Mathematica Slovaca

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Book Reviews

BOOK REVIEWS

One of the most active areas of scientific activity using logic is computer science. The aim of this book is to stimulate communication between computer science and mathematics and also to be useful handbook for both fields. It turns out that computer science is becoming ever more mathematical and also that that mathematics is becoming increasingly comfortable with the use of computers, and this book should serve as a catalyst in both activities.

The book is intended above all to be a resource for working mathematical scientists oriented to computer science. It provides a quick introduction and review of the key topics in logic for computer scientist, engineer and mathematician — nonspecialist in logic.

An adequate preparation for the study of this book there are courses in linear algebra, finite mathematics and some other mathematical structures. From the computer science side, a knowledge of a programming language, some issues of complexity and decidability is recommended. It is not a textbook, but a handbook containing very few proofs, on the other hand it contains definitions, examples and discussion of all key ideas in basic logic. It also includes self-contained introductions to critical advanced topics, including Gödel's completeness and incompleteness theorems, methods of proofs, cardinal and ordinal numbers, the continuum hypothesis, the axiom of choice, model theory, number systems and their construction, multi-valued logics, category theory, universal algebra, proof theory, fuzzy set theory, recursive functions, NP-completeness, decision problems, Boolean algebra, semantics, decision problems, and the word problem. There is also a thorough index, glossary, lexicon of notation, guide to the literature, and an extensive bibliography.

The book is recommended as a useful reference for working scientists — mathematicians, computer scientists, engineer or system scientists and for students, all who want to have a quick sketch of a key idea from logic and related issues. One may say that this book was written with computer scientists in mind.

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