for conversational operation is more profoundly different from batch programming than one would think in advance. Consequently it is worth while to study such papers as the ones referred to here before embarking upon a non-trivial interactive system, be it administrative, scientific, medical, or general-purpose.

References


Book reviews


Overall this is a very well presented and interesting book. However, the title is slightly ambiguous; the book in the main emphasises language design which is interactive, rather than a design system for interactive languages. Although little emphasis is placed on the latter, the system presented does not preclude their design and implementation.

The book is divided into four parts: an introduction to languages, grammars and parsing, design of languages using Lang-Pak, implementation of Lang-Pak and sizeable appendices including Lang-Pak listings in PL/I and FORTRAN. It appears to be largely aimed at the reader who wishes to include a syntax analyser in his work with the minimum of fuss and previous experience of language design. As such it is excellent and makes no attempt at taking its study of grammars any further than needed by a Lang-Pak implementor. The references included, however, give a good cross section of further reading on such topics.

For the user of a system such as Lang-Pak, the introduction to languages is both clear and concise. Terms are introduced in a simple way with plenty of examples, almost certainly leaving the novice with a good understanding of the topic.

Like many other introductions to grammars, semantics are superficially dealt with in the introduction. However, the balance is certainly redressed in the part dealing with use of Lang-Pak. This deals with the interfacing of semantic routines to the syntax analyser and the detailed design of a language. Whilst the language design sessions included are instructive, by the end of the section they pall and one has the feeling that some of the material could have been presented more concisely.

Further depth is included, specifically aimed at the Lang-Pak implementor. This is very detailed material about internal data structures and subroutine interfaces and obviously has to be studied in conjunction with the PL/I and FORTRAN listings of Lang-Pak provided in the appendices.

The book is recommended as a reference and implementation manual for those requiring a flexible, well designed language design system.

S. R. Wilbur (London)


This book describes the overall structure of an optimising compiler to translate Bliss/11 source code into PDP-11 object code. In the preface the authors state that they have attempted to walk the fine line between a purely formal, implementation-independent treatment and tedious implementation detail—in this they have succeeded admirably. The book is terse, to the point, eminently readable and leaves one with a good picture of a complete system—indeed itching to go away and implement a similar system.

However the book is not for novices. Before reading it one should be familiar with the general structure of a compiler and with compiling techniques; such terms as lexical analysis, tree representation, hash tables and binding should be familiar. Short primers describing BLISS and the PDP-11 are included and give sufficient information to enable one to follow the overall design.

This book is highly recommended as a case analysis of the overall design of complete system combining known algorithms with necessary heuristics and taking into account the various interactions which arise. If you have the necessary general background and want to see a complete optimising compiler, read the book. If you are looking for a book for students' use in an in-depth study into a particular compiler then this book is worth looking into.

D. C. Cooper (London)

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