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BOOK REVIEW

Review of Ryan Nefdt's *Language, Science and Structure: A Journey into the Philosophy of Linguistics*

Ryan Nefdt, *Language, Science and Structure: A Journey into the Philosophy of Linguistics*. Oxford: Oxford University Press (2023), 256 pp. £54.00 (hardcover).

Nefdt's book *Language, Science and Structure: A Journey into the Philosophy of Linguistics* fills a gap in the literature by discussing linguistics in the context of debates concerning the validity of structural realism. It also attempts to reconceptualize the ontological foundations of linguistics in a more unified fashion whilst suggesting ways that the field can integrate or synthesize with sister domains in the cognitive sciences. The book is organized around eight related theses ("central insights") informed by findings in linguistics and the philosophy of science.

Chapter 1 begins by distinguishing between philosophy of language and philosophy of linguistics and their interrelations. Philosophy of language refers to a field of study within analytic philosophy that is closely connected with semantics and pragmatics of natural language. Philosophy of linguistics is concerned with the philosophical study of linguistic theories. Nefdt emphasizes that the book is more concerned with the latter. The reader is introduced to several overarching philosophical concepts and/or distinctions that constitute the backdrop of many discussions in linguistics: universal grammar, syntactic autonomy, innateness, the competence-performance distinction, and generative versus cognitive linguistics. The main purpose of the book is to relate philosophical issues linguists are typically familiar with to issues in philosophy of science (structuralism in mathematics, antirealism, pessimistic metainduction, among others).

Chapter 2 deals with the ontology of language. Together with an overview of various positions on the topic from linguists and philosophers, with an emphasis on Platonism (Katz and Fodor), internalism (Chomsky), externalism (Devitt), and inferentialism (Peregrin). Nefdt discusses the relationship between internalism and externalism in relation to different empirical approaches in linguistics. On the internalism/mentalism side, the basic tenets of generative grammar are discussed. On the externalism, inferentialism, and public language side, (Labovian) sociolinguistics is discussed. After counterposing these perspectives, the author argues against an object-oriented ontology. An object-oriented ontology of language would assume that distinct languages are ontologically independent of one another. This point seems to synergize with the defense of a structural realist position for linguistics that Nefdt provides in later chapters.

As for linguistics, the discussion is somewhat subtle. While there may be some sense in which philosophers or linguists have appeared to advocate an object-oriented ontology for language, there appear to be no schools of empirical linguists that meaningfully follow through with the idea to its full implications. Generative linguists do seem to presume discrete language divisions by modeling particular distinct grammars as sets of sentences, but it is less clear that they adopt an object-oriented ontology when the resulting grammars are related to an initial state of universal grammar. Nefdt's discussion, therefore, reads as a critique of certain (presupposed?) trends in the philosophy of language and its relevance to linguistics is unclear.

Chapter 3 continues the discussion of ontological commitments regarding language in relation to many authors (Rey, Lewis, Santana, Hacker, Postal), but focuses on the tension between abstract formal (mental) accounts of language and language as a social phenomenon. The tension is referred to as the "dual nature thesis." The main point that Nefdt emphasizes is that linguists tend to resolve this tension by discarding ontological parsimony in favor of pluralism, or else by positing a problematic type-token distinction. Nefdt claims that the tension can be better resolved by using the "resources of philosophy of science," particularly a modified version of Dennett's (1991) notion of "real pattern." Following Dennett, a real pattern is one that involves data compression—a recoding of the data that is simpler and more abstract (Millhouse 2019).

It is this position—languages are "nonredundant real patterns"—that Nefdt is concerned with fleshing out in Chapter 4. The argument opens by (re)contextualizing Chomsky's views on naturalism in relation to the literature on ontological and methodological naturalism more broadly. While Chomsky has been a fierce advocate of naturalism, the fact that there are different versions of naturalism flies below the radar in his discussions. Nefdt, in contrast, is more explicit about the problems with different forms of naturalism and attempts to chart a course between "extreme naturalism," which claims (roughly) that all hypotheses in linguistics should unify with claims in physics and a "lazy naturalism" that assumes that claims in linguistics need only be compatible with claims in any other field considered scientific by its practitioners. He introduces the schema for his "moderate naturalism" that requires that a linguistic posit not contradict physics and be explainable in terms of an "appropriate scientific field" related to that posit. This discussion nestles in a more serious critique of pluralism in the context of the special sciences because pluralism "requires so many sources of confirmation and falsification without any clear guidelines on how to achieve this task or a ranking between them" (55).

Chapter 5 is an ambitious attempt to reconstitute the "biolinguistic turn" in mainstream (Chomskyan) generative linguistics in terms of the actual practice of current biology, specifically with respect to systems biology. This stance seems to flow naturally from taking naturalism seriously. Current biolinguistics is, on the author's account, dominated by a perspective that focuses on individuals decontextualized from their speech community. Against this perspective, Nefdt suggests that meanings, linguistic relations, individuals, and speech communities can be conceptualized and perhaps modeled as complex dynamic systems that can be analyzed at different scales. The basic idea can be illustrated with the immune system, which Nefdt notes has recently been contextualized within a systems biology

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approach. Note that Chomsky often evokes the digestive system, the immune system, inter alia, to justify *decontextualizing* linguistic phenomena from their environment (e.g., Chomsky 2012).

Chapter 6 contextualizes literature on the metaphysics of words with respect to the linguistics literature. Nefdt points out that in contrast to many approaches in the philosophy of language, linguistics treats words as positions on a structural continuum where their primary ontological status is determined by the roles they play in linguistic structures. It seems that the primary audience for this discussion is philosophers of language, and the message is that discussions of metaphysics should be informed by linguistics. The author does not seem to say anything that would be controversial in linguistics as it is generally assumed that "words" in their different facets (morphosyntactic, phonological, lexemic) are regarded as pieces in a structural whole defined, at least partially, by their relations in a (morpho)syntactic or phonological structure.

Chapter 7 defends a structural realist approach to linguistics. The author focuses on how structural realism deals with the pessimistic meta-induction (PMI): "If all (most) scientific theories have been shown to be false, then what reason do we have to believe in the truth of current theories" (118)? At face value the trajectory of generative linguistics seems to provide support for a PMI stance for two reasons. There have been rapid and iterated overhauls of mainstream (Chomskyan) generative linguistics since its inception (e.g., standard theory, extended standard theory, government and binding, minimalism). Also, the approach has fractured into several competing frameworks (head-drive phrase structure grammar, lexical functional grammar) that reject many of Chomsky's original insights (e.g., transformations, syntactico-centrism) (see Newmeyer 1986 for relevant history; Müller 2023 for a contemporary survey). Nefdt suggests that there is an invariant structural core that remains stable across the overhauls and fractures in linguistic theory and points to graph theory and group theory as tools for discovering such invariance. In keeping with the general structural realist line, the invariance is in structural positions and graph-structural nodes.

While the discussion provides an impressive ecumenical synthesis of the competing formalisms, it is hard to track how it relates to the PMI. The reason is that the PMI is concerned with empirically contentful theories (e.g., binding theory, lexical integrity), but the discussion focuses mostly on abstract formalisms. Addressing the PMI requires some account of what it means for a theory to be shown to be false, but hypothesis-testing is not discussed. It remains unclear how the formal unity underlying different generative theories translates to empirical success over time: Nothing in terms of the empirical content of generative theories follows from positing a graph structure and positions alone. This hints at a reoccurring debate in structural realism concerning the potential necessity to include *some* objects in any account of theory change (French 2006).

Chapter 8 is concerned with discussing in what sense language is a complex system. It does this, in first place, by summarizing different architectures for a variety of syntactic theories in flow charts, and in the second place by explaining why current approaches to semantics are broadly compatible with a structural realist account. Chapter 9 explores the possibility of intersection if not unification between philosophy, artificial intelligence, anthropology, psychology, neuroscience, and

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linguistics. A brief history of linguistics and its relationship to adjacent fields is provided. Against methodologically isolationist tendencies in linguistics, Nefdt suggests that formal similarities between linguistics and neuroscience in their use of graph-theoretical devices for tracking real patterns provide opportunities for unification. Also, taking the lead from the way network analyses are used in neuroscience, linguists could use competing formal accounts to search for invariant structures. This is an interesting suggestion as it implies that typical modes of argumentation in the field ("my formalism is better than yours") might be counterproductive.

Chapter 10 reiterates the main theses of the book that the author summarizes into eight "central insights," all the focuses of each chapters. Overall, Nefdt's book is an impressive tour de force, which will hopefully stimulate more interest in linguistics from philosophers of science. From a linguistic perspective, the book offers some conciliation against the apparent chaos of competing formalisms, but, more importantly, the reconceptualization of the subject matter could inform novel, and less isolationist, research programs in the field.

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