

The Art of Strategy - A Game Theorist's Guide to Success in Business and Life

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Avinash K. Dixit & Barry J. Nalebuff (2010). The Art of Strategy - A Game Theorist's Guide to Success in Business and Life (New Delhi: Viva Books Private Limited), pp. 504, ISBN- 978-81-309-1544-9

Avinash K. Dixit and Barry J. Nalebuff are the world-renowned experts on game theory. Prof A K Dixit is the John J. F. Sherrerd University Professor of economics at Princeton University. Prof B. J. Nalebuff is the Milton Steinbach Professor at the Yale School of Management. The book's target audience could be CEOs and management professionals, academics and students of management.

Game theory teaches how to think strategically and win while facing competitive situations. The game theoretic approach of decision-making is applicable in various aspects of life, and the authors state their intent of writing the book as "we hope that you will emerge a more effective manager, negotiator, athlete, politician, or parent" which also subtly implies the intended broad audience of the book.

Game theory (GT) was first formalised by John von Neumann and Oskar Morgenstern in their book Theory of Games and Economic Behaviour in 1944. A game represents a situation of interdependence, where the final outcome depends on the actions and choices of two or more players. If the players' interests are directly conflicting, one's gains will be the other's loss - such types of games are called zero-sum game. The moves in a game may be sequential or simultaneous (Chapter 2). The book uses examples; the most famous is the prisoner's dilemma (Chapter 3), and others from business, sports, politics, negotiations and popular culture to explain the key concepts with minimal use of mathematics

Authors start with an aim to revise their earlier work Thinking Strategically to incorporate latest development and accumulated teaching experience. The present book is an interesting introduction to game theory, offering readers a view of the discipline without assuming a prior knowledge of economics or mathematics. The book has been written in three parts and 14 chapters. Introduction has been titled as 'How should people behave in society?' It envisages all as strategists and life as a stream of constant decisions, and defines GT and describes its various applications. Chapter 1 begins with examples of the art of strategic thinking, showing how issues arise in a variety of decisions. It incorporates 10 tales of strategy including Pick a number, Hot hand, Here I stand, Think Strategically etc. The authors point out effective, less effective and bad all three types of strategies used in these real-life games. Chapter 2 is on sequential games which can be solved by backward reasoning using decision trees. The mantra for Chapter 2, Look forward and reason backward, means to anticipate where your initial decisions will lead you and then use this information backward to calculate about choice. Chapter 3 focuses on Prisoner's dilemma, while Chapter 4 focuses on A beautiful equilibrium (Nash Eqb.) recognising that there may not be a dominant strategy at all and there may be multiple Nash equilibria. In the chapters 2-4, the authors build the

basis for the science of game theory using examples, each of which brings out some principle as detailed below - Rules of Strategy and Nash Equilibrium.

- Look forward and reason backward. (Chapter 2)
- If you have a dominant strategy, use it. (Chapter 3)
- Eliminate from consideration any dominated strategies and strategies that are never best responses, and go on doing so successively. (Chapter 4)
- Look for an equilibrium, a pair of strategies in which each player's action is the best response to the others. (Epilogue I)
- In a game of pure conflict (zero-sum game), it would be disadvantageous for you to let the opponent see your actual choice in advance, and you benefit by choosing at random from your available pure strategies. The proportions in your mix should be such that the opponent cannot exploit your choice by pursuing any particular pure strategy from the ones available to him; i.e., you get the same average payoff when he plays any of his pure strategies against your mixture. (Chapter 5)

Chapter 5 talks about Choice and Chance in the actor's strategies and to avoid patterns in decisions. Chapter 6 talks about Strategic Moves - actions that change the game to ensure better outcome for the player taking it; it involves establishing credibility through commitment, threat and promise. This chapter explains each of these terms and its application. Chapter 7 talks about making strategies credible for which eight options are classified into three rules - change the payoff, limit one's ability to back out, and use others (teams, agents) to help. Chapter 8 focuses on Information - integration and manipulation through use of signalling, signal jamming and screening. It is also important to understand that the amount, type and quality of information or knowledge with each player also affects a player's move (Chapter 8). Chapter 9 is about cooperation and coordination between actors. The authors note that earlier focus of the game theory was on zero-sum games but John Nash, who developed Nash Equilibrium, extended it to combine conflict and cooperation (Chapter 9).

Nalebuff (1996) coined the word and wrote a book called Co-opetition, which transcended the evident tendency to compete to look beyond for cooperation with competition among players. However, there may be games with multiple equilibria or multiple potential solutions. It is also important to understand that the amount, type and quality of information or knowledge with each player also affects a player's move (Chapter 8). The authors explore the implications of game theory to some real-life problems with strategic stakes such as auctions, bidding and contests (Chapter 10). These auctions may use different systems such as the English, Japanese or Dutch. The chapter explains, for example, in the "T-BILLS" US treasury auction section how the auction was changed by the government to the uniform price rule. Chapter on bargaining (Chapter 11) brings to fore various issues involved in the negotiations and various bargaining tactics such as BATNA. This will hurt you more than it hurts me. Chapter on voting (Chapter 12) is used to propose a voting system that encouraged people to play straight. Any way of adding up votes is bound to be flawed. In practical terms, it means that people will always have an incentive to vote strategically.

Thus, election will be determined by the process just as much as by the voter preferences. Chapter on incentives (Chapter 13) highlights the lack of adequate workers and managerial incentives as the primary reason for failure of socialist economic systems. In contrast, a market economy has a better natural incentive mechanism, namely the profit motive. Each employee or manager is not fully exposed to competition in the market; however, top management devises its own internal carrots and sticks to obtain the desired standards of performance. The authors develop the components required for a smart incentive scheme through a series of examples. A final chapter on cases (Chapter 14) is included towards the end of the book. The case studies are similar to the ones used in classes. Each case sets out a particular set of circumstances and invites reader to apply the principles discussed in that chapter to find the right strategy for that situation. Some cases are open ended; at times there is no clearly correct solution, only imperfect ways to cope with the problem.

Closer look at the game theory reveals the use of common sense which can be mastered by developing a new way of seeing the world. Using different case studies the authors show how nearly every interaction with mutually conflicting self-interests has a game-theory element to it. The book contains many questions that readers can work out, with answers at the back. The authors claim that using game theory approach to competitive situations will make readers more successful in business and life. The authors write "some of the most exciting new insights have come from the recent advances in behavioural game theory, which incorporates human psychology and biases into the mix and thus adds a social element to the theory. As a result, game theory now does a much better job dealing with people as they are, rather than as we might like them to be. We incorporate these insights into our discussions....game theory is too interesting and important to leave to the academic journals."

To conclude, game theory provides but one particular view of the world. It is not the only one, nor the best. Game theory has its limitations. Neither is it a recipe for, nor a guarantee of, success. This book proves that game theory is interesting and important. The book teaches an entirely new and very artful approach to making decisions. The book builds on the experiences of authors and advances in relevant literature since the duo's earlier book, *Thinking Strategically*. The book aims at helping reader become better at recognising, even anticipating, strategic situations and knowing how to respond. The book is hailed, perhaps justly so, as the bible for developing winning strategies in business and in the game of life.

Author's Profile

Krishna Chandra Balodi is a participant of Fellow program in Management (Doctoral Degree) in Strategic Management Area at Indian Institute of Management Indore. He had done the Master of Management Science from Lucknow University, Lucknow. He has about 6 years of teaching experience at graduate and postgraduate level in university and management institutes. His broad research interests include organic and inorganic growth of firms, Internationalization of firms, Entrepreneurship, Top management teams and Emerging multinationals.