

Preface

This book is based on material presented at the international summer school on Applied Semantics that took place in Caminha, Portugal, in September 2000. We aim to present some recent developments in programming language research, both in semantic theory and in implementation, in a series of graduate-level lectures.

The school was sponsored by the ESPRIT Working Group 26142 on Applied Semantics (APPSEM), which operated between April 1998 and March 2002. The purpose of this working group was to bring together leading researchers, both in semantic theory and in implementation, with the specific aim of improving the communication between theoreticians and practitioners.

The activities of APPSEM were structured into nine interdisciplinary themes:

- A:** Semantics for object-oriented programming
- B:** Program structuring
- C:** Integration of functional languages and proof assistants
- D:** Verification methods
- E:** Automatic program transformation
- F:** Games, sequentiality, and abstract machines
- G:** Types and type inference in programming
- H:** Semantics-based optimization
- I:** Domain theory and real number computation

These themes were identified as promising for profitable interaction between semantic theory and practice, and were chosen to contribute to the following general topics:

- description of existing programming language features;
- design of new programming language features;
- implementation and analysis of programming languages;
- transformation and generation of programs;
- verification of programs.

The chapters in this volume give examples of recent developments covering a broad range of topics of interest to APPSEM.

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scientific committee for planning the scientific programme; to the second readers for their helpful reviews of the chapters of this volume; and to the lecturers and participants who made the summer school such a stimulating event.

May 2002

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Organization

The summer school was organized by INRIA (Institut National de Recherche en Informatique et en Automatique), France and the University of Minho, Portugal.

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