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Category theory has had important uses in logic since the invention of topos theory in the early 1960s, and logic has always been an important component of theoretical computer science. A new development has been the increase in direct interactions between category theory and computer science. In June 1987, an AMS-IMS-SIAM Summer Research Conference on Categories in Computer Science and Logic was held at the University of Colorado in Boulder. The aim of the conference was to bring together researchers working on the interconnections between category theory and computer science or between computer science and logic. The conference emphasized the ways in which the general machinery developed in category theory could be applied to specific questions and be used for category-theoretic studies of concrete problems. This volume represents the proceedings of the conference. (Some of the participants' contributions have been published elsewhere.)

The papers published here relate to three different aspects of the conference. The first concerns topics relevant to all three fields, including, for example, Horn logic, lambda calculus, normal form reductions, algebraic theories, and categorical models for computability theory. In the area of logic, topics include semantical approaches to proof-theoretical questions, internal properties of specific objects in (pre-) topoi and their representations, and categorical sharpening of model-theoretic notions. Finally, in the area of computer science, the use of category theory in formalizing aspects of computer programming and program design is discussed.

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