Approaches to knowledge representation—an introduction by G A Ringland and D A Duce, (Eds.), 260 pages, Research Studies Press Ltd (Distr J Wiley Ltd) 1988, £29.75

In the book *Approaches to Knowledge Representation—An Introduction*, the authors present a collection of articles which describe the different formalisms used to represent knowledge and reasoning mechanisms in the systems developed to date in AI.

The book is not a course manual for AI students, for it stands far from the down to earth problems of computer implementations of the modes of representation it describes.

The most widely used and universally "recognized" formalisms are described with an unbiased view: logic, semantic networks, frames and production rules.

The first part of the book is devoted to these, showing in particular how notorious weaknesses of the pioneering programs have been progressively reduced by recent research.

A second part gives an account of studies lead by psychologists on the representations of knowledge that human beings seem to employ. As the book rightly points out, the use of a single mode (of representation) seems unlikely; the existence of hybrid representations is suggested by the impressive variety of phenomena involved in the everyday performances displayed by humans. The conjunction of propositional and analogical representations is put forward by several authors. Although not mentioned in the book, recent research on connectionist models seem to go in the same direction.

The third part is devoted to more advanced topics such as representation of time or the functional approach advocated by Levesque and Brachman. The article on conceptual graphs by Sowa seems to be misplaced (in this section) for it is not more "advanced" than semantic networks in general, although the formalism and the mechanisms operating on it have improved precision and therefore are closer to computer implementations.

The sole serious reproach I will make concerns the weak relationship displayed here between the representation of knowledge and its expression in natural language. For example, the difficulty resulting from the polysemy of words is not discussed. The representations in a dictionary of the various meanings of words is never tackled, nor the choice of the right definition of a word depending on the context. An uninformed reader might get an impression (when reading the book) that there is an isomorphism between a string of characters and a meaning.

Notwithstanding this abusive simplication, the book is well written and provides an excellent and up-to-date introduction to the crucial problems of knowledge representation.

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Artificial intelligence and expert systems by Stuart E. Savory (Ed.), (Translation ed. M. W. Rogers), 278 pages, Ellis Horwood Ltd, £29.95

It is commonplace to suggest that the (now waning?) enthusiasm and hype for expert systems has generated a flood of publications of varying degrees of mediocrity. This book, alas, does nothing to counter the impression. Indeed, if a camel is a horse designed by a committee, then this book seems to have been written by a whole heterarchy of committees. The reality is that it is written primarily by a group of researchers attached to Nixdorf Computer AG in West Germany and edited by the group leader Stuart Savory. Originally written in German in 1985, it was translated into English in 1987, and updated by the editor. It aims to present the AI/Expert Systems experience through Nixdorf eyes. Different chapters have different authors and range from general introductions to AI and Expert Systems (including commercial aspects), through detailed descriptions of Prolog and of a particular Emycin type shell (TWAICE) developed at Nixdorf, to aspects of automatic learning and a brief presentation of an associative processor for unification.

As a plan for a book, that sounds good. But unfortunately, not only is there little coordination between the chapters (for example, I counted at least three differing brief histories of AI) but the chapters themselves range from seemingly hasty jottings, through extended attempts at formaliza-