

Paris, J. B.

The uncertain reasoner's companion. A mathematical perspective. (English) Zbl 0838.68104
[Cambridge Tracts in Theoretical Computer Science](#). 39. Cambridge: Univ. Press. x, 180 p. (1994).

This book deals with the subject of reasoning under uncertainty, which has been very alive in the last decade.

A unifying concept is the intuitive notion of belief, formally expressed by means of various mathematical tools. So belief and conditional belief are successively interpreted as probabilities, Dempster-Shafer belief functions, truth functionals (including fuzzy logic and possibility theory); the main question around which the book is centered is that of finding the value to be assigned to the belief (possibly conditional) of a suitable sentence of propositional language, given a finite consistent set of linear constraints referring to beliefs of some other given sentences. Finally, for situations where the formulation within the propositional calculus is too simple to be faithful, uncertain reasoning is considered in the framework of predicate calculus. This is the subject of the last two chapters, where the study of belief is based also on Carnap's principles.

In conclusion, the book is a useful introduction to the mathematical foundations of two major themes in artificial intelligence, i.e. making judgements under partial knowledge and revising belief. It is essentially self-contained and suitable for readers with an undergraduate level of knowledge.

Reviewer: [R.Scozzafava \(Roma\)](#)

MSC:

- [68T27](#) Logic in artificial intelligence
- [68T30](#) Knowledge representation
- [68-01](#) Introductory exposition (textbooks, tutorial papers, etc.) pertaining to computer science

Cited in **1** Review
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Keywords:

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