
Preface

This textbook presents worked-out exercises on Game Theory, with detailed step-by-step explanations, which both undergraduate and master's students can use to further understand equilibrium behavior in strategic settings. While most textbooks on Game Theory focus on theoretical results; see, for instance, Tirole (1991), Gibbons (1992) and Osborne (2004), they offer few practice exercises. Our goal is, hence, to complement the theoretical tools in current textbooks by providing practice exercises in which students can learn to systematically apply theoretical solution concepts to different fields of Economics and Business, such as industrial economics, public policy and regulation.

The textbook provides many exercises with detailed verbal explanations (97 exercises in total), which cover the topics required by Game Theory courses at the undergraduate level, and by most courses at the Masters level. Importantly, our textbook emphasizes the economic intuition behind the main results, and avoids unnecessary notation when possible, and thus is useful as a reference book regardless of the Game Theory textbook adopted by each instructor. Importantly, these points differentiate our presentation from that found in solutions manuals. Unlike these manuals, which can be rarely read in isolation, our textbook allows students to essentially read each exercise without difficulties, thanks to the detailed verbal explanations, figures, and intuitions. Furthermore, for presentation purposes, each chapter ranks exercises according to their difficulty (with a letter A to C next to the exercise number), allowing students to first set their foundations using easy exercises (type-A), and then move on to harder applications (type-B and C exercises).

Organization of the Book

We first examine games that are required in most courses at the undergraduate level, and then advance to more challenging games (which are often the content of master's courses), both in Economics and Business programs. Specifically, Chaps. 1–6 cover complete-information games, separately analyzing simultaneous-move and sequential-move games, with applications from industrial economics and regulation; thus helping students apply Game Theory to other fields of research.

Chapters 7–9 pay special attention to incomplete information games, such as signaling games, cheap talk games, and equilibrium refinements. These topics have experienced a significant expansion in the last two decades, both in the theoretical and applied literature. Yet to this day most textbooks lack detailed worked-out examples that students can use as a guideline, leading them to especially struggle with this topic, which often becomes the most challenging for both undergraduate and graduate students. In contrast, our presentation emphasizes the common steps to follow when solving these types of incomplete information games, and includes graphical illustrations to focus students' attention to the most relevant payoff comparisons at each point of the analysis.

How to Use This Textbook

Some instructors may use parts of the textbook in class in order to clarify how to apply certain solution concepts that are only theoretically covered in standard textbooks. Alternatively, other instructors may prefer to assign certain exercises as a required reading, since these exercises closely complement the material covered in class. This strategy could prepare students for the homework assignment on a similar topic, since our practice exercises emphasize the approach students need to follow in each class of games, and the main intuition behind each step. This strategy might be especially attractive for instructors at the graduate level, who could spend more time covering the theoretical foundations in class, asking students to go over our worked-out applications of each solution concept on their own. In addition, since exercises are ranked according to their difficulty, instructors at the undergraduate level can assign the reading of relatively easy exercises (type-A) and spend more time explaining the intermediate level exercises in class (type-B questions), whereas instructors teaching a graduate-level course can assume that students are reading most type-A exercises on their own, and only use class time to explain type-C (and some type-B) exercises.

Acknowledgments

We would first like to thank several colleagues who encouraged us in the preparation of this manuscript: Ron Mittlehammer, Jill McCluskey, and Alan Love. Ana Espinola-Arredondo reviewed several chapters on a short deadline, and provided extremely valuable feedback, both in content and presentation; and we extremely thankful for her insights. Felix is especially grateful to his teachers and advisors at the University of Pittsburgh (Andreas Blume, Esther Gal-Or, John Duffy, Oliver Board, In-Uck Park, and Alexandre Matros), and at the University of Barcelona (Carles Rafels, Marina Nunez, and Francisco Javier Martinez) who taught him Game Theory and Industrial Organization, instilling a passion for the use of these

topics in applied settings which hopefully transpires in the following pages. We are also thankful to the “team” of teaching and research assistants, both at Washington State University and at Universidad Tecnológica de Bolívar, who helped us with this project over several years: Diem Nguyen, Gulnara Zaynutdinova, Donald Petersen, Qingqing Wang, Jeremy Knowles, Xiaonan Liu, Ryan Bain, Eric Dunaway, Tongzhe Li, Wenxing Song, Pitchayaporn Tantihkarnchana, Roberto Fortich, Jhon Francisco Cossio Cardenas, Luis Carlos Díaz Canedo, Pablo Abitbol, and Kevin David Gomez Perez. We also appreciate the support of the editors at Springer-Verlag, Rebekah McClure, Lorraine Klimowich, and Dhivya Prabha. Importantly, we would like to thank our wives, Ana Espinola-Arredondo and Ericka Duncan, for supporting and inspiring us during the (long!) preparation of the manuscript. We would not have been able to do it without your encouragement and motivation.

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<http://www.springer.com/978-3-319-32962-8>

Strategy and Game Theory

Practice Exercises with Answers

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2016, XIV, 341 p. 259 illus., 156 illus. in color.,

Hardcover

ISBN: 978-3-319-32962-8