

Preface

The essays collected in this volume are previously unpublished contributions to philosophical logic from some of the most respected researchers in the field. In inviting these specialists to write on their specialities, I have sought to combine a representative breadth of coverage with an accessible depth of philosophical and mathematical sophistication that offers a clear picture of the historical development and current state of the art in philosophical logic. To whatever extent the book succeeds in meeting its objective, credit is due to the superb work of the logicians and philosophers who agreed to be part of this immoderate editorial undertaking.

My strategy has been to identify what I consider to be the most important topic areas in philosophical logic from the standpoint of students as well as professional scholars, and then in each case to recruit three or more of the best experts I could find who I thought were likely to disagree in interesting ways, encouraging each to address the questions they believe most important in their own way and in their own voice, without concern for what any of their co-contributors have to say. The result is a remarkable testimony to a thriving industry in contemporary philosophical logic, and, despite some detractors' premature eulogies of its imminent demise, the vitality of contemporary analytic philosophy.

With the exception of my introductory essay, the papers are clustered thematically, although the order is not always obvious. The first invisible division in the text proceeds from milestones in the history of logic to the relation of symbolic logic to ordinary language. Logical paradoxes and their philosophical implications are then introduced as essential for understanding Tarski's truth semantics and responses especially to the liar paradox which have been so fundamental in shaping the theory of meaning in modern philosophical logic. A discussion of selected paradoxes is accordingly followed by a choice of topics involving Tarski's concept of truth and Russell's theory of definite description in classical semantics that continue to play an essential role in current discussions in philosophical logic. The stage is thereby set for investigations of more recent trends in logic, emphasizing alternative concepts of logical consequence, and questions of existence presuppositions and ontology in logic. Metatheoretical considerations about the scope and limits of logic come next, advances that are naturally complemented by a suite of papers on the logical foundations of set theory and mathematics. Here another invisible threshold is attained, after which nonclassical logics begin to

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appear, starting with modal logics in several categories, a larger section than most, because of the importance of modal logics in the development of set theoretical semantics and their many applications, followed by intuitionistic, free and many-valued logics, inductive, fuzzy and quantum logics, relevance, and paraconsistent logics. In the final grouping of papers, two sections complete the book's discussion of the implications for and practical applications of philosophical logic in machine theory and cognitive science, and the mechanization of logical inference and automated theorem and proof discovery.

Although some of the papers are more technical than others, all are intended for an introductory audience, and can be read with good understanding by beginning students in philosophy who have completed a first course in symbolic logic. This is especially true if the essays are read sequentially as they are presented within each section and from section to section. Inevitably, a full understanding of some topics treated at earlier stages of the book may require familiarity with principles and methods of logic that are considered in detail only in later sections, for which some looking ahead may occasionally be required. Additional background materials related to the study of philosophical logic can also be found in my simultaneously published Blackwell collections, *Philosophy of Logic: An Anthology* and *Philosophy of Mathematics: An Anthology*. The present volume will serve its purpose if it helps provide readers at all levels with a sufficient sense of interest in its subject to pursue advanced study of the concepts, methods, and problems of philosophical logic.