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Operations Research Letters

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Book review

Hans Peters. *Game Theory: A Multi-Leveled Approach*, Springer-Verlag, Berlin, 2008, ISBN: 978-3-540-69290-4, 366 pp., \$119.

The subtitle “A multi-leveled approach” refers to different levels of depth and difficulty. More precisely, Part I of the book (“Thinking strategically”) can be seen as a small textbook on its own, intended for undergraduate, say, economics students, requiring only basic calculus. According to Hans Peters, “the best introduction to game theory is by means of examples” and, consequently, the book starts with a set of well-chosen examples illustrating various game theoretic questions from different subfields, which are likely to generate interest, or at least curiosity among students from a broad range of disciplines. This first introductory chapter is then followed by Part I of the book, comprising ten chapters on selected topics in game theory. The emphasis here is on non-cooperative games. The presentation is very clear and – also from a mathematical point of view – precise.

The “second level” of the book treats non-cooperative games (Part II) and cooperative games (Part III) in more detail. This time, the emphasis is slightly more on the cooperative part. The topics are a fairly standard choice. Part IV summarizes a few mathematical prerequisites on convex sets and fixed-point theorems without much explanation. At our university we recently

offered a game theory course for applied mathematics (first-year graduate) students with a total of ten lectures taken from all three parts of the book with good success – although the students sometimes complained about the degree of difficulty of the exercises.

What I personally liked is that some aspects (e.g., bargaining) are treated from both the cooperative side and the non-cooperative side, with interesting relations between the two perspectives. Summarizing, the book is a perfectly well-presented textbook on classical game theory, written by an expert in the field with high pedagogical skills. It is recommendable for both mathematics and business administration or economics students. As a minus point, I would like to add that I missed some more recent developments: topics from “algorithmic game theory”, computational or complexity theoretic aspects are not even touched upon.

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6 July 2010

Available online 2 August 2010

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