

Shoham, Yoav; Leyton-Brown, Kevin

Multiagent systems. Algorithmic, game-theoretic, and logical foundations. (English)

Zbl 1163.91006

Cambridge: Cambridge University Press (ISBN 978-0-521-89943-7/hbk). xx, 483 p. (2009).

The volume under review aims to present an overview of theoretical and methodological tools used for analysis of multiagent and distributed systems. The text is divided into 14 chapters, completed by appendices (including brief overview of mathematical disciplines exploited in the chapters), bibliography and index. The organization of particular chapters respects the fundamental structure of textbooks. Main deal of them is devoted to the principles of the distributed problem solving and several topics regarding noncooperative and coalitional games, their solutions, as well as their algorithmic aspects. Several chapters deal with some related topics like multiagent learning, multiagent systems communication, social choice including voting theory, aggregation of preferences, and a special case of auctions. The last two chapters regard modal logic of knowledge and belief. Besides the overall list of bibliography (334 items), each chapter is concluded by a brief section on the history of the topic, and several specific references.

Reviewer: [Milan Mareš \(Praha\)](#)

MSC:

- [91-02](#) Research exposition (monographs, survey articles) pertaining to game theory, economics, and finance
- [03B42](#) Logics of knowledge and belief (including belief change)
- [68M14](#) Distributed systems
- [91A10](#) Noncooperative games
- [91A12](#) Cooperative games
- [91A28](#) Signaling and communication in game theory
- [91B14](#) Social choice

Cited in **1** Review
Cited in **90** Documents

Keywords:

[Multiagent system](#); [Distributed system](#); [Distributed optimization](#); [Noncooperative game](#); [Coalitional game](#); [Game](#); [Communication](#); [Social choice](#); [Strategy](#); [Auction](#); [Knowledge](#); [Belief](#)

Software:

[Gambit](#)

Full Text: [DOI](#)