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## Book reviews

*Content Addressable Parallel Processors*, by Caxton C. Foster, 1976; 233 pages. (*Van Nostrand Reinhold*, £8.40)

This title arouses interest since it implies a high performance processor structure which is not conventional. Comments on the loose cover further encourage this view, but in reality the book deals with the basic structure, mode of operation and application of small content addressable memories (CAM). The first two areas are reasonably well presented, Chapters 2, 4 and 7 relating mainly to structure and Chapter 5 to algorithms for performing a variety of search, arithmetic and array operations. The chapter on applications tries to cover too wide a field and more detail on a smaller number of significantly different applications would have provided a more convincing story.

The two chapters discussing systems which have been designed and built are also disappointing in that no factual comparison in respect of performance or programming with a conventional machine has been provided. Some description of their structure is necessary but most of one chapter is cluttered with irrelevant detail such as the bit allocation for fields in the instruction word. Finally, the author's design featured in the last chapter is mainly concerned with the basic structure of a CAM and there is only a minimal attempt to relate it to a computer system, thus no useful system design criteria emerge.

Despite this criticism the book would be useful to computer scientists, computer engineers and users wishing to acquire some knowledge of CAM's.

B. G. EDWARDS (Manchester)

*Modern Factor Analysis*, 3rd Edition, by H. H. Harman, 1976; 487 pages. (*University of Chicago Press*, £12.60)

Harman's well known book on factor analysis now appears in a third, revised, edition. Compared with the second edition there have been considerable changes. In his preface the author states that the basic material remains essentially unchanged. To accommodate the new material two new chapters have been introduced and there has been considerable revision of the structure and content of the other chapters. In all, eight of the sixteen chapters contain new material. The extensive bibliography has been updated from the second edition and is very comprehensive. In particular, this reviewer applauds the

change in the style of citation of the references in the main text from numerical to author date. The overall length has been kept to that of the second edition by some useful pruning; for example most of the hand calculations have been eliminated.

These changes have made a significant improvement on the second edition and this new edition should maintain the high reputation of Harman's book. It is perhaps inevitable that the text is not quite as up to date as the references and one might feel that the approach to numerical techniques is a little dated although appropriate references are made.

The mathematically inclined reader might prefer a more concise treatment. These are minor shortcomings and this book will be invaluable to anyone interested in factor analysis. It is pleasant to report that even the price does not seem too unreasonable for a book of such wide coverage and usefulness.

G. J. JANACEK (Norwich)

*Automata*, by David Hopkin and Barbara Moss, 1976; 170 pages. (*Macmillan Press*, £8.95 hard cover, £3.95 paper)

This slim volume covers the field of automata from finite state machines to Turing machines. It is liberally supplied with worked examples and exercises (but no solutions). I did not note any obvious typographical errors except for a glaring transposition (page 74) of nearly half a paragraph from a subsequent page.

The topics covered are nearly the same as those discussed in Marvin Minsky's *Computation—Finite and Infinite Machines*, but the general approach to the subject and style of presentation is very different. This book is an honours course text, compact and formal in style, where Minsky's book is much more suited to the solo reader.

The appendix on logic will enhance the value of the book as a work of reference for students who have followed the course, but mainly as an *aide-memoire*, since 20 pages from truth tables to existential quantifiers is fairly compressed.

A second appendix with potted biographies of leading names mentioned in the text, adds a nice human touch. For example even though an alumnus of QCC, I never knew until now that George Boole died in Cork in 1864 as a result of lecturing in wet clothes.

H. R. A. TOWNSEND (Edinburgh)