

Logic An Introduction To Elementary Wilfrid Hodges

The ability to reason correctly is critical to most aspects of computer science and to software development in particular. This book teaches readers how to better reason about software development, to communicate reasoning, to distinguish between good and bad reasoning, and to read professional literature that presumes knowledge of elementary logic. The reader's knowledge and understanding can be assessed through numerous examples and exercises. This book provides a reader-friendly foundation to logic and offers valuable insight into the topic, thereby serving as a helpful reference for practitioners, as well as students studying software development.

This is a systematic and well-paced introduction to mathematical logic. Excellent as a course text, the book presupposes only elementary background and can be used also for self-study by more ambitious students. Starting with the basics of set theory, induction and computability, it covers propositional and first order logic — their syntax, reasoning systems and semantics. Soundness and completeness results for Hilbert's and Gentzen's systems are presented, along with simple decidability arguments. The general applicability of various concepts and techniques is demonstrated by highlighting their consistent reuse in different contexts. Unlike in most comparable texts, presentation of syntactic reasoning systems precedes the semantic explanations. The simplicity of syntactic constructions and rules — of a high, though often neglected, pedagogical value — aids students in approaching more complex semantic issues. This order of presentation also brings forth the relative independence of syntax from the semantics, helping to appreciate the importance of the purely symbolic systems, like those underlying computers. An overview of the history of logic precedes the main text, while informal analogies precede introduction of most central concepts. These informal aspects are kept clearly apart from the technical ones. Together, they form a unique text which may be appreciated equally by lecturers and students occupied with mathematical precision, as well as those interested in the relations of logical formalisms to the problems of computability and the philosophy of logic. This revised edition contains also, besides many new exercises, a new chapter on semantic paradoxes. An equivalence of logical and graphical representations allows us to see vicious circularity as the odd cycles in the graphical representation and can be used as a simple tool for diagnosing paradoxes in natural discourse.

The Whole Truth About Whole Numbers is an introduction to the field of Number Theory for students in non-math and non-science majors who have studied at least two years of high school algebra. Rather than giving brief introductions to a wide variety of topics, this book provides an in-depth introduction to the field of Number Theory. The topics covered are many of those included in an introductory Number Theory course for mathematics majors, but the presentation is carefully tailored to meet the needs of elementary education, liberal arts, and other non-mathematical majors. The text covers logic and proofs, as well as major concepts in Number Theory, and contains an abundance of worked examples and exercises to both clearly illustrate concepts and evaluate the students' mastery of the material.

This book is an outcome of my wordpress page "A Class-Room Introduction to Logic" (<http://niyamaklogic.wordpress.com>). This was prepared for the students of the paper entitled "Principles of Logic" in the Diploma-in-Reasoning Course of Department of Philosophy, Kurukshetra University, Kurukshetra, where I taught in the Diploma about four years and presently have an experience of teaching logic about 15 years. This book is beneficial for graduate students who have elementary logic course in their syllabus as well as for the general reader of logic. In the Centre for Positive Philosophy and Interdisciplinary Studies (CPPIS), we always tried to create online resources for student's use and published several e-books time to time. We also published print books for reference purpose on philosophy and interdisciplinary studies. This book introduces the basic conceptions of propositional logic and also some part of Symbolic logic in its six sections. Basically I used both printed books and internet sources to prepare it. A list of reference books used to prepare this are mentioned in the end of the book

Elementary Logic explains what logic is, how it is done, and why it can be exciting. The book covers the central part of logic that all students have to learn: propositional logic. It aims to provide a crystal-clear introduction to what is often regarded as the most technically difficult area in philosophy. The book opens with an explanation of what logic is and how it is constructed. Subsequent chapters take the reader step-by-step through all aspects of elementary logic. Throughout, ideas are explained simply and directly, with the chapters packed with overviews, illustrative examples, and summaries. Each chapter builds on previous explanation and example, with the final chapters presenting more advanced methods. After a discussion of meta-logic and logical systems, the book closes with an exploration of how paradoxes can exist in the world of logic. Elementary Logic's clarity and engagement make it ideal for any reader studying logic for the first time.

A concise introduction to logic that teaches you not only how reasoning works, but why it works How Logic Works is an introductory logic textbook that is different by design. Rather than teaching elementary symbolic logic as an abstract or rote mathematical exercise divorced from ordinary thinking, Hans Halvorson presents it as the skill of clear and rigorous reasoning, which is essential in all fields and walks of life, from the sciences to the humanities—anywhere that making good arguments, and spotting bad ones, is critical to success. Instead of teaching how to apply algorithms using “truth trees,” as in the vast majority of logic textbooks, How Logic Works builds on and reinforces the innate human skills of making and evaluating arguments. It does this by introducing the methods of natural deduction, an approach that teaches students not only how to carry out a proof and solve a problem but also what the principles of valid reasoning are and how they can be applied to any subject. The book also allows students to transition smoothly to more advanced topics in logic by teaching them general techniques that apply to more complicated scenarios, such as how to formulate theories about specific subject matter. How Logic Works shows that formal logic—far from being only for mathematicians or a diversion from the really deep questions of philosophy and human life—is the best account we have of what it means to be rational. By teaching logic in a way that makes students aware of how they already use it, the book will help them to become even better thinkers. Offers a concise, readable, and user-friendly introduction to

functions. Ideal for undergraduates.

The theme of this volume is the multi-faceted 'computational turn' that is occurring through the interaction of the disciplines of philosophy and computing. In computer and information sciences, there are significant conceptual and methodological questions that require reflection and analysis. Moreover, digital, information and communication technologies have had tremendous impact on society, which raises further philosophical questions. This book tries to facilitate the task to continuously work to ensure that its diversity of perspectives and methods proves a source of strength and collaboration rather than a source of instability and disintegration. The first three contributions explore the phenomenon of virtual worlds. The next four focus on robots and artificial agents. Then a group of chapters discusses the relation between human mentality and information processing in computers and the final section covers a broad range of issues at the interface of computers and society.

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Now much revised since its first appearance in 1941, W. V. Quine's Elementary Logic, despite its brevity, is notable for its scope and rigor. It provides a single strand of simple techniques for the central business of modern logic. Basic formal concepts are explained, the paraphrasing of words into symbols is treated at some length, and a testing procedure is given for truth-function logic along with a complete proof procedure for the logic of quantifiers. Fully one third of this revised edition is new, and presents a nearly complete turnover in crucial techniques of testing and proving, some change of notation, and some updating of terminology. The study is intended primarily as a convenient encapsulation of minimum essentials, but concludes by giving brief glimpses of further matters.

Introduction to Elementary Mathematical Logic Courier Corporation

This lucid, non-intimidating presentation by a Russian scholar explores propositional logic, propositional calculus, and predicate logic. Topics include computer science and systems analysis, linguistics, and problems in the foundations of mathematics. Accessible to high school students, it also constitutes a valuable review of fundamentals for professionals. 1970 edition.

This guidebook is for college instructors who teach a course in Introduction to Logic at a teachers college or provide a workshop in this subject for in-service mathematics teachers. It can also be used by high school mathematics teachers for teaching students who are capable and interested in Logic. Learning is based on reading Alice's Adventures in Wonderland, and discussing quotes from that book as a trigger for developing basic notions in Logic. This guidebook includes the student's worksheets with exemplary solutions, the background in elementary logic, and pedagogical comments. There is a student's workbook that accompanies this guidebook which includes the student's worksheets without solutions. Ordinary textbooks for such a course are purely mathematical in their nature, and students usually find the course difficult, boring and very technical. Our approach is likely to motivate the students through reading the classic novel Alice's Adventures in Wonderland, written by Lewis Carroll who was not only one of the best storytellers but also a logician. Click here for Student's Workbook

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