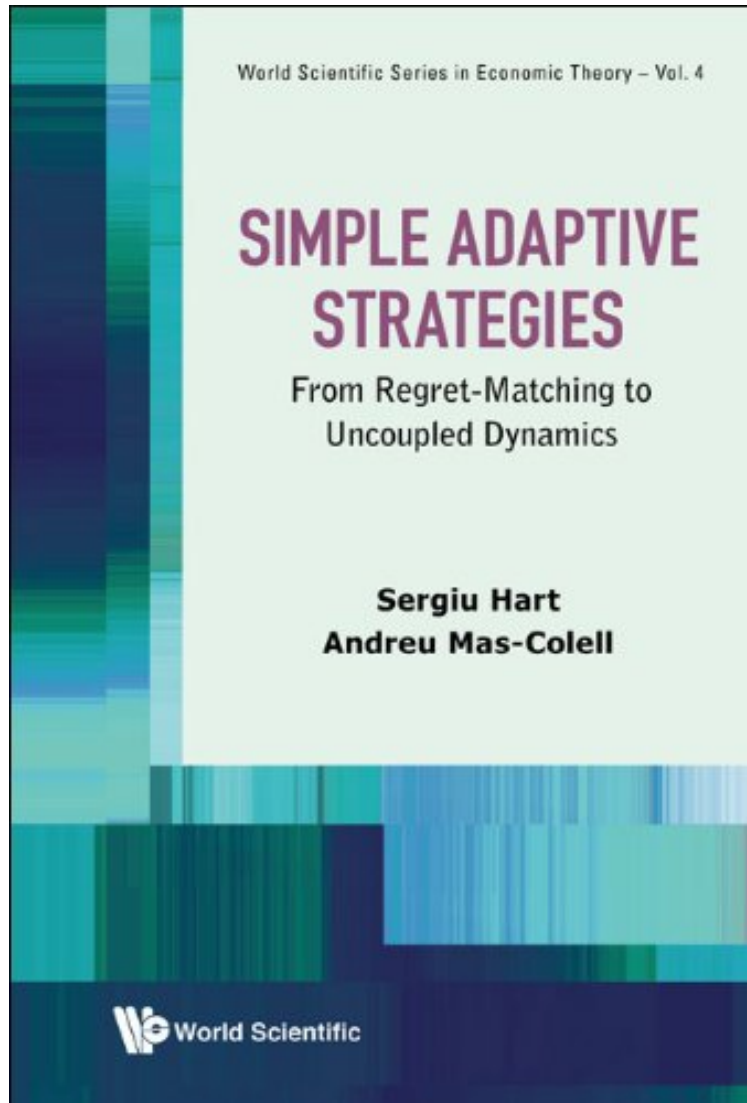


[Read free ebook] Simple Adaptive Strategies:From Regret-Matching to Uncoupled Dynamics: 4 (World Scientific Series in Economic Theory)

## Simple Adaptive Strategies:From Regret-Matching to Uncoupled Dynamics: 4 (World Scientific Series in Economic Theory)

*Sergiu Hart, Andreu Mas-Colell*

*\*Download PDF | ePub | DOC | audiobook | ebooks*



DOWNLOAD



READ ONLINE

#2927225 in eBooks 2013-01-22 2013-01-22File Name: B00BVYNGFA | File size: 72.Mb

**Sergiu Hart, Andreu Mas-Colell : Simple Adaptive Strategies:From Regret-Matching to Uncoupled Dynamics: 4 (World Scientific Series in Economic Theory)** before purchasing it in order to gage whether or not it would be worth my time, and all praised Simple Adaptive Strategies:From Regret-Matching to Uncoupled Dynamics: 4 (World Scientific Series in Economic Theory):

This volume collects almost two decades of joint work of Sergiu Hart and Andreu Mas-Colell on game dynamics and equilibria. The starting point was the introduction of the adaptive strategy called regret-matching, which on the one hand is simple and natural, and on the other is shown to lead to correlated equilibria. This initial finding boundededly rational behavior that yields fully rational outcomes in the long run generated a large body of work on the dynamics of simple adaptive strategies. In particular, a natural condition on dynamics was identified: uncoupledness, whereby decision-makers do not know each other's payoffs and utilities (so, while chosen actions may be observable, the motivations are not). This condition turns out to severely limit the equilibria that can be reached. Interestingly, there are connections to the behavioral and neurobiological sciences and also to computer science and engineering (e.g., via notions of "regret").

**Simple Adaptive Strategies** is self-contained and unified in its presentation. Together with the formal treatment of concepts, theorems, and proofs, significant space is devoted to informal explanations and illuminating examples. It may be used for advanced graduate courses in game theory, economics, mathematics, computer science, engineering; and for further research.

**Contents:**

- Correlated Equilibria: Existence of Correlated Equilibria (Sergiu Hart and David Schmeidler)
- Regret Matching: A Simple Adaptive Procedure Leading to Correlated Equilibrium (Sergiu Hart and Andreu Mas-Colell)
- A General Class of Adaptive Strategies (Sergiu Hart and Andreu Mas-Colell)
- A Reinforcement Procedure Leading to Correlated Equilibrium (Sergiu Hart and Andreu Mas-Colell)
- Regret-Based Continuous-Time Dynamics (Sergiu Hart and Andreu Mas-Colell)
- General Procedures Leading to Correlated Equilibria (Amotz Cahn)
- Uncoupled Dynamics: Uncoupled Dynamics Do Not Lead to Nash Equilibrium (Sergiu Hart and Andreu Mas-Colell)
- Stochastic Uncoupled Dynamics and Nash Equilibrium (Sergiu Hart and Andreu Mas-Colell)
- Uncoupled Automata and Pure Nash Equilibria (Yakov Babichenko)
- How Long to Equilibrium? The Communication Complexity of Uncoupled Equilibrium Procedures (Sergiu Hart and Yishay Mansour)
- Dynamics and Equilibria: Adaptive Heuristics (Sergiu Hart)
- Nash Equilibrium and Dynamics (Sergiu Hart)

**Readership:** Graduate students and researchers in game theory, economic theory, econometrics, computer science and engineering.

"A fundamental issue with any concept of equilibrium, including Nash and correlated equilibria, is to define the process by which equilibrium is attained. The work of Professors Hart and Mas-Colell has been the deepest in this area, especially in defining conditions ('uncoupled dynamics') which reflect naturally the information available in real economic interactions. Their body of results is essential to study of these fundamental problems." -- Kenneth J Arrow, Stanford University, USA

"In social as well as physical systems, equilibrium is of fundamental importance. Reaching equilibrium is at least as important as being there. In the last quarter century, research that investigates how social or game-theoretic equilibrium is reached has been spearheaded by Sergiu Hart and Andreu Mas-Colell. The most outstanding works in this area are gathered in the book before us; a must for anyone interested in this dynamic area of emerging economic research." -- Robert J Aumann, Hebrew University of Jerusalem, Israel

"The question of learning and convergence to equilibrium is of critical importance to the foundations and applications of game theory. But after half a century of research there are no universally accepted answers: different assumptions about players' information and learning dynamics lead to different conclusions. The Hart and Mas-Colell book describes fascinating directions of research on this subject developed by two distinguished authors and their collaborators over the last dozen years." -- Ehud Kalai, Northwestern University, USA

"In this collection two leading game theorists show that various forms of equilibrium can be learned by simple and natural learning strategies that put minimal demands on the players' knowledge and level of rationality. It represents a major contribution to one of the most important topics in modern game theory." -- Peyton Young, Oxford University, UK

"The question of learning and convergence to equilibrium is of critical importance to the foundations and applications of game theory. But after half a century of research there are no universally accepted answers: different assumptions about players' information and learning dynamics lead to different conclusions. The Hart and Mas-Colell book describes fascinating directions of research on this subject developed by two distinguished authors and their collaborators over the last dozen years." -- Ehud Kalai, Northwestern University, USA

"In this collection two leading game theorists show that various forms of equilibrium can be learned by simple and natural learning strategies that put minimal demands on the players' knowledge and level of rationality. It represents a major contribution to one of the most important topics in modern game theory." -- Peyton Young, Oxford University, UK

**From the Inside Flap**

This volume collects almost two decades of joint work of Sergiu Hart and Andreu Mas-Colell on game dynamics and equilibria. The starting point was the introduction of the adaptive strategy called regret-matching, which on the one hand is simple and natural, and on the other is shown to lead to correlated equilibria. This initial finding boundededly rational behavior that yields fully rational outcomes in the long run generated a large body of work on the dynamics of simple adaptive strategies. In particular, a natural condition on dynamics was identified: uncoupledness, whereby decision-makers do not know each other's payoffs and utilities (so, while chosen actions may be observable, the motivations are not). This condition turns out to severely limit the equilibria that can be reached. Interestingly, there are connections to the behavioral and neurobiological sciences and also to computer science and engineering (e.g., via notions of "regret").

**Simple Adaptive Strategies** is self-contained and unified in its presentation. Together with the formal treatment of concepts, theorems, and proofs, significant space

is devoted to informal explanations and illuminating examples. It may be used for advanced graduate courses in game theory, economics, mathematics, computer science, engineering and for further research.

About the Author: Sergiu Hart is the Kusiel-Vorreuter University Professor, Professor of Mathematics, and Professor of Economics, at the Hebrew University of Jerusalem. He was born in Romania, and received his Ph.D. in mathematics at Tel Aviv University in 1976. His previous academic appointments were at Stanford University, Tel Aviv University, and Harvard University (visiting). The main area of research of Sergiu Hart is game theory and economic theory, with additional contributions in mathematics, computer science, probability and statistics. Among his major contributions are studies of strategic foundations of cooperation; strategic use of information in long-term interactions ("repeated games"); adaptive and evolutionary dynamics, particularly with boundedly rational agents; perfect economic competition and its relations to models of fair distribution; and riskiness.

Andreu Mas-Colell is Professor of Economics (Catedrático) at the Universitat Pompeu Fabra, Barcelona, Spain. Formerly he was Professor of Economics at Harvard University (1981-1996), Professor of Economics and Mathematics at the University of California, Berkeley (1972-1980) and Chairman of the Barcelona Graduate School of Economics (2006-2010). He holds Honoris Causa Doctorates from the universities of Alacant, Toulouse, HEC (Paris) and Universidad Nacional del Sur (Argentina). He has received the Rey Juan Carlos I Prize in Economics (1988), the Pascual Madoz (National Research Prize) (2006), and the Premio Fundación BBVA Fronteras del Conocimiento en Economía, Finanzas y Gestión de Empresas -- shared with H. Sonnenschein -- (2009). He has served as main Editor of the Journal of Mathematical Economics (1985-1988), and of *Econometrica* (1988-1992). Andreu Mas-Colell has written some 100 research papers on subjects ranging from abstract general equilibrium theory and the structure of financial markets to pricing policy for public firms. He is the author of *The Theory of General Economic Equilibrium: A Differentiable Approach* (Cambridge University Press, 1985) and co-author with M. Whinston and J. Green, of the graduate textbook *Microeconomic Theory* (Oxford University Press, 1994).