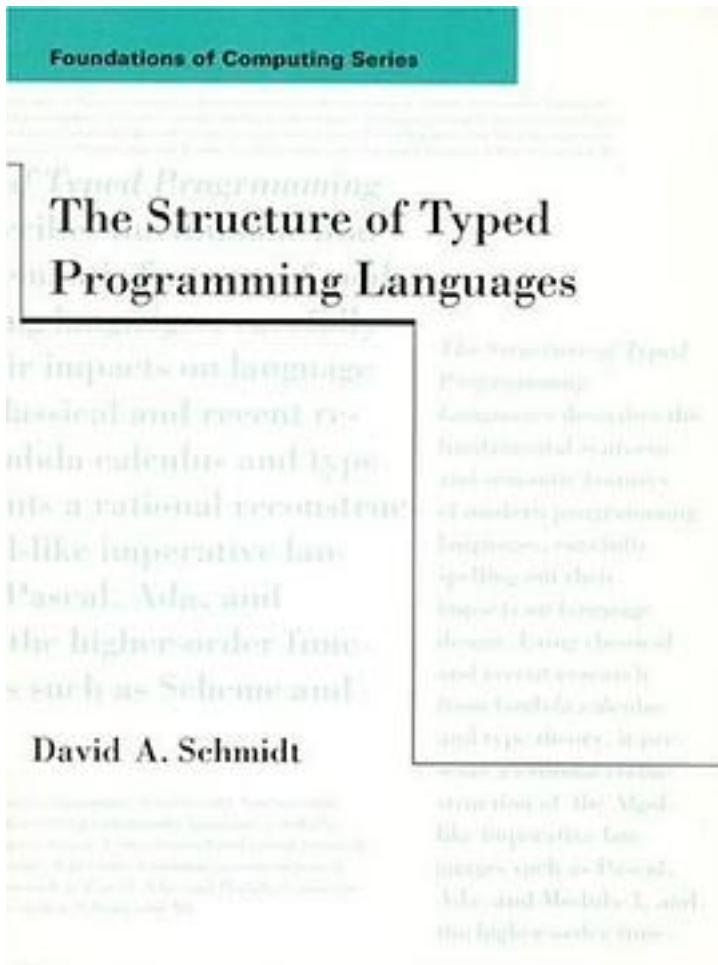


The Structure of Typed Programming Languages (Foundations of Computing)



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The Structure of Typed Programming Languages describes the fundamental syntactic and semantic features of modern programming languages, carefully spelling out their impacts on language design. Using classical and recent research from lambda calculus and type theory, it presents a rational reconstruction of the Algol-like imperative languages such as Pascal, Ada, and Modula-3, and the higher-order functional languages such as Scheme and ML.

 David Schmidt's text is based on the premise that although few programmers ever actually design a programming language, it is important for them to understand the structuring techniques. His use of these techniques in a reconstruction of existing programming languages and in the design of new ones allows programmers and would-be programmers to see why existing languages are structured the way they are and how new languages can be built using variations on standard themes.

 The text is unique in its tutorial presentation of higher-order lambda calculus and intuitionistic type theory. The latter in particular reveals that a programming language is a logic in which its typing system defines the propositions of the logic and its well-typed programs constitute the proofs of the propositions.

 The Structure of Typed Programming Languages is designed for use in a first or second course on principles of programming languages. It assumes a basic knowledge of programming languages and mathematics equivalent to a course based on books such as Friedman, Wand, and Haynes': Essentials of Programming Languages. As Schmidt covers both the syntax and the semantics of programming languages, his text provides a perfect precursor to a more formal presentation of programming language semantics such as Gunter's Semantics of Programming Languages.

作者介绍:

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