Towards A Philosophy Of Real Mathematics

#philosophy of mathematics #real mathematics #mathematical philosophy #foundations of mathematics #nature of mathematics

Delve into the profound questions surrounding the philosophy of real mathematics, examining its fundamental nature, epistemological status, and ontological implications. This exploration seeks to understand the very foundations of mathematics, offering a unique philosophical perspective on its reality and application in the world.

Towards a Philosophy of Real Mathematics

In this ambitious study, David Corfield attacks the widely held view that it is the nature of mathematical knowledge which has shaped the way in which mathematics is treated philosophically and claims that contingent factors have brought us to the present thematically limited discipline. Illustrating his discussion with a wealth of examples, he sets out a variety of approaches to new thinking about the philosophy of mathematics, ranging from an exploration of whether computers producing mathematical proofs or conjectures are doing real mathematics, to the use of analogy, the prospects for a Bayesian confirmation theory, the notion of a mathematical research programme and the ways in which new concepts are justified. His inspiring book challenges both philosophers and mathematicians to develop the broadest and richest philosophical resources for work in their disciplines and points clearly to the ways in which this can be done.

Towards a Philosophy of Critical Mathematics Education

In Nineteen Eighty-Four George Orwell gives a description of different forms of suppression. We learn about the telescreens placed everywhere, through which it is possible for Big-Brother to watch the inhabitants of Oceania. However, it is not only important to control the activities of the inhabitants, it is important as well to control their thoughts, and the Thought Police are on guard. This is a very direct form of monitoring and control, but Orwell also outlines a more imperceptible and calculated line of thought control. In the Appendix to Nineteen Eighty-Four Orwell explains some struc tures of 'Newspeak', which is going to become the official language of Oceania. Newspeak is being developed by the Ministry of Truth, and this language has to substitute 'Oldspeak' (similar to standard English). Newspeak should fit with the official politics of Oceania ruled by the Ingsoc party: "The purpose of Newspeak was not only to provide a medium of expression for the world-view and mental habits proper to the devotees of Ingsoc, but to make all other modes of thought impos sible. It was intended that when Newspeak had been adopted once and for all and Oldspeak forgotten, a heretical thought - that is, a thought diverging

from the principles of Ingsoc - should be literally unthink able, at least as far as thought is dependent on words.

An Introduction to the Philosophy of Mathematics

A fascinating journey through intriguing mathematical and philosophical territory - a lively introduction to this contemporary topic.

Thinking about Mathematics

Thinking about Mathematics covers the range of philosophical issues and positions concerning mathematics. The text describes the questions about mathematics that motivated philosophers throughout history and covers historical figures such as Plato, Aristotle, Kant, and Mill. It also presents the major positions and arguments concerning mathematics throughout the twentieth century, bringing the reader up to the present positions and battle lines.

Why Is There Philosophy of Mathematics At All?

This truly philosophical book takes us back to fundamentals - the sheer experience of proof, and the enigmatic relation of mathematics to nature. It asks unexpected questions, such as 'what makes mathematics mathematics?', 'where did proof come from and how did it evolve?', and 'how did the distinction between pure and applied mathematics come into being?' In a wide-ranging discussion that is both immersed in the past and unusually attuned to the competing philosophical ideas of contemporary mathematicians, it shows that proof and other forms of mathematical exploration continue to be living, evolving practices - responsive to new technologies, yet embedded in permanent (and astonishing) facts about human beings. It distinguishes several distinct types of application of mathematics, and shows how each leads to a different philosophical conundrum. Here is a remarkable body of new philosophical thinking about proofs, applications, and other mathematical activities.

Philosophical Introduction to Set Theory

This unique approach maintains that set theory is the primary mechanism for ideological and theoretical unification in modern mathematics, and its technically informed discussion covers a variety of philosophical issues. 1990 edition.

Philosophy of Mathematics and Natural Science

History of mathematics.

Mathematics, Ideas and the Physical Real

Albert Lautman (1908-1944) was a French philosopher of mathematics whose work played a crucial role in the history of contemporary French philosophy. His ideas have had an enormous influence on key contemporary thinkers including Gilles Deleuze and Alain Badiou, for whom he is a major touchstone in the development of their own engagements with mathematics. Mathematics, Ideas and the Physical Real presents the first English translation of Lautman's published works between 1933 and his death in 1944. Rather than being preoccupied with the relation of mathematics to logic or with the problems of foundation, which have dominated philosophical reflection on mathematics, Lautman undertakes to develop an understanding of the broader structure of mathematics and its evolution. The two powerful ideas that are constants throughout his work, and which have dominated subsequent developments in mathematics, are the concept of mathematical structure and the idea of the essential unity underlying the apparent multiplicity of mathematical disciplines. This collection of his major writings offers readers a much-needed insight into his influence on the development of mathematics and philosophy.

Lectures on the Philosophy of Mathematics

An introduction to the philosophy of mathematics grounded in mathematics and motivated by mathematical inquiry and practice. In this book, Joel David Hamkins offers an introduction to the philosophy of mathematics that is grounded in mathematics and motivated by mathematical inquiry and practice. He treats philosophical issues as they arise organically in mathematics, discussing such topics as platonism, realism, logicism, structuralism, formalism, infinity, and intuitionism in mathematical con-

texts. He organizes the book by mathematical themes--numbers, rigor, geometry, proof, computability, incompleteness, and set theory--that give rise again and again to philosophical considerations.

Philosophy of Mathematics

The philosophy of mathematics plays a vital role in the mature philosophy of Charles S. Peirce. Peirce received rigorous mathematical training from his father and his philosophy carries on in decidedly mathematical and symbolic veins. For Peirce, math was a philosophical tool and many of his most productive ideas rest firmly on the foundation of mathematical principles. This volume collects Peirce's most important writings on the subject, many appearing in print for the first time. Peirce's determination to understand matter, the cosmos, and "the grand design" of the universe remain relevant for contemporary students of science, technology, and symbolic logic.

From Mathematics to Philosophy (Routledge Revivals)

First published in 1974. Despite the tendency of contemporary analytic philosophy to put logic and mathematics at a central position, the author argues it failed to appreciate or account for their rich content. Through discussions of such mathematical concepts as number, the continuum, set, proof and mechanical procedure, the author provides an introduction to the philosophy of mathematics and an internal criticism of the then current academic philosophy. The material presented is also an illustration of a new, more general method of approach called substantial factualism which the author asserts allows for the development of a more comprehensive philosophical position by not trivialising or distorting substantial facts of human knowledge.

Synthetic Philosophy of Contemporary Mathematics

A panoramic survey of the vast spectrum of modern and contemporary mathematics and the new philosophical possibilities they suggest. A panoramic survey of the vast spectrum of modern and contemporary mathematics and the new philosophical possibilities they suggest, this book gives the inquisitive non-specialist an insight into the conceptual transformations and intellectual orientations of modern and contemporary mathematics. The predominant analytic approach, with its focus on the formal, the elementary and the foundational, has effectively divorced philosophy from the real practice of mathematics and the profound conceptual shifts in the discipline over the last century. The first part discusses the specificity of modern (1830–1950) and contemporary (1950 to the present) mathematics, and reviews the failure of mainstream philosophy of mathematics to address this specificity. Building on the work of the few exceptional thinkers to have engaged with the “real mathematics” of their era (including Lautman, Deleuze, Badiou, de Lorenzo and Châtelet), Zalamea challenges philosophy's self-imposed ignorance of the “making of mathematics.” In the second part, thirteen detailed case studies examine the greatest creators in the field, mapping the central advances accomplished in mathematics over the last half-century, exploring in vivid detail the characteristic creative gestures of modern master Grothendieck and contemporary creators including Lawvere, Shelah, Connes, and Freyd. Drawing on these concrete examples, and oriented by a unique philosophical constellation (Peirce, Lautman, Merleau-Ponty), in the third part Zalamea sets out the program for a sophisticated new epistemology, one that will avail itself of the powerful conceptual instruments forged by the mathematical mind, but which have until now remained largely neglected by philosophers.

Mathematics: A Concise History and Philosophy

This is a concise introductory textbook for a one-semester (40-class) course in the history and philosophy of mathematics. It is written for mathemat ics majors, philosophy students, history of science students, and (future) secondary school mathematics teachers. The only prerequisite is a solid command of precalculus mathematics. On the one hand, this book is designed to help mathematics majors ac quire a philosophical and cultural understanding of their subject by means of doing actual mathematical problems from different eras. On the other hand, it is designed to help philosophy, history, and education students come to a deeper understanding of the mathematical side of culture by means of writing short essays. The way I myself teach the material, stu dents are given a choice between mathematical assignments, and more his torical or philosophical assignments. (Some sample assignments and tests are found in an appendix to this book.) This book differs from standard textbooks in several ways. First, it is shorter, and thus more accessible to students who have trouble coping with vast amounts of reading. Second, there are many detailed explanations of the important mathematical

procedures actually used by famous mathe maticians, giving more mathematically talented students a greater oppor tunity to learn the history and philosophy by way of problem solving.

Philosophy of Mathematics

A sophisticated, original introduction to the philosophy of mathematics from one of its leading thinkers Mathematics is a model of precision and objectivity, but it appears distinct from the empirical sciences because it seems to deliver nonexperiential knowledge of a nonphysical reality of numbers, sets, and functions. How can these two aspects of mathematics be reconciled? This concise book provides a systematic, accessible introduction to the field that is trying to answer that question: the philosophy of mathematics. Øystein Linnebo, one of the world's leading scholars on the subject, introduces all of the classical approaches to the field as well as more specialized issues, including mathematical intuition, potential infinity, and the search for new mathematical axioms. Sophisticated but clear and approachable, this is an essential book for all students and teachers of philosophy and of mathematics.

Introduction to Mathematical Philosophy

In the words of Bertrand Russell, "Because language is misleading, as well as because it is diffuse and inexact when applied to logic (for which it was never intended), logical symbolism is absolutely necessary to any exact or thorough treatment of mathematical philosophy." That assertion underlies this book, a seminal work in the field for more than 70 years. In it, Russell offers a nontechnical, undogmatic account of his philosophical criticism as it relates to arithmetic and logic. Rather than an exhaustive treatment, however, the influential philosopher and mathematician focuses on certain issues of mathematical logic that, to his mind, invalidated much traditional and contemporary philosophy. In dealing with such topics as number, order, relations, limits and continuity, propositional functions, descriptions, and classes, Russell writes in a clear, accessible manner, requiring neither a knowledge of mathematics nor an aptitude for mathematical symbolism. The result is a thought-provoking excursion into the fascinating realm where mathematics and philosophy meet — a philosophical classic that will be welcomed by any thinking person interested in this crucial area of modern thought.

Philosophy of Mathematics

Philosophy of Mathematicsis clear and engaging, and student friendly The book discusses the great philosophers and the importance of mathematics to their thought. Among topics discussed in the book are the mathematical image, platonism, picture-proofs, applied mathematics, Hilbert and Godel, knots and notation definitions, picture-proofs and Wittgenstein, computation, proof and conjecture.

Technology and Mathematics

This volume is the first extensive study of the historical and philosophical connections between technology and mathematics. Coverage includes the use of mathematics in ancient as well as modern technology, devices and machines for computation, cryptology, mathematics in technological education, the epistemology of computer-mediated proofs, and the relationship between technological and mathematical computability. The book also examines the work of such historical figures as Gottfried Wilhelm Leibniz, Charles Babbage, Ada Lovelace, and Alan Turing.

Explanation and Proof in Mathematics

In the four decades since Imre Lakatos declared mathematics a "quasi-empirical science," increasing attention has been paid to the process of proof and argumentation in the field -- a development paralleled by the rise of computer technology and the mounting interest in the logical underpinnings of mathematics. Explanantion and Proof in Mathematics assembles perspectives from mathematics education and from the philosophy and history of mathematics to strengthen mutual awareness and share recent findings and advances in their interrelated fields. With examples ranging from the geometrists of the 17th century and ancient Chinese algorithms to cognitive psychology and current educational practice, contributors explore the role of refutation in generating proofs, the varied links between experiment and deduction, the use of diagrammatic thinking in addition to pure logic, and the uses of proof in mathematics education (including a critique of "authoritative" versus "authoritarian" teaching styles). A sampling of the coverage: The conjoint origins of proof and theoretical physics in ancient Greece. Proof as bearers of mathematical knowledge. Bridging knowing and proving in mathematical reasoning. The role of mathematics in long-term cognitive development of reasoning.

Proof as experiment in the work of Wittgenstein. Relationships between mathematical proof, problem-solving, and explanation. Explanation and Proof in Mathematics is certain to attract a wide range of readers, including mathematicians, mathematics education professionals, researchers, students, and philosophers and historians of mathematics.

What Is Mathematics, Really?

Most philosophers of mathematics treat it as isolated, timeless, ahistorical, inhuman. Reuben Hersh argues the contrary, that mathematics must be understood as a human activity, a social phenomenon, part of human culture, historically evolved, and intelligible only in a social context. Hersh pulls the screen back to reveal mathematics as seen by professionals, debunking many mathematical myths, and demonstrating how the "humanist" idea of the nature of mathematics more closely resembles how mathematicians actually work. At the heart of his book is a fascinating historical account of the mainstream of philosophy--ranging from Pythagoras, Descartes, and Spinoza, to Bertrand Russell, David Hilbert, and Rudolph Carnap--followed by the mavericks who saw mathematics as a human artifact, including Aristotle, Locke, Hume, Mill, and Lakatos. What is Mathematics, Really? reflects an insider's view of mathematical life, and will be hotly debated by anyone with an interest in mathematics or the philosophy of science.

The Oxford Handbook of Philosophy of Mathematics and Logic

Covers the state of the art in the philosophy of maths and logic, giving the reader an overview of the major problems, positions, and battle lines. The chapters in this book contain both exposition and criticism as well as substantial development of their own positions. It also includes a bibliography.

A Mathematical Prelude to the Philosophy of Mathematics

This book is based on two premises: one cannot understand philosophy of mathematics without understanding mathematics and one cannot understand mathematics without doing mathematics. It draws readers into philosophy of mathematics by having them do mathematics. It offers 298 exercises, covering philosophically important material, presented in a philosophically informed way. The exercises give readers opportunities to recreate some mathematics that will illuminate important readings in philosophy of mathematics. Topics include primitive recursive arithmetic, Peano arithmetic, Gödel's theorems, interpretability, the hierarchy of sets, Frege arithmetic and intuitionist sentential logic. The book is intended for readers who understand basic properties of the natural and real numbers and have some background in formal logic.

The Philosophy of Mathematics Today

Representing the state of the art in the field of the philosophy of mathematics, this collection of 20 essays deals with fundamental issues, ranging from the nature of mathematical knowledge to sets and natural 'number'.

Philosophy of Mathematics

Philosophy of Mathematics: An Introduction provides a critical analysis of the major philosophical issues and viewpoints in the concepts and methods of mathematics - from antiquity to the modern era. Offers beginning readers a critical appraisal of philosophical viewpoints throughout history Gives a separate chapter to predicativism, which is often (but wrongly) treated as if it were a part of logicism Provides readers with a non-partisan discussion until the final chapter, which gives the author's personal opinion on where the truth lies Designed to be accessible to both undergraduates and graduate students, and at the same time to be of interest to professionals

The Philosophy of Mathematics Education Today

This book offers an up-to-date overview of the research on philosophy of mathematics education, one of the most important and relevant areas of theory. The contributions analyse, question, challenge, and critique the claims of mathematics education practice, policy, theory and research, offering ways forward for new and better solutions. The book poses basic questions, including: What are our aims of teaching and learning mathematics? What is mathematics anyway? How is mathematics related to society in the 21st century? How do students learn mathematics? What have we learnt about mathematics teaching? Applied philosophy can help to answer these and other fundamental questions,

and only through an in-depth analysis can the practice of the teaching and learning of mathematics be improved. The book addresses important themes, such as critical mathematics education, the traditional role of mathematics in schools during the current unprecedented political, social, and environmental crises, and the way in which the teaching and learning of mathematics can better serve social justice and make the world a better place for the future.

An Aristotelian Realist Philosophy of Mathematics

Mathematics is as much a science of the real world as biology is. It is the science of the world's quantitative aspects (such as ratio) and structural or patterned aspects (such as symmetry). The book develops a complete philosophy of mathematics that contrasts with the usual Platonist and nominalist options.

Georg Cantor

One of the greatest revolutions in mathematics occurred when Georg Cantor (1845-1918) promulgated his theory of transfinite sets. This revolution is the subject of Joseph Dauben's important studythe most thorough yet writtenof the philosopher and mathematician who was once called a "corrupter of youth" for an innovation that is now a vital component of elementary school curricula. Set theory has been widely adopted in mathematics and philosophy, but the controversy surrounding it at the turn of the century remains of great interest. Cantor's own faith in his theory was partly theological. His religious beliefs led him to expect paradoxes in any concept of the infinite, and he always retained his belief in the utter veracity of transfinite set theory. Later in his life, he was troubled by recurring attacks of severe depression. Dauben shows that these played an integral part in his understanding and defense of set theory.

Philosophy of Mathematics

In his long-awaited new edition of Philosophy of Mathematics, James Robert Brown tackles important new as well as enduring questions in the mathematical sciences. Can pictures go beyond being merely suggestive and actually prove anything? Are mathematical results certain? Are experiments of any real value? This clear and engaging book takes a unique approach, encompassing non-standard topics such as the role of visual reasoning, the importance of notation, and the place of computers in mathematics, as well as traditional topics such as formalism, Platonism, and constructivism. The combination of topics and clarity of presentation make it suitable for beginners and experts alike. The revised and updated second edition of Philosophy of Mathematics contains more examples, suggestions for further reading, and expanded material on several topics including a novel approach to the continuum hypothesis.

Morality and Mathematics

To what extent are the subjects of our thoughts and talk real? This is the question of realism. In this book, Justin Clarke-Doane explores arguments for and against moral realism and mathematical realism, how they interact, and what they can tell us about areas of philosophical interest more generally. He argues that, contrary to widespread belief, our mathematical beliefs have no better claim to being self-evident or provable than our moral beliefs. Nor do our mathematical beliefs have better claim to being empirically justified than our moral beliefs. It is also incorrect that reflection on the "genealogy" of our moral beliefs establishes a lack of parity between the cases. In general, if one is a moral antirealist on the basis of epistemological considerations, then one ought to be a mathematical antirealist as well. And, yet, Clarke-Doane shows that moral realism and mathematical realism do not stand or fall together -- and for a surprising reason. Moral questions, insofar as they are practical, are objective in a sense that mathematical questions are not, and the sense in which they are objective can only be explained by assuming practical anti-realism. One upshot of the discussion is that the concepts of realism and objectivity, which are widely identified, are actually in tension. Another is that the objective questions in the neighborhood of factual areas like logic, modality, grounding, and nature are practical questions too. Practical philosophy should, therefore, take center stage.

Kant’s Philosophy of Mathematics

Kant's views about mathematics were controversial in his own time, and they have inspired or infuriated thinkers ever since. Though specific Kantian doctrines fell into disrepute earlier in this century, the past

twenty-five years have seen a surge of interest in and respect for Kant's philosophy of mathematics among both Kant scholars and philosophers of mathematics. The present volume includes the classic papers from the 1960s and 1970s which spared this renaissance of interest, together with updated postscripts by their authors. It also includes the most important recent work on Kant's philosophy of mathematics. The essays bring to bear a wealth of detailed Kantian scholarship, together with powerful new interpretative tools drawn from modern mathematics, logic and philosophy. The cumulative effect of this collection upon the reader will be a deeper understanding of the centrality of mathematics in all aspects of Kant's thought and a renewed respect for the power of Kant's thinking about mathematics. The essays contained in this volume will set the agenda for further work on Kant's philosophy of mathematics for some time to come.

History and Philosophy of Modern Mathematics

History and Philosophy of Modern Mathematics was first published in 1988. Minnesota Archive Editions uses digital technology to make long-unavailable books once again accessible, and are published unaltered from the original University of Minnesota Press editions. The fourteen essays in this volume build on the pioneering effort of Garrett Birkhoff, professor of mathematics at Harvard University, who in 1974 organized a conference of mathematicians and historians of modern mathematics to examine how the two disciplines approach the history of mathematics. In History and Philosophy of Modern Mathematics, William Aspray and Philip Kitcher bring together distinguished scholars from mathematics, history, and philosophy to assess the current state of the field. Their essays, which grow out of a 1985 conference at the University of Minnesota, develop the basic premise that mathematical thought needs to be studied from an interdisciplinary perspective. The opening essays study issues arising within logic and the foundations of mathematics, a traditional area of interest to historians and philosophers. The second section examines issues in the history of mathematics within the framework of established historical periods and questions. Next come case studies that illustrate the power of an interdisciplinary approach to the study of mathematics. The collection closes with a look at mathematics from a sociohistorical perspective, including the way institutions affect what constitutes mathematical knowledge.

Philosophical Dimensions in Mathematics Education

This book brings together diverse recent developments exploring the philosophy of mathematics in education. The unique combination of ethnomathematics, philosophy, history, education, statistics and mathematics offers a variety of different perspectives from which existing boundaries in mathematics education can be extended. The ten chapters in this book offer a balance between philosophy of and philosophy in mathematics education. Attention is paid to the implementation of a philosophy of mathematics within the mathematics curriculum.

Where Mathematics Come From How The Embodied Mind Brings Mathematics Into Being

A study of the cognitive science of mathematical ideas.

What is a Mathematical Concept?

Leading thinkers in mathematics, philosophy and education offer new insights into the fundamental question: what is a mathematical concept?

The Philosophy of Mathematics

This survey provides a brief and selective overview of research in the philosophy of mathematics education. It asks what makes up the philosophy of mathematics education, what it means, what questions it asks and answers, and what is its overall importance and use? It provides overviews of critical mathematics education, and the most relevant modern movements in the philosophy of mathematics. A case study is provided of an emerging research tradition in one country. This is the Hermeneutic strand of research in the philosophy of mathematics education in Brazil. This illustrates one orientation towards research inquiry in the philosophy of mathematics education. It is part of a broader practice of ‘philosophical archaeology’: the uncovering of hidden assumptions and buried ideologies within the concepts and methods of research and practice in mathematics education. An extensive bibliography is also included.

The Philosophy of Mathematics Education

In line with the emerging field of philosophy of mathematical practice, this book pushes the philosophy of mathematics away from questions about the reality and truth of mathematical entities and statements and toward a focus on what mathematicians actually do—and how that evolves and changes over time. How do new mathematical entities come to be? What internal, natural, cognitive, and social constraints shape mathematical cultures? How do mathematical signs form and reform their meanings? How can we model the cognitive processes at play in mathematical evolution? And how does mathematics tie together ideas, reality, and applications? Roi Wagner uniquely combines philosophical, historical, and cognitive studies to paint a fully rounded image of mathematics not as an absolute ideal but as a human endeavor that takes shape in specific social and institutional contexts. The book builds on ancient, medieval, and modern case studies to confront philosophical reconstructions and cutting-edge cognitive theories. It focuses on the contingent semiotic and interpretive dimensions of mathematical practice, rather than on mathematics' claim to universal or fundamental truths, in order to explore not only what mathematics is, but also what it could be. Along the way, Wagner challenges conventional views that mathematical signs represent fixed, ideal entities; that mathematical cognition is a rigid transfer of inferences between formal domains; and that mathematics' exceptional consensus is due to the subject's underlying reality. The result is a revisionist account of mathematical philosophy that will interest mathematicians, philosophers, and historians of science alike.

Making and Breaking Mathematical Sense

The twentieth century has witnessed an unprecedented 'crisis in the foundations of mathematics', featuring a world-famous paradox (Russell's Paradox), a challenge to 'classical' mathematics from a world-famous mathematician (the 'mathematical intuitionism' of Brouwer), a new foundational school (Hilbert's Formalism), and the profound incompleteness results of Kurt Gödel. In the same period, the cross-fertilization of mathematics and philosophy resulted in a new sort of 'mathematical philosophy', associated most notably (but in different ways) with Bertrand Russell, W. V. Quine, and Gödel himself, and which remains at the focus of Anglo-Saxon philosophical discussion. The present collection brings together in a convenient form the seminal articles in the philosophy of mathematics by these and other major thinkers. It is a substantially revised version of the edition first published in 1964 and includes a revised bibliography. The volume will be welcomed as a major work of reference at this level in the field.

Philosophy of Mathematics

The main theme of this anthology is the unique interaction between mathematics, physics and philosophy during the beginning of the 20th century. In this book, ten renowned philosopher-historians probe insightfully into key conceptual questions of pre-quantum mathematical physics. The result is a diverse yet thematically focused compilation of first class papers on mathematics, physics and philosophy, and a source-book on the interaction between them.

Interactions

This Festschrift contains numerous colorful and eclectic essays from well-known mathematicians, philosophers, logicians, and linguists celebrating the 90th birthday of Reuben Hersh. The essays offer, in part, attempts to answer the following questions set forth by Reuben himself as a focus for this volume: Can practicing mathematicians, as such, contribute anything to the philosophy of math? Can or should philosophers of math, as such, say anything to practicing mathematicians? Twenty or fifty years from now, what will be similar, and what will, or could, or should be altogether different: About the philosophy of math? About math education? About math research institutions? About data processing and scientific computing? The essays also offer glimpses into Reuben's fertile mind and his lasting influence on the mathematical community, as well as revealing the diverse roots, obstacles and philosophical dispositions that characterize the working lives of mathematicians. With contributions from a veritable "who's who" list of 20th century luminaries from mathematics and philosophy, as well as from Reuben himself, this volume will appeal to a wide variety of readers from curious undergraduates to prominent mathematicians.

Humanizing Mathematics and its Philosophy

This book contains more than 15 essays that explore issues in truth, existence, and explanation. It features cutting-edge research in the philosophy of mathematics and logic. Renowned philosophers, mathematicians, and younger scholars provide an insightful contribution to the lively debate in this interdisciplinary field of inquiry. The essays look at realism vs. anti-realism as well as inflationary vs. deflationary theories of truth. The contributors also consider mathematical fictionalism, structuralism, the nature and role of axioms, constructive existence, and generality. In addition, coverage also looks at the explanatory role of mathematics and the philosophical relevance of mathematical explanation. The book will appeal to a broad mathematical and philosophical audience. It contains work from FilMat, the Italian Network for the Philosophy of Mathematics. These papers collected here were also presented at their second international conference, held at the University of Chieti-Pescara, May 2016.

Truth, Existence and Explanation