind authorization of Kluwer Academic Publishers

[Logic and Ontology](#) - in: Axiomathes vol. 12, (2001) pp. 117-150 (Italian translation by Flavia Marcacci, revised by Gianfranco Basti: "[Logica e ontologia](#)" *Aquinas.Rivista Internazionale di Filosofia* 52: 7-50 (2009).

I am grateful to Professor Nino Cocchiarella, Dr. Woosuk Park (editor of the Korean Journal of Logic) and to Professor Inkyo Chung, President of Korean Association of Logic for the permission to publish to following essay:

- [Logical necessity based on Carnap's criterion of adequacy](#) - Korean Journal of Logic - vol. 5 n. 2 (2002) - pp. 1-21

The following papers are posted with the kind permission of Professor Nino Cocchiarella:

- [Conceptual Realism and the Nexus of Predication](#) - *Metalogicon* 16, 2, 2003, pp. 45-70.
- [Denoting concepts. reference, and the logic of names, classes as many, groups and plurals](#) - *Linguistics and Philosophy* 28, 2, 2005, pp. 135-179
- [Deontic logic](#) - Unpublished notes based on a course given on modal logic in the late 1960s at the State University of California at San Francisco
- [Gustav Bergmann on Ideal Languages](#) - Unpublished lecture presented at Indiana University at the *Gustav Bergmann Memorial Conference* (October 30-21, 1992)
- [Some Remarks on Stoic Logic](#)

- [Diodorus's Master Argument](#)

The last two papers were written at request of Professor [Giuseppe Addona](#), of the Liceo ginnasio fo Benevento (Italy) for his Italian students and can also be found (with an Italian translation) on his web site.

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2. *Fregean semantics for a realist ontology*. Notre Dame Journal of Formal Logic 15, no. 4 (1974), 552-568.
3. *The theory of homogeneous simple types as a second-order logic*. Notre Dame Journal of Formal Logic 20, no. 3 (1979), 505-524.
4. *Nominalism and conceptualism as predicative second-order theories of predication*. Notre Dame Journal Formal Logic 21, no. 3 (1980), 481-500.
5. *Two lambda-extensions of the theory of homogeneous simple types as a second-order logic*. Notre Dame Journal of Formal Logic 26, no. 4 (1985), 377-407.
6. Book Review: *Stewart Shapiro. Foundations with foundationalism*. Notre Dame Journal of Formal Logic 34, no. 3 (1993), 453-468.

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Tense Logic: A Study of Temporal Reference (VI, 251 pages) Ph. D. Dissertation, University of California - Los Angeles, January 7, 1966). Committee in charge: Richard Montague, Charmain, Alfred Horn, Donald Kalish, Abraham Robinson, Robert Stockwell.

ABSTRACT: This work is concerned with the logical analysis of topological or non-metrical temporal reference. The specific problem with which it successfully deals is a precise formalization of (first-order) quantificational tense logic wherein both an appropriate formal semantics is developed and a meta-mathematically consistent and complete axiomatization for that semantics given. The formalization of quantificational tense logic herein presented adheres to all the canons of logical rigor by being carried out entirely as a definitional extension of (Zermelo-Fraenkel) set theory. Model-theoretical techniques are utilized in the semantics given and the notion of a history is formally developed as the tense-logical analogue of the notion of a model for standard first-order logic with identity. Corresponding to the key semantical concept of satisfaction (and consequently of truth) in a model, by means of which the central standard notion of logical truth is defined, the notion of satisfaction (and consequently of truth) in a history at a given moment of that history is developed, from which development, in turn, the central notion of tense-logical truth is defined. An axiomatic characterization of derivability within tense logic, or t-derivability, is then presented and proved to be both consistent and complete, i.e., it is shown that an arbitrary tensed formula is tense-logically true if and only if it is t-derivable from zero premises, i.e., if and only if it is a theorem of the given axiomatic system. Quantification within tense logic introduces issues in no manner confronted on the sentential level. Recognition is made that quantification over objects existing prior to the time of assertion is to be distinguished from quantification over objects existing at the time of assertion, both of which in turn are to be distinguished from quantifying over objects existing at the time of assertion. Such distinct kinds of quantification are readily distinguishable within tense logic by means of incorporation of what is here called the logic of actual and possible objects. Precise semantical and syntactical formalization of this double quantification is presented prior to its use within tense logic, and completeness theorems are given for both the full system, and the restricted logic of actual objects, the latter of which may separately be taken as a formalization of a logic which can accommodate denotationless names. These several kinds of quantificational logic lead to separate completeness theorems stated and established for tense logic,

depending on the several kinds of quantificational bases possible for this logic.

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This book deals with the development of analytic philosophy in the first quarter of the 20th century, giving both historical analyses and logical reconstructions of the logical doctrines involved in Russell's theory of types, Frege's and Russell's forms of logicism, Wittgenstein's and Russell's forms of logical atomism, and Meinong's and Russell's (pre-1905) logics of nonexistence. The text serves as a useful propaedeutic to much of the research now going on in the study of logic and language.

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Formal Ontology and Conceptual Realism, New York, Springer, 2007.

Theories about the ontological structure of the world have generally been described in informal, intuitive terms, and the arguments for and against them, including their consistency and adequacy as explanatory frameworks, have generally been given in even more informal terms. The goal of formal ontology is to correct for these deficiencies. By formally reconstructing an intuitive, informal ontological scheme as a formal ontology we can better determine the consistency and adequacy of that scheme; and then by comparing different reconstructed schemes with one another we can better evaluate the arguments for and against them and come to a decision as to which system it is best to adopt.

This book is divided into two parts. The first part is on formal ontology and how different informal ontological systems can be formally developed and compared with one another. The main point is that a formal ontology connects logical categories -- especially the categories involved in predication -- with ontological categories.

The second part of this book is on the formal construction and defense of a particular formal ontology called conceptual realism, which is based on a unified account of general and singular reference in a conceptualist theory of predication. An intensional logic based on deactivated (nominalized) referential and predicable concepts is part of this ontology as well as an analysis of plural reference and predication in terms of a logic of classes as many. A natural realism and an Aristotelian essentialism based on a logic of natural kinds is also part of the framework, which is put forward here as the best formal ontology to adopt.

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Modal logic. An introduction to its syntax and semantics , co-author Max A. Freund, New York, Oxford University Press, 2008.

Modal logic is a systematic development of the logic of the various notions that are expressed in natural language by modal words and phrases. In this text we will limit our study to the logic of necessity and possibility, which we take to be logically dual to one another and therefore definable in terms of one another. These notions are represented in natural language by sentential adverbs -- that is, adverbs, such as necessarily and possibly, or it is necessary that and it is possible that. These adverbs modify whole sentences or sentential clauses with the result being a sentence or sentential clause. We do not assume that there is but one notion of necessity (or, dually, of possibility). In fact, we maintain that there are potentially infinitely many different notions of necessity and possibility., each of which can be expressed in natural language, and each of which has its own logic -- though some may have a logic equipollent to one another. We shall attempt to explain this claim by formally developing the logic of a variety of modal notions.

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We develop a second order logical system with ramified lambda operators, having ramified

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Finally, we construct a non-standard second order semantics and prove a completeness theorem with respect to a notion of validity, provided by the semantics, and certain extensions of the second order system.

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