Game time

Like Doctor Who's Tardis, this delightful little book is much bigger on the inside than it is on the outside. It looks like a breezy, hundred-page romp through some recent ideas in moral philosophy. But smuggled between its covers are some of the most challenging ideas in modern game theory, evolutionary biology, and computer simulation. Readers previously baffled by terms like Nash equilibria, correlated conventions, subgame perfection, and polymorphic traps will find their minds cleansed of confusion. Where so many game theorists and philosophers write to intimidate, Brian Skyrms writes to enlighten. His rare lightness of touch makes the reader relax enough to let their intelligence overcome their fear. One finishes the book feeling not just better informed, but smarter.

Skyrms is Professor of Philosophy at the University of California at Irvine. His three previous books range from causation through pragmatism to decision theory. Here, he reports on a fascinating Darwinian revolution in game theory, made possible by the power of computer simulation, with far-reaching implications in the social sciences and social philosophy.

Traditional game theory is a set of mathematical tools for analysing interactive decision-making. One first identifies some players, who each have a set of possible strategies, and a set of payoffs that result from the interaction of each possible strategy played by each player. Given these preconditions, there are various techniques for identifying "equilibria", which are sets of strategies that work well against each other. At an equilibrium, no player has an incentive to play any strategy other than the one they're already playing, as long as the other players keep doing what they're doing. For example, driving on the left is the equilibrium in Britain, whereas driving on the right is the equilibrium in Germany.

A problem with traditional game theory is that the methods for finding equilibria can be rather artificial, leading to predictions about human behaviour that conflict with human intuition and with evidence from experimental economics and psychology. Traditional game theory asked what kind of strategies would make sense for the super-rational to play against each other. It was a theory of how the super-bright Mentats from Frank Herbert's "Dune" might behave when confronted by the hyper-intelligent Minds from Iain M. Banks' "Excession" in some strategic arena beyond space and time.

This same disembodied, ahistorical approach to strategic interaction was taken by moral philosophers such as Plato, Kant, Thomas Hobbes, John Harsanyi, and John Rawls in dealing with questions of social organisation and political fairness. Rawls' famous "Theory of Justice" required real citizens living in real cultures with real history to act as if they could leap back to a time before their birth called the "Original Position", to negotiate a fair social contract behind a "Veil of Ignorance" concerning their current status, sex, ethnicity, class, and individual capacities.

This sort of hypothetical pre-natal negotiation seems a rather ghostly sort of foundation for a real society, but Rawls and company are routinely cited by leftist think tanks as the modern titans of political theory.

The Darwinian revolution in game theory is changing all that, by discovering much more robust, general, and reasonable methods for finding equilibria in important social games. The key move is to consider time. Strategies evolve over time because people learn, and imitate, and feel their way by trial and error to successful behaviours. As Hegel, Marx, and Darwin recognised, these historical processes can be smarter than the individuals that compose them -- but not as smart as our super-rational Mentats. Often, the strategies that (simulated) evolution favours for playing a particular game are rather different from the strategies that look best according to traditional theory.

Skyrms explains how this works in his five delectable chapters that explore five key topics in human social and political relations. Chapter 1 shows how evolution can produce bargaining strategies for fair divisions of stuff in a way that our Mentats could never settle upon. Chapter 2 shows how evolution can preserve emotions like moral outrage that lead people to punish cheats even when it looks irrational to bother with them. Chapter 3 shows how, if players tend to meet other players who have similar strategies (e.g. by being born into the same families and tribes), then evolution can produce interesting strategies that no Mentat would ever consider. Chapter 4 shows how the noisy bits of evolution (like mutation and genetic drift) can "break symmetries" that otherwise keep the rational donkey starving between two equidistant piles of hay. The final, perhaps most interesting chapter shows how easy it is for evolution to solve the semiotician's paradox of how meaning originates, by evolving the right correlations between signal-senders and signal-receivers. Along the way, Skyrms weaves his refreshing take on ancient philosophical quandaries with his simple, illustrative computer simulations.

This book could do for contemporary game theory what Richard Dawkins did for evolutionary theory, rendering the key theoretical ideas so clear to a general readership that the sophistication of public discourse about related issues is palpably improved.

People really need to think about what social contracts are, where they come from, how they are maintained, and how they can be improved. Why? Because voting for different political parties is essentially voting for different hypotheses about how to sustain the best social contract in a contemporary society given the players and coalitions that exist. Many works in political philosophy offer arguments on one side or another, but give the reader few intellectual tools for gaining insight into the core questions. Skyrms gives a good place to start for the citizen seeking to understand social contracts as they evolve in real time and real societies, not as they might have been designed by hypothetical Mentats meeting beyond space, time, and human frailty.