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# GOTTLOB FREGE

Critical Assessments of  
Leading Philosophers

*Edited by*  
*Michael Beaney and*  
*Erich H. Reck*

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**Frege's philosophy in context**

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Wolfgang Carl, 'Frege – A Platonist or a Neo-Kantian?', in A. Newen, U. Nortmann and R. Stuhlmann-Laeisz (eds), *Building on Frege: New Essays on Sense, Content, and Concept*, Stanford: CSLI Publications, 2001, pp. 3–18. Reprinted with permission from CSLI Publications. © 2001 by CSLI Publications, Stanford University, Stanford, CA 94305-4115.



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1986	Thomas G. Ricketts	Objectivity and objecthood: Frege's metaphysics of judgment	L. Haaparanta and J. Hintikka (eds), <i>Frege Synthesized</i> , Dordrecht: Reidel, pp. 65–95.	I	14
1986	Thomas G. Ricketts	Generality, meaning, and sense in Frege	<i>Pacific Philosophical Quarterly</i> 67: 172–195.	IV	50
1987	George Boolos	The consistency of Frege's <i>Foundations of Arithmetic</i>	Judith Jarvis Thomson (ed.), <i>On Being and Saying: Essays in honor of Richard Cartwright</i> , Cambridge, Mass.: MIT Press, pp. 3–20.	III	46
1987	David Bell	Thoughts	<i>The Notre Dame Journal of Formal Logic</i> 28(1) (January): 36–50.	IV	63
1989	Michael Dummett	More about thoughts	<i>The Notre Dame Journal of Formal Logic</i> 30(1): 1–19.	IV	64
1990	Michael Dummett	Thought and perception: the views of two philosophical innovators	D. Bell and N. Cooper (eds), <i>The Analytic Tradition: Meaning, Thought, and Knowledge</i> , Oxford: Blackwell, pp. 83–103.	I	10
1990	Tyler Burge	Frege on sense and linguistic meaning	D. Bell and N. Cooper (eds), <i>The Analytic Tradition: Meaning, Thought, and Knowledge</i> , Oxford: Blackwell, pp. 30–60.	IV	51
1990	David Bell	How 'Russellian' was Frege?	<i>Mind</i> 99 (April): 267–277.	IV	52
1992	Mark Wilson	Frege: the royal road from geometry	<i>Notas</i> 26(2): 149–180.	III	36
1992	William W. Taschek	Frege's puzzle, sense, and information content	<i>Mind</i> 101 (October): 767–791.	IV	59
1993	Richard G. Heck, Jr.	The development of arithmetic in Frege's <i>Grundgesetze der Arithmetik</i>	<i>The Journal of Symbolic Logic</i> 58: 579–601.	III	47
1994	William Demopoulos	Frege and the rigorization of analysis	<i>Journal of Philosophical Logic</i> 23: 225–246.	III	37

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1994	Ian Rumfitt	Frege's theory of predication: an elaboration and defense, with some new applications	<i>The Philosophical Review</i> 103(4): 599–637.	IV	55
1995	Christian Thiel	'Not arbitrarily and out of a craze for novelty': the Begriffsschrift 1879 and 1893	I. Max and W. Stelzner (eds), <i>Logik und Mathematik: Frege-Kolloquium Jena 1993</i> , Berlin: de Gruyter, pp. 20–37, translated by Michael Beaney.	II	19
1995	Jamie Tappenden	Extending knowledge and 'fruitful concepts': Fregean themes in the foundations of mathematics	<i>Notis</i> 29: 427–467.	III	38
1995	Peter Simons	A theory of complex numbers in the spirit of <i>Grundgesetze</i>	I. Max and W. Stelzner (eds), <i>Logik und Mathematik: Frege-Kolloquium Jena 1993</i> , Berlin: de Gruyter, pp. 93–111.	III	41
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1996	Eva Picardi	Frege's anti-psychologism	M. Schirn (ed.), <i>Frege: Importance and Legacy</i> , Berlin: de Gruyter, pp. 307–329.	I	15
1996	Gottfried Gabriel	Frege's 'epistemology in disguise'	M. Schirn (ed.), <i>Frege: Importance and Legacy</i> , Berlin: de Gruyter, pp. 330–346.	I	16
1996	Patricia A. Blanchette	Frege and Hilbert on consistency	<i>Journal of Philosophy</i> 93(7): 317–336.	II	20
1996	Jason Stanley	Truth and Metatheory in Frege	<i>Pacific Philosophical Quarterly</i> 77: 45–70.	II	24
1996	Thomas Ricketts	Logic and Truth in Frege	<i>Proceedings of the Aristotelian Society Supplement</i> 70: 121–140.	II	28
1996	James Levine	Logic and Truth in Frege	<i>Proceedings of the Aristotelian Society Supplement</i> 70: 141–175, revised and shortened by the author.	II	29
1996	Robert Brandom	The significance of complex numbers for Frege's philosophy of mathematics	<i>Proceedings of the Aristotelian Society</i> 94: 293–315.	III	42

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1996	Gary Kemp	Frege's sharpness requirement	<i>The Philosophical Quarterly</i> 46(183): 168–184.	IV	56
1996	Gregory Landini	Decomposition and analysis in Frege's <i>Grundgesetze</i>	<i>History and Philosophy of Logic</i> 17: 121–139.	IV	65
1997	Wolfgang Künne	Propositions in Bolzano and Frege	W. Künne, M. Siebel and M. Textor (eds), <i>Bolzano and Analytic Philosophy</i> , Grazer Philosophische Studien 53, Amsterdam: Rodopi, pp. 203–240.	I	6
1997	Michael Dummett	Comments on Wolfgang Künne's paper	W. Künne, M. Siebel and M. Textor (eds), <i>Bolzano and Analytic Philosophy</i> , Grazer Philosophische Studien 53, Amsterdam: Rodopi, pp. 241–248.	I	7
1997	Erich H. Reck	Frege's influence on Wittgenstein: reversing metaphysics via the context principle	Shortened and revised version of the same in W. W. Tait (ed.), <i>Early Analytic Philosophy: Frege, Russell, Wittgenstein</i> , Chicago: Open Court, pp. 123–185.	I	12
1997	Jamie Tappenden	Metatheory and mathematical practice in Frege	<i>Philosophical Topics</i> 25: 213–264, revised and shortened by the author.	II	27
1997	W. W. Tait	Frege versus Cantor and Dedekind: on the concept of number	W. W. Tait (ed.), <i>Early Analytic Philosophy: Frege, Russell, Wittgenstein</i> , Chicago: Open Court pp. 213–249.	III	39
1997	Thomas Ricketts	Truth-values and courses-of-value in Frege's <i>Grundgesetze</i>	W. W. Tait (ed.), <i>Early Analytic Philosophy: Frege, Russell, Wittgenstein</i> , Chicago: Open Court, pp. 187–211.	III	43
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1998	Tyler Burge	Frege on knowing the foundation	<i>Mind</i> 107 (April): 305–347.	II	32
1998	William Demopoulos	The philosophical basis of our knowledge of number	<i>Notis</i> 32(4): 481–503.	III	44
1998	Crispin Wright	Why Frege does not deserve his grain of salt: a note on the paradox of 'the concept horse' and the ascription of <i>Bedeutungen</i> to predicates	J. Brandl and P. Sullivan (eds), <i>Grazer Philosophische Studien</i> 55, <i>New Essays on the Philosophy of Michael Dummett</i> , Vienna: Rodopi, pp. 239–263.	IV	57
1999	Edward Harcourt	Frege on 'I', 'now', 'today' and some other linguistic devices	<i>Synthese</i> 121: 329–356.	IV	61
2000	Kai F. Wehmeier and Hans-Christoph Schmidt am Busch	The Quest for Frege's <i>Nachlass</i>	Translation of 'Auf der Suche nach Freges Nachlaß', I in G. Gabriel and U. Dathe (eds), <i>Gottlob Frege – Werk und Wirkung</i> , Paderborn: mentis, pp. 267–281, translated by Kai F. Wehmeier.	I	3
2000	Michael Kremer	Judgment and Truth in Frege	<i>Journal of the History of Philosophy</i> 38(4) (October): 549–581.	I	17
2000	Aldo Antonelli and Robert May	Frege's new science	<i>The Notre Dame Journal of Formal Logic</i> 41(3): 242–270.	II	26
2000	Crispin Wright	Neo-Fregean foundations for real analysis: some reflections on Frege's constraint	<i>The Notre Dame Journal of Formal Logic</i> 41(4): 317–334.	III	49
2001	Gottfried Gabriel	Existential and number statements: Herbart and Frege	Translation of 'Existenz- und Zahlaussage. Herbart und Frege', in A. Hoeschen and L. Schneider (eds), <i>Herbarts Kultursystem: Perspektiven der Transdisziplinarität im 19. Jahrhundert</i> , Würzburg: Königshausen and Neumann, pp. 149–162, translated by Christian Kästner.	I	5

CHRONOLOGICAL TABLE

Chronological Table continued

Date	Author	Article/Chapter	Reference	Vol.	Chap.
2001	Wolfgang Carl	Frege – A Platonist or a Neo-Kantian?	A. Newen, U. Nortmann and R. Stuhlmann-Laeisz (eds), <i>Building on Frege: New Essays on Sense, Content, and Concept</i> , Stanford: CSLI Publications, pp. 3–18.	I	18
2001	Warren Goldfarb	Frege's conception of logic	J. Floyd and S. Shieh (eds), <i>Future Pasts: The Analytic Tradition in Twentieth-Century Philosophy</i> , Oxford University Press, pp. 25–41.	II	21
2001	Robin Jeshion	Frege's notions of self-evidence	<i>Mind</i> 110 (October): 937–976.	II	33
2001	Joan Weiner	On Fregean elucidation	Revised version of 'Theory and Elucidation: the end of the Age of Innocence', in J. Floyd and S. Shieh (eds), <i>Future Pasts: The Analytic Tradition in Twentieth-Century Philosophy</i> , New York: Oxford University Press, pp. 43–65.	IV	58
2002	John MacFarlane	Frege, Kant, and the logic in logicism	<i>The Philosophical Review</i> 111(1) (January): 25–65.	I	4
2002	Gottfried Gabriel	Frege, Lotze, and the continental roots of early analytic philosophy	E. Reck (ed.), <i>From Frege to Wittgenstein</i> , New York: Oxford University Press, pp. 39–51.	I	8
2002	Hans Sluga	Frege on the indefinability of Truth	E. Reck (ed.), <i>From Frege to Wittgenstein: Perspectives on Early Analytic Philosophy</i> , Oxford: Oxford University Press, pp. 75–95.	II	30
2002	James Levine	Analysis and decomposition in Frege and Russell	<i>The Philosophical Quarterly</i> 52(207) (April): 195–216.	IV	67
2003	Michael Beaney	Frege, Russell and logicism	Shortened and revised version of 'Russell and Frege', in N. Griffin (ed.), <i>The Cambridge Companion to Bertrand Russell</i> , Cambridge: Cambridge University Press, pp. 128–170.	I	11
2003	Dirk Greimann	Frege's understanding of truth	Translation of 'Freges Grundverständnis von Wahrheit', in D. Greimann (ed.), <i>Das Wahre und das Falsche: Studien zu Freges Auffassung von Wahrheit</i> , Hildesheim: Georg Olms, pp. 59–79, translated by Dirk Greimann.	II	31

CHRONOLOGICAL TABLE

2004	Volker Peckhaus	Calculus ratiocinator versus characteristica universalis? The two traditions in logic, revisited	<i>History and Philosophy of Logic</i> 25 (February): 3–14.	I	9
2004	Jan Woleński	The reception of Frege in Poland	<i>History and Philosophy of Logic</i> 25 (February): 37–51.	I	13
2004	Peter M. Sullivan	Metaperspectives and internalism in Frege	Extracted and revised from 'Frege's Logic', in D. M. Gabbay and J. Woods (eds), <i>Handbook of the History and Philosophy of Logic</i> , Vol. 3, Amsterdam: Elsevier, pp. 671–762.	II	23
2004	Joan Weiner	What was Frege trying to prove? a response to Jeshion	<i>Mind</i> 113 (January): 115–129.	II	34
2004	Robin Jeshion	Frege: evidence for self-evidence	<i>Mind</i> 113 (January): 131–138.	II	35
2005	Christian Thiel and Michael Beaney	Frege's life and work: chronology and bibliography	Published for the first time in this collection.	I	1
2005	Uwe Dathe	Frege in Jena: academic contacts and intellectual influences	Published for the first time in this collection. Translated by Uwe Dathe and Michael Beaney.	I	2
2005	Gordon Baker	Logical operators in <i>Begriffsschrift</i>	Published for the first time in this collection.	II	22
2005	Mark Wilson	Ghost world: a context for Frege's context principle	Published for the first time in this collection.	III	40
2005	Erich H. Reck	Frege's natural numbers: motivations and modifications	Published for the first time in this collection.	III	45
2005	Michael Beaney	<i>Sinn, Bedeutung</i> and the paradox of analysis	Published for the first time in this collection.	IV	62





## PREFACE

In preparing this collection, we have consulted as widely as possible with Frege scholars across the world. The first full draft of the list of contents was drawn up in July 2003 when we met in Erlangen, Germany; we are indebted to Christian Thiel for his help both then and subsequently. We have also benefited from the advice of many of the contributors, who sent us copies of their papers and made suggestions as to what best represented their work. We are particularly grateful to those who made revisions to their original papers, contributed new material or made or checked through translations of their work (in the case of papers originally written in German). Our aim was to produce the definitive collection of papers on Frege, covering all aspects of his philosophy, in the period from 1986 to 2004. Whether or not we have succeeded in doing so, however, we are convinced that it demonstrates the vigour of work in this area and the profound importance of Frege's philosophy.

We would also like to thank the staff at Routledge who have guided the project through its various phases; in particular, to Natalie Foster and to the three Development Editors, Jennifer Lovel, Zoe Botterill and Jessica Spencer, and to the Production Editor, Stephanie Kerrigan. Michael Beaney would like to acknowledge the support provided by the Alexander von Humboldt Foundation and the Institut für Philosophie of the University of Erlangen-Nürnberg during his stay in Germany in the summer of 2003 and the Open University in allowing him periods of research leave at certain key stages. Erich Reck is grateful to the University of California, Riverside, for granting him a term of research leave while working on this project; he is also indebted to Leonard Linsky for awakening his interest in Frege originally, and to Thomas Ricketts for deepening that interest. We would both like to thank Gottfried Gabriel for turning the philosophy department at the University of Jena, Germany, into an inviting place for Frege scholars from around the world and for the help that he has given on this project. Last, but not least, we are grateful to our families, for putting up with email activities out of normal working hours as we endeavoured to communicate across an ocean and a continent.

Michael Beaney and Erich H. Reck  
February 2005



# GENERAL INTRODUCTION

## Principles of selection and organisation

The aim of this collection is to bring together papers that represent the range and richness of the work on Frege that has been undertaken over the last two decades. Interest in Frege's philosophy has blossomed over this period, reflected not only in the large number of papers that are now being published every year in the various journals of philosophy, but also in the extent to which Frege's ideas are core elements in university courses in philosophy in many of its central areas – especially the philosophy of language, logic, mind and mathematics, epistemology, metaphysics and the history of philosophy. The analytic tradition in philosophy has firmly established itself as the central tradition in the English-speaking world, and increasingly across the rest of the world, and Frege's importance as one of its founders is now widely recognised. Frege's ideas have been developed and criticised in many different ways so that Fregean, neo-Fregean and anti-Fregean elements are all part of the complex mix that constitutes modern analytic philosophy – and indeed related traditions such as phenomenology. We have not attempted to do justice to all the twists and turns that have taken place in the reception of Frege's philosophy, since the subject of this collection is Frege's own ideas, but critical assessment of those ideas is very much part of the majority of the papers included.

There have been a number of Frege collections published over the last forty years. The first, and the earliest collection of all, was Klemke 1968 and the second, the first multi-volume collection, was Schirn 1976 (in three volumes). Wright 1984 and Haaparanta and Hintikka 1986 were the two influential collections of the 1980s. Since then, new collections, often on specific aspects of Frege's philosophy, have been appearing regularly: Sluga 1993 (in four volumes), Biro and Kotatko 1995, Demopoulos 1995, Max and Stelzner 1995, Schirn 1996, Gabriel and Kienzler 1997, Gabriel and Dathe 2000, Newen *et al.* 2001 and Greimann 2003b, to mention just those published in either English or German. There have also been special issues of the *Notre Dame Journal of Formal Logic* (1987, 2000), *Mind* (1992) and *Manuscrito* (2003) devoted to Frege, and Dummett (1991b), Boolos (1998, Part II), Hale and Wright (2001) and Burge (2005) have published collections of their own papers on Frege. Collections on early analytic philosophy

## GENERAL INTRODUCTION

more broadly, such as Bell and Cooper 1990, Tait 1997, Floyd and Shieh 2001 and Reck 2002, have also included a number of articles on Frege.

There are excellent papers in all of these collections and our first problem was to decide what policy to adopt in respect of them. Sluga's four-volume collection, *The Philosophy of Frege* (1993), was the obvious point of reference, since it contains many of the classics from earlier years. Because of this, and the astute selection Sluga made, our task became easier, since it freed us to concentrate on more recent articles. Only Ricketts 1986a and Bell 1987, which are in Sluga's collection, are reprinted here (Ricketts 1986a (Chapter 50) for the reason given below and Bell 1987 because of the response it prompted from Dummett, whose 1989 reply is included with it here in Volume IV, Chapters 63 and 64). Sluga's volumes were published in 1993, but they do not in fact contain anything published after January 1988. Much has happened since then and this made it natural to restrict ourselves to material that has appeared later, with just a slight overlap. 1986 was chosen as our starting date. This is still, of course, somewhat arbitrary but it was the year in which two of Thomas Ricketts' papers were published (1986a, 1986b), papers which have provoked much debate in recent years.

This still left the decision as to what to do with respect to later collections, and here we felt free to make selections, although we have tried to minimize overlap where alternatives have been available, on the grounds that articles contained in existing collections were more likely to be known and their value recognised. We have tried to minimise overlap where alternatives have been available, however. The quality and intrinsic interest of the individual papers has been our main criterion, but we have also sought to provide as representative a selection as we can of the wide range of work on Frege that has been done over the last twenty years. This has not been easy. Over 120 articles on Frege have been published in the main philosophy journals. Together with the papers published in the collections already mentioned, along with other collections not specifically devoted to Frege, the number of papers published on Frege over the period rises to over 200. Even with 1,600 pages at our disposal, we have been unable to include all that we would have liked. However, we hope that the selection we have made fulfils our aim of representing the breadth and depth of recent work on Frege.

Most of the articles included here have been published before elsewhere, although in some cases they appear in a shorter and revised form as agreed and edited by the authors themselves. But there are also some papers published here for the first time, developing or drawing on earlier work by the relevant author. One aim has been to make some of the best recent material in the German language known more widely. There has been a flowering of interest in Frege's philosophy throughout the world but, in Germany in particular, there has been concern with the historical roots and context of Frege's work, which have all too often been undervalued by English-

## GENERAL INTRODUCTION

speaking commentators. In the newly commissioned essays by Dathe, and Thiel and Beaney, and in the translations of papers by Gabriel, Greimann, Thiel, and Wehmeier and Schmidt am Busch, we hope that the important contribution and ongoing activities of German scholars will be appreciated more fully.

As far as the organisation of these volumes is concerned, we have sought to reflect the nature and range of current interest in each of the main aspects of Frege's philosophy. In this regard, a comparison with Sluga's collection is instructive. That collection is divided into the following four volumes:

- Volume 1: General assessments and historical accounts of Frege's philosophy
- Volume 2: Logic and foundations of mathematics in Frege's philosophy
- Volume 3: Meaning and ontology in Frege's philosophy
- Volume 4: Sense and reference in Frege's philosophy

While this division reflects accurately the state of play in Frege scholarship prior to 1988, over the last two decades there has been growing interest in Frege's philosophy of logic and mathematics and we felt it necessary to have two volumes here where Sluga had just one. This is not to say that interest in Frege's philosophy of thought and language has diminished; far from it. But Frege's views here are now seen much more as rooted in his philosophy of logic and mathematics, so that investigation of the latter is in fact to deepen our understanding of the former. It is also the case that much current activity in the philosophy of mind and language, while drawing inspiration from Frege's work, either by developing it or reacting against it, has gone beyond Frege in significant ways. Since, as mentioned above, this is a collection of papers on Frege rather than Fregeanism (or neo-Fregeanism or anti-Fregeanism), we have not attempted to do justice to the developments of Frege's work that have occurred over the last twenty years.

We have divided the present collection into the following four volumes:

- Volume I: Frege's philosophy in context
- Volume II: Frege's philosophy of logic
- Volume III: Frege's philosophy of mathematics
- Volume IV: Frege's philosophy of thought and language

Volume I is concerned with the historical context of Frege's work, his relationship to other philosophers and the broader epistemological and metaphysical aspects of his philosophy. Volume II focuses on Frege's development and conception of logic and their epistemological implications. Volume III considers Frege's place in the history and philosophy of mathematics and the nature and significance of his conception of number. Volume IV explores the extent to which Frege is a philosopher of language and the

## GENERAL INTRODUCTION

relationship between his views on language and thought. Details of how each of these volumes is divided, and their main themes, are provided in the introductions to each volume.

### **Bibliography**

For the works cited in this general introduction to the collection as a whole, see the bibliography at the end of the introduction to this first volume.

# INTRODUCTION

## Frege's Philosophy in Context

Gottlob Frege (1848–1925) is now generally regarded as one of the founders of modern analytic philosophy. Yet, unlike Bertrand Russell, G. E. Moore and Ludwig Wittgenstein, he was relatively unknown during his lifetime and it was only after the Second World War that scholarly interest in his work gradually developed. The first selection of Frege's writings appeared in Italian in 1948 (Frege *AL*), in English in 1952 (Frege *TPW*) and in German in 1962 (Frege *FBB*). Of his three major works, a complete English translation of *Die Grundlagen der Arithmetik* (*GL* 1884) first appeared in 1950 and a complete English translation of the *Begriffsschrift* (*BS* 1879) in 1967. English translations of parts of the two volumes of the *Grundgesetze der Arithmetik* (*GG* 1893, 1903) appeared in the selection of 1952 (some of the translated material having first appeared in 1915–1917) and a further translation of the first part of the first volume was published in 1964. A complete English translation of the *Grundgesetze* has still to be done (currently under way by a group under the direction of Crispin Wright at the University of St. Andrews). Frege's *Kleine Schriften* (*KS*) was published in 1967, translated into English as *Collected Papers* (*CP*) in 1984, his *Nachgelassene Schriften* (*NS*) in 1969, translated into English as *Posthumous Writings* (*PW*) in 1979, and his *Wissenschaftlicher Briefwechsel* (*WB*) in 1976, translated into English as *Philosophical and Mathematical Correspondence* (*PMC*) in 1980. The first single-volume edition of Frege's writings to include his seminal papers as well as substantial selections from all three of his major works (in English translation) appeared in 1997 (Frege *FR*). Additional material has also appeared in recent years, such as Frege's diary from the last period of his life (Frege *PT*) and notes that Rudolf Carnap made on Frege's lectures between 1910 and 1914 (Frege *LL*). The possibility of discovering even more important documents remains (see below, in relation to the paper by Wehmeier and Schmidt am Busch).

As far as the secondary literature on Frege is concerned, this also only really developed after the Second World War – although Russell's exposition of Frege's ideas in Appendix A of *The Principles of Mathematics* in 1903 is an important earlier discussion (see Chapter 11 by Beaney in this volume). Three doctoral dissertations on Frege were published in Germany in the 1950s and 1960s (see Bynum and Bynum 1972), most notably, Christian Thiel's *Sense and Reference in Frege's Logic*, which appeared in an English

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translation in 1968. Interest in Frege's philosophy in the English-speaking world received its most significant boost in 1973, however, with the publication of Michael Dummett's pioneering book, *Frege: Philosophy of Language*, which was followed by three more books in the two decades that followed (Dummett 1981, 1991a, 1991b). Dummett's interpretation set the agenda for debate about Frege's philosophy throughout these two decades. Both Sluga (1980) and Baker and Hacker (1984), for example, were written very much in reaction to Dummett's reading, attempting to place Frege more accurately in the historical picture and criticising Dummett's anachronistic expositions. However, there were other books that addressed particular aspects of Frege's philosophy, influenced by Dummett without having him as the central target: Bell (1979), Resnik (1980), Wright (1983), Weiner (1990), Carl (1994), and Beaney (1996). Recent years have seen the publication of further studies into particular aspects of Frege's philosophy, such as Klement (2001), Greimann (2003a) and Macbeth (2005). There have also been books that have used Frege's ideas as the essential springboard for their own arguments, such as Evans (1982), Salmon (1986), Sainsbury (2002), and Schildknecht (2002), as well as monographs relating Frege to other philosophers such as Husserl, Russell and Wittgenstein: for example, Mohanty (1982), Baker (1988), Hill (1991), Dummett (1993), Dejnožka (1996), Stepanians (1998), Makin (2000), Hill and Rosado Haddock (2003).

The first account of Frege's life was provided by Bynum (1972). The fuller story has gradually been filled in, particularly through the work of Frege scholars at Jena and Leipzig (see Chapter 2 by Dathe in this volume), but it was only in 2001 that the first full-length biography of Frege was published, by Kreiser. The first introductory book on Frege was written by Currie (1982) and, since then, others have appeared at an increasingly frequent rate: Kenny (1995), Weiner (1999, 2004), Noonan (2001), Salerno (2001) and, in German, Kutschera (1989), Mayer (1996), Stepanians (2001) and, in Italian, Mariani (1994) and Penco (1994). In the meantime, collections of articles on Frege have also been appearing more and more regularly, as detailed in the 'General Introduction'. (For a list of books published by and on Frege, see the 'Bibliography' at the end of this introduction.)

As stated in the 'General Introduction', the aim of the present collection is to bring together articles that represent the range and richness of the work on Frege that has been undertaken over the last twenty years. The very existence of this collection shows the extent to which Frege scholarship has blossomed since the 1950s. In this first volume, the focus is on Frege's place in the history of philosophy. Part 1, on Frege's life and work, contains three biographical papers and Part 2, 'Frege and other philosophers', contains ten papers exploring Frege's relationship with certain key earlier and later philosophers. Frege is best known for his work in the philosophy of logic, the philosophy of mathematics and the philosophy of thought and language, which form the subjects of the other three volumes of this collection.



## INTRODUCTION

General questions about the epistemological and metaphysical aspects of his philosophy are addressed in Part 3 of the present volume.

### Part 1: Frege's life and work

The fact that interest in Frege's philosophy only really took off after the Second World War had one very unfortunate consequence: the dearth of biographical information that might otherwise have been collected and recorded fairly easily both during Frege's life and immediately afterwards. As mentioned above, Terrell Ward Bynum had offered the first account of Frege's life and work in 1972 – in a 54-page essay in his edition and translation of the *Begriffsschrift* (Frege *CN*). But the first full-length biography of Frege was not published until 2001 (in German) by Lothar Kreiser. This work represents the fruits of over thirty years of detailed investigations and will be an essential resource for all subsequent Frege scholars. Unfortunately, it is both dense and arguably too long, its 650 pages containing much historical detail that is of only marginal relevance to an understanding of Frege's life and work (for an essay review, see Beaney 2004). For the present collection, therefore, in Chapter 1 of this volume, Christian Thiel and Michael Beaney have prepared a basic chronology of Frege's life and work, with appropriate references to both Kreiser's biography and other relevant books and articles. A full bibliography of all of Frege's writings is also included.

In the second chapter in this volume, 'Frege in Jena', Uwe Dathe draws on twenty years of his own research into the Jena background of Frege's philosophy to outline the main influences that his colleagues at Jena had on his work. Dathe identifies Rudolf Eucken as a key influence on Frege's work up to the early 1890s, in directing him to Leibniz and Trendelenburg's views on an ideal notation, in distinguishing sharply between the history of terms and the history of concepts and in drawing Frege's attention to the important role of metaphors in paving the way for thoughts. Following Gabriel (whose 2001 paper is included here as Chapter 5; see below), Dathe argues that the central idea of Frege's *Grundlagen*, that number statements are statements about concepts, was derived from Herbart, as transmitted by the Herbartians at Jena. Dathe briefly discusses Frege's relations with Thomae, his colleague in mathematics at Jena, which became increasingly acrimonious in their dispute over formalist theories of arithmetic, and he ends by describing the influence of the neo-Kantian Bruno Bauch on Frege's *Logical Investigations* (Frege *LI*).

It is widely accepted that Frege's *Nachlass* – the unpublished material that Frege bequeathed just before his death to his adopted son, Alfred – was destroyed in 1945 by a bombing raid on the university library at Münster in which it had been deposited for safe-keeping. Heinrich Scholz, to whom Alfred had handed over the *Nachlass* to prepare an edition of his posthumous writings, had fortunately had copies made of a fair portion of the

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material, which formed the basis of the edition that was eventually published as *Nachgelassene Schriften* in 1969 (Frege *NS*). In ‘The Quest for Frege’s *Nachlass*’ (Chapter 3), however, Kai Wehmeier and Hans-Christoph Schmidt am Busch reassess just what did happen to the original *Nachlass*, and conclude that the evidence does not point unequivocally to its destruction, so that there remains the possibility that it will one day be found. In bequeathing his *Nachlass* to Alfred, Frege had written: ‘Even if all is not gold, there is gold in it nevertheless’ (see p. 54 below). Some of this gold has certainly been extracted; it would be wonderful if more gold might yet be discovered.

### Part 2: Frege and other philosophers

In *Frege: Philosophy of Language*, Michael Dummett wrote that the logical system that Frege presented in his *Begriffsschrift* of 1879 (Frege *BS*) ‘is astonishing because it has no predecessors: it appears to have been born from Frege’s brain unfertilised by external influences’ (1973, p. xxxv). Certainly, the device of quantification was new but even this would not have been possible without the mathematical theory of functions that had been developed in the earlier part of the nineteenth century. Furthermore, when it comes to the philosophical motivation behind Frege’s logical system, there can be no doubt that Frege was deeply influenced by the work of others. Since Dummett published his pioneering book, the relationships between Frege and other philosophers have been extensively investigated and, in Part 2 of this volume, we bring together a selection of articles that explore some of the most important relationships – concerning not only the influences of earlier philosophers on Frege and Frege’s own influence on later philosophers but also connections between Frege and other philosophers that are philosophically revealing, regardless of the question of actual influence.

Part 2 begins with a chapter on the relationship between Frege and Kant (1724–1804). Frege’s main aim in his work was to demonstrate the logicist thesis that arithmetic is reducible to logic. This set him in direct opposition to Kant, whose conception of arithmetic as synthetic *a priori* was an established feature of the philosophical landscape in the nineteenth century. But does Frege’s position on arithmetic really contradict Kant’s? This is the question that John MacFarlane addresses in Chapter 4, ‘Frege, Kant, and the logic in logicism’. While Frege argues that arithmetic is reducible to logic, Kant holds that it has its foundation in intuition instead. However, it is important to ask here whether the two thinkers mean the same by ‘logic’, or at least mean something similar enough for them really to be contradicting each other rather than just ‘changing the subject’. MacFarlane thinks that it *is* similar enough, despite superficial appearances to the contrary. To support this claim, he leads us through a detailed, illuminating exploration of Frege and Kant’s notions of generality, normativity and formality in

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connection with logic. He concludes that 'Frege's Begriffsschrift *could have been* Logic – in Kant's most narrow and exacting sense – if only it had been consistent' (p. 98 below).

As mentioned above, Gottfried Gabriel published an article in 2001 arguing that Frege's central idea in the *Grundlagen*, that number statements – understood as including existential statements – are statements about concepts, derived from J. F. Herbart (1776–1841). This chapter, 'Existential and number statements: Herbart and Frege', appears in an English translation for the first time here. Herbart had studied with Fichte in Jena, and succeeded Kant at Königsberg, where he was Professor from 1809 to 1833, before moving to Göttingen, where he remained until his death. Although Herbart was still wedded to Aristotelian logic, he nevertheless diverged from that tradition in construing all three types of judgement – universal, particular and singular – as lacking existential import. In all three cases, as he puts it, 'only the relation of concepts matters' (quoted by Gabriel, p. 116 below). In Fregean terms, Herbart views all three types of judgement as making second-level statements: statements about concepts, not objects. This conception is illustrated in the connection that Herbart sees between particular statements and number statements, in that both involve a quantifier – 'some' in the case of the former and a numeral in the case of the latter – which restricts the application of the relevant concept. Gabriel explains the connection as follows: particular judgements are indefinite number statements, and number statements are definite particular statements (*cf.* pp. 117–118). At the same time, on Herbart's view, existential statements are particular judgements. So this has the consequence that existential statements are (indefinite) number statements and hence second-level statements (*cf.* p. 120). Although Herbart did not himself talk of 'second-level' statements, the elements were all there in his work for Frege to draw and articulate the obvious conclusion.

In the preface to his collection of articles, *Frege and Other Philosophers*, Michael Dummett writes: 'the only nineteenth-century writer of whom it would be reasonable to guess, just from the content of his writings and those of Frege, that he had *influenced* Frege, is [Bernard] Bolzano [1781–1848], who died in the year Frege was born; but there is no evidence whatever that Frege ever read Bolzano' (1991b, p. vii). Wolfgang Kühne quotes this remark at the beginning of his article, 'Propositions in Bolzano and Frege' (Chapter 6), which compares Bolzano's and Frege's philosophical views. The chapter focuses on Frege's conception of *Gedanken* and Bolzano's conception of *Sätze an sich* but also discusses their general ontological, epistemological and semantic views, illustrating them with a helpful set of diagrams. Of all Frege's predecessors, even if Bolzano had no direct influence on him, a comparison with Bolzano is the most philosophically instructive.

Kühne's chapter was given at a conference on Bolzano and analytic philosophy in 1997 and we also include here Michael Dummett's short reply,

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'Comments on Wolfgang Künne's Paper' (Chapter 7). Dummett picks up, in particular, on points concerning reference, sense and criteria of identity for propositions. He suggests that we need to distinguish two senses of 'sense', and, hence, two criteria of identity for propositions, and makes the point that the issues involved here are of deep significance for Frege's philosophy.

Frege may not have been directly influenced by Bolzano, but the connections between their views show how they were both rooted in the reactions to Kant's ideas that shaped so much of nineteenth-century philosophy. In the second of his three chapters in this collection (Chapter 8), entitled 'Frege, Lotze, and the Continental Roots of Early Analytic Philosophy', Gottfried Gabriel looks at the Kantian context of Frege's work and argues that Frege should be seen as part of the Neo-Kantian tradition. He focuses in this chapter on the influence, not of Herbart but of Hermann Lotze (1817–1881), whose distinction between questions of genesis (*Genese*) and questions of validity (*Geltung*) was central to the anti-psychologism that was a fundamental feature of both Neo-Kantianism and Frege's philosophy.

We mentioned at the beginning of this section of the introduction the revolutionary nature of Frege's first work, the *Begriffsschrift* of 1879, which introduced quantification theory. Frege's logical system was not the only theory that emerged in the second half of the nineteenth century, however. Since Jean van Heijenoort's paper, 'Logic as Calculus and Logic as Language' (1967b), it has become customary to distinguish two traditions in modern logic: the tradition inaugurated by Frege and the tradition of the algebra of logic, which originated with George Boole (1815–1864) and was developed, most notably in Germany, by Ernst Schröder (1841–1902). In 'Calculus ratiocinator versus characteristica universalis? The two traditions in logic, revisited' (Chapter 9), Volker Peckhaus looks again at the relationship between Frege's and Schröder's systems and argues that, although Frege was indeed the first to develop quantification theory, it is not this theory that provides the criterion for distinguishing the two traditions.

Frege may be the founder of one of the two traditions in modern logic but he is also seen as one of the founders of one of the two main traditions in contemporary western philosophy. The distinction between 'analytic' and 'phenomenological' – or more generally 'continental' – philosophy is now well established, although many people in recent years have been seeking to emphasise the connections and bridge the divide which still generates controversy between philosophers on each side. Despite the term 'continental' (which has become increasingly misleading), both traditions have their roots in German philosophy around the turn of the twentieth century: the analytic tradition in Frege's logicist project and the phenomenological tradition in the work of Edmund Husserl (1859–1938). In 'Thought and perception: The views of two philosophical innovators', Michael Dummett compares the accounts Frege and Husserl give of how we apprehend the

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objects of perception and the contents of thoughts. Dummett begins with the ideas of Franz Brentano (1838–1917) and shows how the problem of intentionality that he opened up can be seen as answered in different ways by Husserl and Frege. Although there are differences, however, what is striking is just how similar Husserl's and Frege's concerns were around the turn of the twentieth century. Their work may have given rise to two diverging traditions, but the roots of both traditions lie in a similar set of issues. (For more on the relationship between Frege and Husserl, see Mohanty 1982, Bell 1990, Hill 1991, Dummett 1993, Haaparanta 1994, Stepanians 1998, Hill and Rosado Haddock 2003.)

As one of the founders of analytic philosophy, Frege is closely associated with Bertrand Russell (1872–1970), who is also regarded as one of the main founders of the analytic tradition. What they shared, above all, was a concern with demonstrating the logicist thesis that arithmetic (and mathematics in general, for Russell) is reducible to logic. In 'Frege, Russell and Logicism' (Chapter 11), Michael Beaney considers the relationship between Russell and Frege with respect to their work on logic and the foundations of mathematics. He argues that, while Russell did not read Frege's work properly until 1902, he was indirectly influenced by Frege through Peano, most notably in his understanding of quantification, the use of function-argument analysis that this involved and in his definition of number in terms of equivalence classes of classes. When he did read Frege, Russell learnt, in particular, the importance of distinguishing a unit class from its sole member and appreciated Frege's logical analysis of mathematical induction, an essential element in the logicist reduction of the Dedekind-Peano axioms. As far as Russell's influence on Frege is concerned, this is well-known: the contradiction in Frege's system of which Russell informed Frege in his famous letter of 16 June 1902 proved fatal to Frege's own logicism. (A further paper on Frege and Russell by James Levine, comparing their conceptions of analysis, is included as Chapter 67 in Volume IV of this collection.)

Alongside Frege and Russell, the other two founders of the analytic tradition are generally seen as G. E. Moore (1873–1958) and Ludwig Wittgenstein (1889–1951). Frege had little influence on Moore and, in many ways, Frege and Moore represent two different subtraditions within analytic philosophy. By contrast, the influence of Frege on Wittgenstein was profound. In the preface to his *Tractatus* (1922), Wittgenstein recorded his debt to 'Frege's great works' and it is clear that his respect for Frege lasted for the rest of his life, despite the criticisms that he later made of Frege's and his own earlier ideas. In 'Frege's influence on Wittgenstein: Reversing metaphysics via the context principle' (Chapter 12), Erich Reck explores the influence of Frege on Wittgenstein in the area of metaphysics. Frege and Wittgenstein have often been cast as holding opposed metaphysical positions: Frege as a 'realist' and 'Platonist' and Wittgenstein as an 'anti-realist' and 'anti-Platonist'. However, Reck distinguishes two forms of Platonism, metaphysical Platonism

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and contextual Platonism, and he argues that Frege should be seen as a contextual, not a metaphysical, Platonist. Frege's use of his famous context principle led to what he calls a 'reversal of metaphysics', and it is this move that Reck sees as having had a crucial positive influence on Wittgenstein.

Through Russell and Wittgenstein, Frege had an enormous influence on subsequent philosophers. There is one set of influences that has often been ignored in histories of analytic philosophy, however, and it is his influence on Polish logic and philosophy. In 'The reception of Frege in Poland' (Chapter 13), Jan Woleński charts this influence in the period from around 1910 to 1935, in particular, on the works of Łukasiewicz, Leśniewski and Czeżowski. Woleński's main conclusion is that 'Frege's reception in Poland was perhaps faster and deeper than in other countries, except England' (p. 291 below).

### **Part 3: Frege's epistemology and metaphysics**

The revolution that Frege brought about in logic and philosophy is often compared to the Cartesian revolution of the seventeenth century. Just as Descartes inaugurated an epistemological turn in philosophy, so Frege has been seen as inaugurating a logico-linguistic turn, with anti-metaphysical implications. But as the brief description of some of the relationships between Frege and other philosophers has just shown, Frege had epistemological and metaphysical views of his own. Many of these views cannot be dissociated from his philosophy of logic, philosophy of mathematics and philosophy of thought and language, as we will see in the other volumes of this collection. In Part 3 of this volume, we collect together some recent articles that shed light on the general question of the place of epistemology and metaphysics in Frege's philosophy.

Part 3 begins with what has established itself as a classic article in this area, influencing much subsequent work on Frege: Thomas Ricketts' 'Objectivity and objecthood: Frege's metaphysics of judgment', first published in 1986 (Chapter 14). Ricketts takes issue with the standard reading of Frege as a metaphysical Platonist, according to which ontological notions are prior to logical ones (as described in more detail in Chapter 12 by Reck introduced above). Instead, Ricketts writes, 'As I read Frege, ontological categories are wholly supervenient on logical ones'; this supervenience being 'the product of the fundamental status Frege assigns to judgment' (p. 314 below). Ricketts develops this reading in both this and the other papers reprinted in this collection: in particular, 'Logic and truth in Frege', reprinted in Volume II as Chapter 28. In the article reprinted here in Volume I, he discusses Frege's critique of psychologism and his conception of logic, before showing how on his reading, as he puts it in his concluding sentence, 'the objecthood of thoughts, far from explaining the objectivity of judgment, presupposes it' (p. 337).

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Frege's critique of psychologism is discussed further by Eva Picardi in 'Frege's anti-psychologism' (Chapter 15), along similar lines to those followed by Ricketts but with greater attention to the historical context. According to Picardi, 'Frege took the main fault of psychologism to be . . . a mistaken picture of language which turns the objectivity of sense and the communication of thoughts into a mystery' (p. 341 below). She argues that the key to Frege's critique, and that which links his anti-psychologism in logic with his anti-psychologism in the account of meaning, is his conception of truth, which is why 'it is not only unpromising but positively misleading to tackle the issue of Frege's anti-psychologism by appealing to his conception of epistemology' (p. 341 below). She criticises earlier accounts offered, in particular, by Philip Kitcher (1979) and Hans Sluga (1980).

The place of epistemology in Frege's philosophy is also the theme of the third of Gottfried Gabriel's papers included in this volume, 'Frege's "Epistemology in Disguise"' (Chapter 16). In opposition to interpretations, like Dummett's, that present him primarily as a philosopher of language, Gabriel holds that Frege 'had an immediate interest in logical and epistemological questions but only a mediate interest in questions in the philosophy of language' (p. 360 below). At the same time, Frege's interest in epistemological questions has to be distinguished sharply from a possible, but for Gabriel very unFregean, concern with the 'psychology of knowledge', thus also fending off a criticism of Frege made by Kitcher (1979). Gabriel argues that acknowledging a genuinely epistemological aspect to Frege's views requires distinguishing between 'justification' and 'proof', as well as recognising the important role played by 'non-logical justification'.

We mentioned above that Ricketts has developed his interpretation of Frege in other articles published since 'Objectivity and Objecthood' (1986a); in particular, in two articles published in 1996 (Chapter 28) and 1997 (Chapter 25), which are reprinted in Volume II. In 'Judgment and Truth in Frege' (Chapter 17), however, Michael Kremer criticises Ricketts' later modification of his views and seeks to defend Ricketts' earlier interpretation. He does so by placing Frege's own account of judgement and truth in historical context, explaining Kant's use of the term '*fürwahrhalten*' ('to hold-true') and Brentano's use of the term '*anerkennen*' ('to recognise'). In Ricketts' later view, he argues, there is too strong a construal of Frege's use of these terms. Judgement is not to be understood as *implying* truth, which would wrongly exclude the possibility of an incorrect judgement. Rather, the connection that Frege was concerned to articulate between judgement and truth depends on his conception of *holding-true*. What is crucial for Frege, as Kremer puts it, 'is the intertwining of *holding-true* and truth, revealed in the conception of holding-true as an essentially goal-directed activity whose *telos* is truth' (p. 397 below).

As our introduction to the chapters in this volume suggests, two broad issues dominate in discussions of Frege's epistemology and metaphysics.

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The first concerns his alleged Platonism. What kind of Platonism, if any, did Frege endorse and what is the connection between his metaphysical views and his other views? The second concerns his relation to the broader context of nineteenth-century German philosophy out of which his ideas emerged. How does he stand in relation to Kant, in particular? Was he some kind of Neo-Kantian? In the final chapter in this volume, 'Frege – A Platonist or a Neo-Kantian?' (Chapter 18), Wolfgang Carl explicitly addresses these two issues and argues that Frege was neither a Platonist nor a Neo-Kantian. According to Carl, Frege is not a Platonist (at least in the metaphysical sense highlighted above) because he does not take metaphysics or ontology as prior, but nor can he be characterised as a Neo-Kantian, because this fails to capture what is distinctive about his philosophy. Carl sums up his view on the second issue as follows:

While Neo-Kantian philosophers always sustained the traditional view that thinking has something to do with representations, but cannot be reduced to them, Frege broke completely with this tradition by separating sharply between thought and representation; and by connecting thinking with the use of sentences, he provided a new foundation for the philosophical analysis of thought and cognition.  
(p. 422 below)

According to Carl, in other words, what is distinctive about Frege's philosophy is the project he opened up of semantic analysis. The debate about the nature and role of Frege's philosophy of thought and language is the theme of Volume IV.

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