



Playing for Keeps

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Margaret Thatcher's famous quip that "there is no such thing as society" gives a foreshortened version of methodological individualism, the atomic hypothesis of the social sciences. The mathematical underpinning for explaining the behavior of interacting individuals guided by their own, often opposing interests is game theory, so named because parlor games such as chess and poker offer the earliest abstractions of conflicts. This evocative term certainly proved to be a major asset in product placement—people are more willing to hear about game theory than, say, stochastic optimization—but it entailed several costs. One drawback is that game theorists often find themselves forced to explain why they fail to do better at card tables or playing boards. It is for the same reason that students of physics are not any

crusted establishment, today appears to have been well founded. A further drawback of applying the game metaphor to economics is that most parlor games are zero-sum, one player's gain is another player's loss. Such situations do occur rarely in social interactions (whether instances of conflict or co-operation), but they attracted an exaggerated amount of attention from theoreticians. Significantly, Gintis barely mentions zero-sum games.



Know when to hold them. Steve McQueen in *The Cincinnati Kid* (1965).

The 1960s were lean years for game theory. Mathematical counterexamples and a lack of convincing applications severely curtailed the early enthusiasts' bold claims of rational solutions to major strategic problems. The approach's second wind came in the 1970s, when theoretical biologists discovered it as a major tool for thinking about evolution and applied it to problems ranging from sex ratios and escalation of fighting to virulence and reciprocal altruism. John Maynard Smith's *Evolution and the Theory of Games* (2) became the beacon of this movement. Game theory gained flexibility by getting rid of the assumption that strategies comprise well-plotted sequences of moves and counter-moves by rational agents, and simply viewing them as behaviors able to spread, if successful, within a population (through imitation or inheritance). During the following decades, the approach attracted a

growing section of economists (3, 4).

In *Game Theory Evolving*, Gintis provides not a history of this scientific evolution but a testimony of the conversion of economists. His spirited attack on *homo economicus*—a fictitious agent relentlessly bent on maximizing self-centered utility and properly branded by Gintis as a sociopath—is devastatingly convincing; it bodes ill for the long-term survival of that species in economic treatises and textbooks. Gintis dissects the inconsistencies of classical rationality assumptions and marshals a rich harvest of condemning evidence from experimental economics.

Gintis has wholeheartedly embraced the evolutionary approach to games, but he seems to expect that instructors ("having learned and taught the older tradition of classical game theory") will guide students through this problem-centered textbook brimful of exercises. The author is an accomplished economist raised in the classical mold, and his background shows in many aspects of the book. He assumes some familiarity with standard scenarios in economics, comes to population dynamics only late in the book, and preaches the newfound creed with missionary zeal. His harsh treatment of unenlightened colleagues who still expound traditional lore recalls the mordant asides found in Morgenstern's diaries.

When Gintis turns from polemics to mathematical modelling, his text loses some of its edge. He does offer a continuous barrage of fanciful examples featuring "troggs and farfels" or the like, and the endearingly candid promise that these stories "make the sort of cocktail party conversation that attracts people seeking brainy yet creative mates." But among the milder drawbacks of the term "game theory" is that some authors feel prompted to exhibit playfulness at every turn.

In an aside on Wittgenstein's dictum "whatever can be said can be said clearly," Gintis remarks that researchers who insist on clarity at all costs rarely make important discoveries. He himself has important things to say; some models in the book are recent vintage of his own. One main point emerges from the book with all required forcefulness: game theory, which originally was meant to describe (or prescribe) rational decisions, has become the major instrument for displaying the shakiness of the concept of rationality.

References

1. J. von Neumann and O. Morgenstern, *Theory of Games and Economic Behavior* (Princeton Univ. Press, Princeton, NJ, 1944).
2. J. Maynard Smith, *Evolution and the Theory of Games* (Cambridge Univ. Press, Cambridge, 1982).
3. J. Weibull, *Evolutionary Game Theory* (MIT Press, Cambridge, MA, 1995).
4. D. Fudenberg and D. Levine, *The Theory of Learning in Games* (MIT Press, Cambridge, MA, 1998).

Game Theory Evolving
A Problem-Centered Introduction to Modeling Strategic Interaction
by Herbert Gintis

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better at billiards: working out basic laws yields insight, not proficiency.

The title of Herb Gintis's engaging book *Game Theory Evolving* alludes to the checkered history of this young science. The field was born with a 1944 book (1) by John von Neumann and Oskar Morgenstern, a Hungarian and an Austrian, respectively, transplanted into war-time Princeton. Morgenstern was a maverick economist holding harsh views on the state of his discipline and the accomplishments of his peers; von Neumann, a mathematical genius basking in the admiration of his colleagues. Their forbiddingly heavy volume fared well with journalists and spawned a considerable amount of hopeful hype. More importantly, it attracted, for a limited time span, the attention of some of the best young mathematicians. But most mainstream economists remained aloof. Their reticence, which Morgenstern attributed to the reactionary stance of an en-

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