

K. BINMORE

## **Playing for Real. A Text on Game Theory**

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Even if the history of the game-theory is not very long (the von Neumann's and Morgenstern's seminal book *Theory of Games and Economic Behaviour* was published in 1944), its fundamental structures are fixed and its concepts have stable form. It is time, now, to come with a new goal – to explain the theory of games to a wider auditory. To people, who are equipped by mathematical education sufficient for understanding relatively simple basic concepts and notation of the theory, and who have sufficient experience in other fields of research to see its applicability.

The referred book aims to contribute to this endeavor. It represents an extensive overview of the game-theoretical concepts and methods, presented from the point of view of their applications and of problems (or only embarrassment) connected with them. The presentation of particular topics of the theory of games uses mathematical formalism, symbols and other tools. But the mathematics used in it keeps on a practical and not very complicated level. The main stress is put on the verbal explanation of problems and their solutions, as well as on the discussion and multilateral analysis of the game-theoretical principles.

The book is divided into 21 chapters which can be very roughly grouped into several clusters. The first one of them is devoted to the principles valid for every player and his motivations, like the questions of the goal, timing, randomness and utility connected with his individual actions. Second group of chapters deals with the behavior of players – moves, pure and mixed strategies forming, antagonism of interests and equilibrium situations in the strategy choice.

Chapters regarding economic connotations of the game theory, like some economic optimization models or monopoly and oligopoly games, can be considered for a specific group. These chapters are close to the problems of decision-making in different situations, including the role of knowledge, information and belief in the decision-making process.

Special, even if not very extensive, part of the book is formed by chapters devoted to the cooperation among players – to the bargaining (even without coalitions-forming), coalitional cooperation and the position of independent arbiter in the negotiation procedure. The last cluster contains a rather heterogeneous group of chapters dealing with marginal and rather distant related topics like ethics, social problems and non-standard situations in auctioning, also connected with the theory of games.

The book can be hardly recommended for the first text-book of thorough study of the theory of games. It is focused on selected topics representing the methods and components of the game theory and, especially, the most interesting ones of them from the point of view of advanced applications. The organization of the text does not respect the usual presentation of the game theory in its completeness.

But it can be seriously recommended to everybody who tends to apply the game theory, or some of its parts, who has some general and fundamental knowledge of the theory, and, especially, who can be aware of different side-effects of the applications. The discussion of particular topics and their consequences is really fundamental and detailed. The book contributes to the sort of books about “mathematics for not-mathematicians”, under the assumption that those “not-mathematicians” have elementary training in the higher mathematics. Such readers can get very good information about most significant problems solved by the theory of games, as well as about the models developed for the solution.

The explanation contains detailed discussions and well chosen illustrative examples. Each chapter is concluded by a short list of recommended reading and by a rich collection of exercises. The graphical arrangement offers an easy distinction of different types of those exercises. The volume is concluded by the Index.

It is possible to conclude this review by recommendation of the book to a wide spectrum of readers already having a general (may be even not very advanced) idea about the structure and basic concepts of the game theory but wishing to understand deeply the roots and different special contexts of its applications.

It is also worth mentioning that the book is written in a very readable style with clear formulations and well understandable presentation of even complex conclusions.

*Milan Mareš*