LOGICISM AND ITS PHILOSOPHICAL LEGACY

The idea that mathematics is reducible to logic has a long history, but it was Frege who gave logicism an articulation and defense that transformed it into a distinctive philosophical thesis with a profound influence on the development of philosophy in the twentieth century. This volume of classic, revised, and newly written essays by William Demopoulos examines logicism's principal legacy for philosophy: its elaboration of notions of analysis and reconstruction. The essays reflect on the deployment of these ideas by the principal figures in the history of the subject – Frege, Russell, Ramsey, and Carnap – and in doing so illuminate current concerns about the nature of mathematical and theoretical knowledge. Issues addressed include the nature of arithmetical knowledge in the light of Frege's theorem; the status of realism about the theoretical entities of physics; and the proper interpretation of empirical theories that postulate abstract structural constraints.

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CAMBRIDGE UNIVERSITY PRESS

Shaftesbury Road, Cambridge CB2 8EA, United Kingdom

One Liberty Plaza, 20th Floor, New York, NY 10006, USA

477 Williamstown Road, Port Melbourne, VIC 3207, Australia

314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi – 110025, India

103 Penang Road, #05–06/07, Visioncrest Commercial, Singapore 238467

Cambridge University Press is part of Cambridge University Press & Assessment,
a department of the University of Cambridge.

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education, learning and research at the highest international levels of excellence.

www.cambridge.org
Information on this title: www.cambridge.org/9781107029804

First published 2013
First paperback edition 2015

A catalogue record for this publication is available from the British Library

Library of Congress Cataloging-in-Publication data
Demopoulos, William.
Logicism and its philosophical legacy / William Demopoulos.
p. cm.
Includes bibliographical references (p. 255) and index.
ISBN 978-1-107-02980-4
1. Logic, Symbolic and mathematical. 2. Mathematics – Philosophy. 1. Title.
QA9.D38 2013
511.3–dc23
2012023164

ISBN 978-1-107-02980-4 Hardback
ISBN 978-1-107-50258-1 Paperback

Dedicated to Rai, Billy, and Alexis, for whom my gratitude is beyond expression

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Preface

My appreciation of Frege, like my love of opera, is something I acquired relatively late in life. I did not read *Grundlagen* until long after I had left graduate school, and I came to Frege by a circuitous route. I was motivated by Hilary Putnam's citation of Michael Dummett's elegant characterization of realism to look at Dummett's great work, *Frege: Philosophy of Language*. This was a book I approached with cautious interest, reading it on visits to Heffers bookstore during the summer of 1975 – the summer of the beginning of the "great drought" and the summer of Arthur Ashe's win at Wimbledon. I was in Cambridge with my family where we lived in the flat in Mrs. Turner's House at Girton Corner. The house was situated on the edge of Trinity College Farm, and there was a glorious walk into town that took you through the farm, and, for part of the way, on an old Roman road. Another path led past the American Cemetery to Madingley and an iconic English pub with a thatched roof.

It was from Dummett's book that I gradually made my way to the serious study of Frege, and eventually to *Grundlagen*. The character of *Frege: Philosophy of Language* was unique, with its remarkable blend of historical and systematic themes. Dummett's practice of historically situating problems while maintaining a focus on topical issues made a great impression on me. So did his ability to read Frege creatively, and, as I later came to believe, without distortion. Dummett was important in another respect. Many years later I sent him my first paper on Frege (Chapter 8 of this collection) with a brief note, and no expectation of a reply. Dummett replied with a letter of several pages, summarizing and extending the argument of my paper. The letter was warm and generous, and it began a long correspondence and friendship that sustained my decision to work on Frege and the tradition he started.

Russell attracted me from the very beginning of my study of philosophy. I thought of Russell as a contemporary figure. He was still alive when I began to read him and he had published *My Philosophical Development* only

a few years before. My initial interest in Russell was focused less on his philosophy of mathematics than his theory of knowledge, especially his theory of our knowledge of the material world. In my final term as an undergraduate at the University of Minnesota I attended Grover Maxwell's graduate seminar on the meaning of theoretical terms. It was in this seminar that Maxwell first formulated his conception of the significance of Russell's later philosophy for what Grover called "the theory of theories." Being the only undergraduate in the class was a heady experience. For my seminar presentation I was asked to report on Herbert Feigl's prescient "Existential hypotheses"; I learned a great deal in this seminar about the positivist and post-positivist view of theories.

The University of Minnesota was the home of the Minnesota Center for Philosophy of Science. About a year after becoming a graduate student at Minnesota, I was able to participate in Center discussions and to make use of some of the Center's archival resources. These included typed transcripts of Center meetings that went back to the 1950s, some of them attended by Carnap.

Grover came as close as anyone I have known to the Platonic ideal of a teacher: knowledgeable without pretension; encouraging, but not uncritical; personally warm and utterly honest. His early death was a great loss, and I have always regretted that my first serious study of Russell was written only after Grover died. The paper was a contribution to a memorial conference for Grover that was organized by his Center colleagues. I drove to the conference with my family along a route that took us first to Chicago where we spent a short time with Michael Friedman. Michael, already a close friend of many years, had been asked to comment on my paper, and during this visit we discussed the paper and his comments. Then we all continued on to Minneapolis together. I had never before written a paper like the one for Grover's memorial: I hoped it would be of interest to anyone concerned with the history of the subject, but I did not think of it as history in the strict sense. At the same time, it attempted to make a contribution to problems of current interest – problems about the nature of knowledge, especially theoretical knowledge. On reflection, the form of the paper was clearly influenced by my reading of Dummett, but I did not recognize this at the time. Friedman's comments led naturally to our joint paper which appears here as Chapter 5.

Apropos my remark about Grover and my failure to write anything on Russell's views until after Grover's death, I should mention that I formed the idea of writing a dissertation on Russell and the psychology of perception when I was a graduate student at Pittsburgh. I even went so far as to

write M. H. A. Newman in order to gain access to his correspondence with Russell when I learned that Russell's papers had recently been acquired by McMaster University. I had a brief exchange with Newman about Russell and his now well-known criticisms of Russell's views. But being young and foolish, I did not immediately appreciate the correctness of what he wrote me. Many years later Jack Copeland introduced me (by correspondence) to Newman's son, William Newman, who sent me his elegant and moving memoir about his father, together with a fine reproduction of Russell's gracious letter to Max Newman. The letter was for many years proudly displayed on the wall of the Newmans' living room.

Of the three figures with whose work these essays are principally concerned, my interest in Carnap was the slowest to develop. Even the enthusiasm of Michael Friedman was not enough to inspire an appropriately deep interest in Carnap. It was only the persistence of my former student, the late Graham Solomon, and our conversations about his series of papers on Carnap, jointly authored with Dave DeVidi, that forced me to take notice and develop the interest that I should have acquired much earlier. This decision has since been confirmed many times over. Serious students are drawn by the transparency of Carnap's intellectual integrity to uncover the large – and even sweeping – conception of philosophy that lies just below the surface of a deceptively dry presentation.

My work on the essays included here spans a period of thirty years. It has been facilitated by the intellectual stimulation of numerous friends, but there are some to whom I owe a special debt of gratitude. Michael Friedman is one of my oldest friends; Michael has been enormously generous with his knowledge of the tradition from Kant to Carnap, sound in his judgment, and unstinting in his encouragement. Anil Gupta has been an indispensable philosophical guide; I cannot overstate how much I have benefited from his critical acumen and profound grasp of current work in logic, epistemology, and philosophy of language. Robert DiSalle has been an exemplary colleague: unfailingly perceptive as an interlocutor; authoritative in his field; constant in his support. It was Robert who provided the impetus for this volume. My philosophical friendship of longest standing is my friendship with Jeffrey Bub, a friendship that began when we met at the Minnesota Center for Philosophy of Science and has continued with only minor interruptions ever since. My intellectual orientation was defined by our discussions about the philosophy and foundations of physics. The present volume benefited directly from Jeff when he and my highly accomplished former student, Melanie Frappier, provided me with a superb translation of the late essay of Poincaré that figures prominently in the discussion of Chapter 4.

Many people have influenced the final form of one or more of these essays. I have done my best to acknowledge influences at appropriate points in the text and in the acknowledgments sections which follow most of the essays, but I am sure to have failed to remember everyone. My apologies to anyone I have forgotten.

Whatever success attaches to the essays collected here would not have been possible without the benefit of working in a well-run department. This was my experience during those years when Robert Butts and Ausonio Marras chaired the Philosophy Department at Western. I consider myself very fortunate to have experienced a stewardship such as theirs.

I wish to thank the Social Sciences and Humanities Research Council of Canada and its innovative program of modest research time stipends for its support. Many of the essays in this volume were either conceived or written during my tenure as a Killam Fellow. It is a pleasure to acknowledge the support of the Killam Trusts; news that I was to be awarded one of its research fellowships came at a critical moment in my life.

In connection with the final preparation of this book, Ryan Samaroo worked very hard on the index and made numerous helpful suggestions. Sona Ghosh provided the fine formatting of the two diagrams. Last but far from least, I cannot imagine a better editor than Hilary Gaskin, my editor at Cambridge University Press.

Publication details for a previously published essay are given in the first footnote of the chapter in which the essay appears. My thanks to the publishers, journal editors, and volume editors for permission to reprint these essays here.