

Harold W. Noonan

Frege: A Critical Introduction.

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This is an excellent introduction to Frege for intermediate (upper division) students, and nicely complements J. Salerno's introduction for beginning (lower division) students (*On Frege* [Wadsworth 2000]). Unlike A. Kenny's book (*Frege* [Blackwell 1995/2000]), which focuses chronologically on the sequence of Frege's works, Noonan's organization, like J. Weiner's short introduction (*Frege* [Oxford 1999]), is topical (though it is interesting how parallel the two distinctive approaches actually are). There is much to admire and agree with in this book, and some to disagree with.

Chapter 1. Life and Works Introduces the reader to Frege's life and puts his contributions to philosophy — as grouped under four categories: logic, philosophy of mathematics, philosophical logic, and theory of meaning — into historical perspective. Importantly, he puts Frege's logicism in the context of the previous 'arithmetization of analysis' and Kant's synthetic a priori conception of mathematics (arithmetic and geometry). This allows Noonan to relate Frege's project of a 'gapless' formalization of mathematical reasoning not just to gaps filled with intuitive logical inferences, but to gaps filled with (Kantian) mathematical intuitions. He also relates Frege's use of 'Hume's Principle' to current attempts (Hale, Wright) to revive logicism without the troublesome Basic Law V. This could stand as a chapter-length introduction to main points in Frege's philosophy.

Chapter 2. Logic Reminds us of what logic was like before Frege's (1879) *Concept Notation* (CN), basically the algebraic logic of Boole which allowed an interpretation in the Aristotelian logic of terms or the Stoic logic of propositions (but not both), and which had serious inadequacies, the most famous of which was dealing with sentences containing multiple generality. Noonan then surveys the main contributions of CN to logic, locating 'the fundamental innovation' in Frege's replacement of subject-predicate analysis with function-argument analysis, clearing the way for his celebrated theory of quantification and its application to multiple generality. Other important features of CN include: distinguishing judgment from content (Geach's 'Frege Point'), conceptual content, and the metalinguistic analysis of identity. He ends by noting four doctrines that will change in Frege's mature logicism after the introduction of the sense-reference distinction in 1891.

Chapter 3. Number Takes the reader through Frege's 'masterpiece' *The Foundations of Arithmetic* (FA), first assessing Frege's aims in FA (Introduction), then rehearsing Frege's discussion of earlier writers, such as Mill, Kant and Leibniz on the nature of mathematical propositions (Part I), and the concept of number (Part II). Then Frege's analysis of unity and one, and his own conception of number (Parts III, IV) are laid out. The chapter ends with the collapse of the FA program in Russell's paradox; there is no separate

discussion of *Basic Laws of Arithmetic*. This is the second longest and in some ways most substantial chapter in the book, and makes an excellent companion to FA.

Chapter 4. Philosophical Logic First reviews the foundational ideas in Frege's important but somewhat neglected paper 'Function and Concept' (1891), concentrating on Frege's functional theory of predication: predicates ('concept words') refer to concepts which are functions from objects to truth values, and how Frege got there by extending the mathematical notion in its domain, range, and field of operations. The standard apparatus of logic can then be stated uniformly in terms of the application of functions to arguments. Two topics would require more discussion: (i) the idea of a function name as the common 'unquotable' pattern of structured value names (138-52). Current linguistic theory takes most of the wind out of his argument for this. (ii) The diagnosis of Frege's 'implausible conclusion that sentences containing empty singular terms must be truth-valueless' (159). Second, it reviews 'On Concept and Object' (1892), where Frege defends the notorious position that concepts can never be objects, referred to by singular terms. In the phrase 'the concept: *horse*' the definite article indicates reference to an object standing proxy for the concept of being a horse. Noonan suggests that this object is the extension of the concept, and returns to the idea (see above) that reference is connected to substitution *salva veritate* by 'quotable expression' which names of concepts (functions) are not. Noonan (following Dummett and Geach) imagines this problem to be illuminated by appeal to Wittgenstein's doctrine of saying vs. showing.

Chapter 5. Theory of Meaning Noonan begins by reconstructing (three times!) Frege's celebrated 'informativeness of identity' argument for sense from the beginning of 'On Sense and Reference' (1892), and goes on to explicate sense as 'thinking of an object as the unique one satisfying a certain condition' (178-9). Although Noonan takes sense as 'a cognitive notion' (178), it is arguable that only grasping a sense is cognitive, and that the sense grasped *qua* condition on reference is mind independent (see below). Noonan insists that these conditions can be non-descriptive (though he does not elaborate) and he returns to Frege's 'untenable position on empty names' (182) viz. that they contribute sense but not reference to their containing sentences, depriving those sentences of a truth value. Again, he does not say what is untenable about it. Frege's doctrine of indirect reference, that in certain 'indirect' linguistic contexts expressions have their customary sense as their ('indirect') reference, is developed off of an 'equivalent formulation' of the first argument for sense (above) in terms of substitution into opaque contexts, yet there is an important difference; the problem of the informativeness of identities arises with purely extensional languages. Next, Frege is said to 'explicitly commit himself' to an 'infinite hierarchy of indirect references' (190), though no citation is given, and even so, it is not clear why such indirect (sense and) reference cannot be computed only in context as compositionality requires, rather than ascribed to expressions *simpliciter*. However, Noonan prefers to block the hierarchy at the second step — no

distinct doubly indirect references. Frege's doctrine of the objectivity of sense (vs. the subjectivity of 'ideas') and the doctrine that grasping a sense is psychological ('The thought', 1918), are both found wanting: 'thoughts as mind-independent ... explains nothing' (197). But it would help to explain something Frege insists on, that 'mankind has a common store of thoughts which can be transmitted from one generation to another' (193). Also 'Frege provides no account of what grasping a thought is' (197), which is true, though Noonan does not point the reader in the direction Frege went with his analogy between grasping a thought and visual perception ('The Thought'). Noonan ends this topic with the well known problem of indexical thoughts, especially I-thoughts, for Frege's theory. He favors the view (from Dummett) that I-thoughts are private in the sense that 'only their subject can think them; but other people can know precisely what she is thinking when she does so ...' (202). In effect this locates the problem more in the grasping relation than in the thought grasped. The final topic consists of the (failed, in Noonan's opinion) challenges posed to sense by Russell and Kripke. Although Russell's theory of descriptions introduces the needed notion of scope, it offers an account of the informativeness of identities by 'smuggling in (under the title of "propositional functions") a notion in crucial respects akin to Fregean sense' (213). And although Kripke 'teaches us the importance of the social dimension of language and the crucial role of deferential intentions in determining reference' (230), his criticisms also fail. Assessment of these points would take another review.

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