Raymond Turner, *Truth and modality for knowledge representation*, The MIT Press, Cambridge, Massachusetts, 1991, xii + 126 pp.

Reviewed by

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This book is included in the MIT Press series Artificial Intelligence edited by Michael Brandy, Daniel Bobrov and Randall Davis. Artificial intelligence is the study of intelligence using the ideas and methods of computation. A definition of intelligence seems impossible at the moment because it appears to be an amalgam of so many information-processing and information-representation abilities. Artificial intelligence offers a new perspective and a new methodology. Its central goal is to make computers intelligent not only to make them more useful but – and this is the point that should be stressed here – to understand the principles that make intelligence possible.

Artificial intelligence requires more expressive systems of knowledge. But there arises a question of whether such systems have to be based on formal logic or not. There are various options. This book, written by Raymond Turner, professor of computer science at the University of Essex, is based on the assumption that the formal approach is a worthy one. Its aim is to explore the development of formal languages and appropriate logics for the aspect of knowledge representation concerned with reasoning about truth and modality. In recent years one can observe a great deal of interest by researchers in the field of artificial intelligence in the development of formalisms which facilitate the expression of modal concepts. These works are based upon the theories of modality and truth which were developed in the period 1960-1980. Turner's purpose is to bring this material to the attention of artificial intelligence researchers by putting it in a context where it might be directly applicable to the knowledge representation used in artificial intelligence.

The book consists of nine chapters which can be divided into four parts: introductory remarks (Chapter 1), the formulation and development of logics of truth (Chapters 2-5), modality and its interaction with truth (Chapters 6-8) and conclusions (Chapter 9). It also contains a list of references, an index of formal terms, and a general index.

Reasoning agents must be capable of representing and reasoning about what they and other agents believe, know and hold true. Hence the central concern of any adequate theory of knowledge representation must be the development of a language in which such assertions as: