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**Abstract**

This book is based on a course given to second-year computer science undergraduates at the University of Sussex in the spring of 1988 and 1989. It offers an elementary introduction to the semantics of programming languages in a form which is designed to be accessible to students who are not very advanced in their undergraduate career. All the material in the book may easily be covered in a one-term course. There are very few prerequisites. Students who have undertaken an introductory programming course and who are familiar with elementary mathematical notation should have little difficulty in following it. A first course in discrete mathematics would be more than sufficient to cover the required background material.

**Item Type:** Book

**Schools and Departments:** School of Engineering and Informatics > Informatics

**Subjects:** Q Science > QA Mathematics > QA0075 Electronic computers. Computer science

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Operational semantics, whereby the execution of the language is described directly (rather than by translation). Operational semantics loosely corresponds to interpretation, although again the "implementation language" of the interpreter is generally a mathematical formalism. To prove that operational semantics over a high-level machine is related by a simulation with the semantics over a low-level machine, whereby the low-level abstract machine contains more primitive operations than the high-level abstract machine definition of a given language. The semantics of programming languages: an elementary introduction using structural operational semantics. Wiley. ISBN 978-0-471-92772-3. Operational Semantics. Class notes for a lecture given by Mooly Sagiv Tel Aviv University 24/5/2007 By Roy Ganor and Uri Juhasz. Reference Semantics with Applications, H. Nielson and F. Nielson, Chapter 2. http://www.daimi.au.dk/~bra8130/Wiley_book/wiley.html. Introduction Semantics is the study of meaning of languages. Semantics of Expressions For most kinds of program language semantics, the semantics of side-effect-free expressions is independent of the semantics of statements. Introduction As we will see shortly, natural semantics is sometimes not enough for comprehensive analysis, Structural Operational Semantics (SOS) is used for describing a more detailed cases like semantics for pointers, multi-threading and more. Semantics describes the processes a computer follows when executing a program in that specific language. This can be shown by describing the relationship between the input and output of a program, or an explanation of how the program will be executed on a certain platform, hence creating a model of computation. Formal semantics, for instance, helps to write compilers, better understand what a program is doing, and to prove, e.g., that the following if statement. The semantics of programming languages: an elementary introduction using structural operational semantics. Wiley. ISBN 978-0-471-92772-3.