by software engineers, you may be shocked. However, you feel after reading this book, one thing is for certain—you will learn a lot more about C then you knew before.

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B. A. E. MEEKINGS, T. P. KUDRYCKI and M. D. SOREN
A Book on C 3rd edn. Macmillan, London. 0-333-56919-9, £13.99 (Paper).

This is a very compact book and not for the novice programmer. For the reader already experienced with programming in another procedural high-level language, it offers a rapid conversion course.

Commencing with a discussion of a program as a sequence of functions, input and output are covered in detail, followed by conditional statements and loops. Basic data types are introduced early on, as are pointers—and I felt this approach was successful. Complex data structures, such as arrays, are left until the latter half of the book.

The authors attempt to include descriptions of non-ANSI C as well as the ANSI standard, and this approach, surprised me. For instance, both methods for declaring function arguments are described. The 'traditional' style is introduced first, followed by the 'function prototype' method specified in the standard; the former is allowed by the ANSI standard, but is likely to be omitted from future revisions to the standard. I did not see why so much emphasis was placed on non-ANSI C.

The standard libraries are described in just 23 pages, allowing little more than a cursory description of each one. Following this a very long program is printed, which reads in a C program and analyses it for style. I would be surprised if many people, having just read the rest of this book, would be able to wade through this program and understand more than a small part of it.

Overall, I felt that this book could easily have been expanded to more than 200 pages allocated to it, and with a corresponding increase in clarity and ease of reading. Nonetheless it is not expensive, and good value for money. It provides a useful stepping-stone for a programmer wishing to program in C prior to referring to a more formal document describing the standard.

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M. J. C. GORDON and T. F. MELHAM
Introduction to HOL. Cambridge University Press. 0-521-44189-7. £27.95.

HOL is a theorem-proving environment based on Church's theory of simple types. It presents the user with an LCF-style environment in which proof is conducted in the forward direction by the application of inference rules, and in the backward direction by proof tactics and tacticals. Backward proof is generally simpler, so there are many tactics and tacticals, as well as rewriting methods that can be applied by the HOL user.

HOL is a large system. Its documentation, when printed, consists of a large pile of paper. The current book is an introduction to the use of HOL. As such, it contains descriptions of the use of forward inference methods, but emphasizes backward techniques to a greater extent. The proof methods are illustrated by a number of examples, some small and some relatively extended. Included among the examples are the formal specification and verification of a parity checker and a proof of the binomial theorem (the proof requires the development of structures such as groups and monoids—one way of developing these in HOL is presented). All of the examples in the early parts of the book are explained in detail and careful reading leads to a good understanding of how the proofs were developed.

In addition to showing how HOL can be used, the authors include a description of the ML programming language used as the meta-language for HOL. The HOL logic is also treated in some detail. The system itself is then described and the built-in theories of HOL are presented in outline so that the reader gains an understanding of what is available at start-up. Finally, the book contains three chapters on the various tools that can be used to prove theorems with HOL: these include derived inference rules, conversions and tactics. The last chapters list the various concepts in a more-or-less manual form. By the time one has read this far, and provided that one has been diligent in working through previous material, this style of presentation is perfectly adequate.

The material contained in this book is derived, for the most part, from the online HOL documentation. The manual material has been stringently edited: the book form is considerably more readable than the online manuals. Pointers into the online documentation are contained in the book, so integration of the two should be relatively easy.

Readers who want to use HOL will find this an invaluable source of introductory information that will render more pleasurable the process of learning about this large system. The appearance of the book is greatly to be welcomed.

The book comes with an Appendix containing the manual information to cover the examples in chapter five, as well as a description of the tautology library. The index is comprehensive and useful; the references are relatively few in number, but well chosen. For those involved in formal methods, HOL is probably the most outstanding proof tool available and this book will certainly greatly assist newcomers to get to grips with the HOL system.

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