

The Evolution Of Cooperation Robert Axelrod

Praxiology deals with doing and working from the point of view of effectiveness. It has three components: analysis of concepts involving purposive actions; critique of models of action from the viewpoint of efficiency; and normative advisory aspects in recommendations for increasing human efficiency. This fourth volume of the Praxiology series is devoted to the very special topic of social agency. It focuses on two important praxiological concepts: rationality and preparation as preconditions for human action to be effective and efficient. The question of efficiency was raised by Anatol Rapoport over three decades ago in his lecture to the audience at the Praxiological Seminar in Warsaw in 1961. Social Agency begins with an article written by this same famous scholar on the topic of decision theory, "Social Dilemmas: A Historical Overview." Social dilemmas is the subject of the first part of this volume, a question related to studies on human action guided by two types of rationality: individual and collective rationality. The intersection of the two, in which individuals meet collectives, creates the situation in which social agency emerges, generating dilemmatic circumstances for the actors involved. The articles collected in the second part explore praxiological dimensions of education aimed toward the knowledge society, because of knowledge possessed and produced by educated persons. Chapters and contributors to volume 4 include: "Five Questions on the Research on Social Dilemmas" by Marek K. Mlicki; "Psychological Processes Underlying Cooperation in Social Dilemmas" by Paul A. M. Van Lange and David M. Messick; "Designing a System for Design Learning: Designers and/or Learners?" by Arne Collen; "Creating an Evolutionary Image of New Systems of Learning and Human Development" by Janet A. Khan; and "A Study Program Design in Retrospect" by Stig C. Holmberg. Social Agency continues the trend of original research done in a little-known, but important area. Social scientists, policymakers, and educators will benefit from this work.

This book is about the evolution and nature of cooperation and altruism in social-living animals, focusing especially on non-human primates and on humans. Although cooperation and altruism are often thought of as ways to attenuate competition and aggression within groups, or are related to the action of "selfish genes", there is increasing evidence that these behaviors are the result of biological mechanisms that have developed through natural selection in group-living species. This evidence leads to the conclusion that cooperative and altruistic behavior are not just by-products of competition but are rather the glue that underlies the ability for primates and humans to live in groups. The anthropological, primatological, paleontological, behavioral, neurobiological, and psychological evidence provided in this book gives a more optimistic view of human nature than the more popular, conventional view of humans being naturally and basically aggressive and warlike. Although competition and aggression are recognized as an important part of the non-human primate and human behavioral repertoire, the evidence from these fields indicates that cooperation and altruism may represent the more typical, "normal", and healthy behavioral pattern. The book is intended both for the general reader and also for students at a variety of levels (graduate and undergraduate): it aims to provide a compact, accessible, and up-to-date account of the current scholarly advances and debates in this field of study, and it is designed to be used in teaching and in discussion groups. The book derived from a

conference sponsored by N.S.F., the Wenner-Gren Foundation for Anthropological Research, the Washington University Committee for Ethics and Human Values, and the Anthropedia Foundation for the study of well-being.

Cooperation among humans is one of the keys to our great evolutionary success.

Natalie and Joseph Henrich examine this phenomena with a unique fusion of theoretical work on the evolution of cooperation, ethnographic descriptions of social behavior, and a range of other experimental results. Their experimental and ethnographic data come from a small, insular group of middle-class Iraqi Christians called Chaldeans, living in metro Detroit, whom the Henrichs use as an example to show how kinship relations, ethnicity, and culturally transmitted traditions provide the key to explaining the evolution of cooperation over multiple generations.

From Gaia to Selfish Genes is a different kind of anthology. Lively excerpts from the popular writings of leading theorists in the life sciences blend in a seamless presentation of the controversies and bold ideas driving contemporary biological research. Selections span scales from the biosphere to the cell and DNA, and disciplines from global ecology to behavior and genetics, and also reveals the links between biology and philosophy. They plunge the reader into debates about heredity and environment, competition and cooperation, randomness and determinism, and the meaning of individuality. From Gaia to Selfish Genes conveys the technical and conceptual roots of current scientific theories beginning with the planetary perspective of James Lovelock and Lynn Margulis and concluding with the reductionist views of Richard Dawkins and E. O. Wilson. The contrasting worldviews, coupled with excerpts drawn from critics of each theory, encourage readers to examine their own presuppositions. In addition to the scientists' portrayal of the Gaia hypothesis, symbiosis in cell evolution, hierarchy theory, systems theory, game theory, sociobiology, and the selfish gene, the text is rich in autobiographical passages and biographies. By presenting the human side of research, From Gaia to Selfish Genes reveals the social context and interactions, the motivations and range of cognitive styles that comprise the scientific endeavor. Concluding essays written expressly for this book by Lynn Margulis, John Maynard Smith, W. Ford Doolittle, and others underscore the importance of such diversity. Connie Barlow is a science writer currently living in New York City. The scientists include: Robert Axelrod. Richard D. Alexander. Ludwig von Bertalanffy. Leo W. Buss. Francis Crick. Richard Dawkins. W. Ford Doolittle. Douglas Hofstadter. Julian Huxley. Leon J. Kamin. Philip Kitcher. Richard C. Lewontin. James Lovelock. Lynn Margulis. Ashley Montagu. Leslie Orgel. Steven Rose. Carmen Sapienza. John Maynard Smith. Lewis Thomas. Gerald Weinberg. E. O. Wilson. Robert Wright. The science writers include: Lawrence Joseph. Arthur Koestler. Francesca Lyman. Jeanne McDermott. Richard Monastersky. Dorion Sagan.

Why do nations cooperate even as they try to destroy each other? Jeffrey Legro explores this question in the context of World War II, the "total" war that in fact wasn't. During the war, combatant states attempted to sustain agreements limiting the use of three forms of combat considered barbarous—submarine attacks against civilian ships, strategic bombing of civilian targets, and chemical warfare. Looking at how these restraints worked or failed to work between such fierce enemies as Hitler's Third Reich and Churchill's Britain, Legro offers a new understanding of the dynamics of World War II and the sources of international cooperation. While traditional explanations of

cooperation focus on the relations between actors, *Cooperation under Fire* examines what warring nations seek and why they seek it—the "preference formation" that undergirds international interaction. Scholars and statesmen debate whether it is the balance of power or the influence of international norms that most directly shapes foreign policy goals. Critically assessing both explanations, Legro argues that it was, rather, the organizational cultures of military bureaucracies—their beliefs and customs in waging war—that decided national priorities for limiting the use of force in World War II. Drawing on documents from Germany, Britain, the United States, and the former Soviet Union, Legro provides a compelling account of how military cultures molded state preferences and affected the success of cooperation. In its clear and cogent analysis, this book has significant implications for the theory and practice of international relations.

Die Autorin untersucht, wie und warum chinesische Stiftungen mit sozialen Basisorganisationen (SOs) interagieren. Neben gut dokumentierten empirischen Untersuchungen in China wird die Studie mit anekdotischen Belegen durchgeführt, die die Autorin über einen Zeitraum von zehn Jahren von 2008 bis 2019 sammelte, als die chinesischen Stiftungen ihre Interaktion mit anderen SOs begannen. Die Ergebnisse zeigen, dass chinesische Stiftungen mit Basis-SOs auf sechs verschiedene Arten interagieren, nämlich über Spezialfonds, gemeinsames Fundraising, High-Engagement Grantmaking, Zuwendungen an Projekte, Zuwendungen an Organisationen und Zuwendungen an Einzelpersonen. Allerdings deckt sich die Förderlogik chinesischer Stiftungen nicht mit den Bedürfnissen von gemeinnützigen Organisationen an der Basis, weil sie die Schwierigkeiten des jeweils anderen nicht vollständig verstehen und weil ihr Fokus und ihr Entwicklungsweg nicht derselbe sind, was zu weniger Interaktion führt. Dieses Buch bietet neue und inspirierende Einblicke für Wissenschaftler und Studenten des aufstrebenden und florierenden dritten Sektors in China. Es ist nicht nur für Wissenschaftler interessant, sondern spricht auch die Praktiker an, die in Chinas drittem Sektor arbeiten.

DIVE Explains how game theory can be used to explain political phenomena /div For centuries, philosophers have been puzzled by the fact that people often respect moral obligations as a matter of principle, setting aside considerations of self-interest. In more recent years, social scientists have been puzzled by the more general phenomenon of rule-following, the fact that people often abide by social norms even when doing so produces undesirable consequences. Experimental game theorists have demonstrated conclusively that the old-fashioned picture of "economic man," constantly reoptimizing in order to maximize utility in all circumstances, cannot provide adequate foundations for a general theory of rational action. The dominant response, however, has been a slide toward irrationalism. If people are ignoring the consequences of their actions, it is claimed, it must be because they are making some sort of a mistake. In *Following the Rules*, Joseph Heath attempts to reverse this trend, by showing how rule-following can be understood as an essential element of rational action. The first step involves showing how rational choice theory can be modified to incorporate deontic constraint as a feature of rational deliberation. The second involves disarming the suspicion that there is something mysterious or irrational about the psychological states underlying rule-following. According to Heath, human rationality is a by-product of the so-called "language upgrade" that we receive as a consequence of the development of

specific social practices. As a result, certain constitutive features of our social environment-such as the rule-governed structure of social life-migrate inwards, and become constitutive features of our psychological faculties. This in turn explains why there is an indissoluble bond between practical rationality and deontic constraint. In the end, what Heath offers is a naturalistic, evolutionary argument in favor of the traditional Kantian view that there is an internal connection between being a rational agent and feeling the force of one's moral obligations.

This book invites philosophers and their students to consider two of the most fundamental questions in moral and political philosophy: Why be moral? And, what does morality require? Distinguished philosopher James P. Sterba presents his unique views on these topics. Sterba first argues from rationality to morality and then from morality to substantial equality. Prominent scholars Charles W. Mills, Candace A. Vogler, Anita Superson, Russ Shafer-Landau, Allan F. Gibbard, Gerald Gaus, and Tibor Machan provide thought-provoking critical responses. In the final part, Sterba addresses these critiques, inviting readers to explore the various arguments and reach their own conclusions on these fundamental questions of moral and political philosophy. *Morality: The Why and What of It* is an essential text for all students and scholars of ethics and political philosophy.

"The iterated Prisoner's Dilemma is a commonly studied game in Game Theory. Many real life situations, such as trench warfare during World War I, can be modeled by such a game. Robert Axelrod implemented a computer tournament in order to determine the best strategy during repeated interactions. Various entries, ranging from very simple to very sophisticated strategies, competed in his tournament. We recreate the tournament using a programming language Matlab and examine the results. Although our results are not entirely identical to Axelrod's results, we confirm Axelrod's general findings. In particular, in order for a strategy to be successful, it should be nice, forgiving, relatively easy to understand by its opponents and also retaliatory."--Abstract from author supplied metadata.

Essay aus dem Jahr 2012 im Fachbereich Philosophie - Praktische (Ethik, Ästhetik, Kultur, Natur, Recht, ...), Note: 1,3, Universität zu Köln, Sprache: Deutsch, Abstract: Robert Axelrod und William D. Hamilton beschäftigten sich in den 1980er Jahren mit der Frage, unter welchen Bedingungen kooperatives Verhalten bei Menschen entsteht, die in einer egoistisch angelegten Gesellschaft miteinander leben, in der keine zentrale Kontrollinstanz gegeben ist. Auf dieser Fragestellung gründet auch ihre Publikation „The Evolution of Cooperation“, welche sie in der Zeitschrift *Science* veröffentlichten. Ziel ihres Vorhabens war daher eine Theorie zu entwickeln, mit deren Hilfe es möglich wird Faktoren transparent zu machen, welche für die Entstehung von Kooperation notwendig sind. Denn kennt man ihre Bedingungen, so ist es möglich Maßnahmen zu fördern, durch die eine Entwicklung in Gang gesetzt werden kann um die Kooperation zu fördern. Um dieses Verhältnis zu entschlüsseln bedient sich Axelrod einer Spieltheorie, dem „Gefangenendilemma“. Das Grundkonzept entstand bereits in den 1950er Jahren und sollte nun als Axelrods Fundament zur Entschlüsselung der Fragestellung dienen.

Honderdduizend jaar geleden leefde de Homo sapiens nog een tamelijk onbekommerd bestaan in een uithoek van het Afrikaanse continent en deelde hij de planeet met ten minste vijf andere menssoorten. Maar op een zeker moment onderging het brein van

deze mens een ingrijpende verandering: nu kon hij zich plots verbeelden dat het gras elders wel eens groener zou kunnen zijn, en dus maakte hij zich op om de wereld te veroveren. In *Sapiens* neemt Yuval Noah Harari ons mee op een fascinerende reis door de geschiedenis van de mensheid. Wie zijn we? Waar komen we vandaan? En hoe zijn we zo geworden als we nu zijn? In zijn aanstekelijke relaas laat Harari ons kennismaken met het meest dominante wezen op aarde: de mens.

Social scientists can learn a lot from evolutionary biology - from systematics and principles of evolutionary ecology to theories of social interaction including competition, conflict and cooperation, as well as niche construction, complexity, eco-evo-devo, and the role of the individual in evolutionary processes. Darwinian sociocultural evolutionary theory applies the logic of Darwinism to social-learning based cultural and social change. With a multidisciplinary approach for graduate biologists, philosophers, sociologists, anthropologists, social psychologists, archaeologists, linguists, economists, political scientists and science and technology specialists, the author presents this model of evolution drawing on a number of sophisticated aspects of biological evolutionary theory. The approach brings together a broad and inclusive theoretical framework for understanding the social sciences which addresses many of the dilemmas at their forefront - the relationship between history and necessity, conflict and cooperation, the ideal and the material and the problems of agency, subjectivity and the nature of social structure.

This widely praised and much-discussed book explores how cooperation can emerge in a world of self-seeking egoists—whether superpowers, businesses, or individuals—when there is no central authority to police their actions.

The *Origin and Evolution of Cultures* presents articles based on two notions. That culture is crucial for understanding human behaviour; and that culture is part of biology. Interest in this collection will span anthropology, psychology, economics, philosophy, and political science. Challenges traditional views of the Qin dynasty as an oppressive regime by revealing cooperative aspects of its governance. This revealing book challenges longstanding notions of the Qin dynasty, China's first imperial dynasty (221–206 BCE). The received history of the Qin dynasty and its founder is one of cruel tyranny with rule through fear and coercion. Using a wealth of new information afforded by the expansion of Chinese archaeology in recent decades as well as traditional historical sources, Charles Sanft concentrates on cooperative aspects of early imperial government, especially on the communication necessary for government. Sanft suggests that the Qin authorities sought cooperation from the populace with a publicity campaign in a wide variety of media—from bronze and stone inscriptions to roads to the bureaucracy. The book integrates theory from anthropology and economics with early Chinese philosophy and argues that modern social science and ancient thought agree that cooperation is necessary for all human societies.

The *Evolution of Cooperation* provides valuable insights into the age-old question of whether unforced cooperation is ever possible. Widely praised and much-discussed, this classic book explores how cooperation can emerge in a world of self-seeking egoists-whether superpowers, businesses, or individuals-when there is no central authority to police their actions. The problem of cooperation is central to many different fields. Robert Axelrod recounts the famous computer tournaments in which the "cooperative" program Tit for Tat recorded its stunning victories, explains its application to a broad spectrum of subjects, and suggests how readers can both apply cooperative principles to their own lives and teach cooperative principles to others.

How Humans Evolved teaches the processes that shape human evolution with a unique blend

of evolutionary theory, population genetics, and behavioral ecology. The new edition continues to offer the most up-to-date research—in particular, significantly revised coverage of how recent discoveries are shaping our history of human evolution—while now giving you the best tools to engage your students in and out of the classroom.

The Evolution of Cooperation Revised Edition Basic Books

Seminar paper from the year 2010 in the subject Philosophy - Theoretical (Realisation, Science, Logic, Language), grade: 1,0, University of Stuttgart (Institut für Philosophie/Wissenschaftstheorie/Technikphilosophie), course: HS Philosophy of Simulation, language: English, abstract: In the early 1980s, Robert Axelrod published several articles on The Evolution of Cooperation, discussing and interpreting the results of his well-known computer tournaments and of a series of subsequent simulations. Both the tournaments and simulations were conducted in order to find a suitable, evolutionary stable strategy for the iterated prisoner's dilemma, which is generally considered an appropriate model of a certain type of social dilemma that arises when "the pursuit of self-interest by each leads to a poor outcome for all." The results of the tournaments and simulations led to a generalized theory of the evolution of cooperation, which claims to provide an explanation for various historical, social and biological phenomena. Axelrod's work contributed extensively to popularizing computer simulation as a scientific method in the social sciences. Besides the fact that his approach had an unquestionably high impact on succeeding research and ushered in the "simulation era" in the social sciences, the use Axelrod made of computer simulations raises questions about their methodological and epistemological status: If, as Axelrod states in his paper "Advancing the Art of Simulation in the Social Sciences," simulation can serve the purposes of prediction, proof and even scientific discovery, what need is there for conducting experiments any longer? Can't we simulate science? Admittedly, this suggestion sounds somewhat exaggerated, but why exactly do most of us share the intuition that there are fundamental differences persisting between simulations and experiments? What are the characteristic features distinguishing them? Do computer simulations in general - and Axelrod's tournaments"

"[Cooperation research] is one of the busiest and most exciting areas of transdisciplinary science right now, linking evolution, ecology and social science. . . this is the first major work or collection to address linkages between archaeology and cooperation research."—Michael E. Smith, Arizona State University Past archaeological literature on cooperation theory has emphasized competition's role in cultural evolution. As a result, bottom-up possibilities for group cooperation have been under theorized in favor of models stressing top-down leadership, while evidence from a range of disciplines has demonstrated humans to effectively sustain cooperative undertakings through a number of social norms and institutions.

Cooperation and Collective Action is the first volume to focus on the use of archaeological evidence to understand cooperation and collective action. Disentangling the motivations and institutions that foster group cooperation among competitive individuals remains one of the few great conundrums within evolutionary theory. The breadth and material focus of archaeology provide a much needed complement to existing research on cooperation and collective action, which thus far has relied largely on game-theoretic modeling, surveys of college students from affluent countries, brief ethnographic experiments, and limited historic cases. In Cooperation and Collective Action, diverse case studies address the evolution of the emergence of norms, institutions, and symbols of complex societies through the last 10,000 years. This book is an important contribution to the literature on cooperation in human societies that will appeal to archaeologists and other scholars interested in cooperation research.

A fundamental and groundbreaking reassessment of how we view and manage cancer When we think of the forces driving cancer, we don't necessarily think of

evolution. But evolution and cancer are closely linked because the historical processes that created life also created cancer. The Cheating Cell delves into this extraordinary relationship, and shows that by understanding cancer's evolutionary origins, researchers can come up with more effective, revolutionary treatments. Athena Aktipis goes back billions of years to explore when unicellular forms became multicellular organisms. Within these bodies of cooperating cells, cheating ones arose, overusing resources and replicating out of control, giving rise to cancer. Aktipis illustrates how evolution has paved the way for cancer's ubiquity, and why it will exist as long as multicellular life does. Even so, she argues, this doesn't mean we should give up on treating cancer—in fact, evolutionary approaches offer new and promising options for the disease's prevention and treatments that aim at long-term management rather than simple eradication. Looking across species—from sponges and cacti to dogs and elephants—we are discovering new mechanisms of tumor suppression and the many ways that multicellular life-forms have evolved to keep cancer under control. By accepting that cancer is a part of our biological past, present, and future—and that we cannot win a war against evolution—treatments can become smarter, more strategic, and more humane. Unifying the latest research from biology, ecology, medicine, and social science, The Cheating Cell challenges us to rethink cancer's fundamental nature and our relationship to it.

Wat is het verschil tussen menselijke en dierlijke intelligentie, en vooral: hoe komen we daarachter? In 'Zijn we slim genoeg om te weten hoe slim dieren zijn?' maakt Frans de Waal de balans op. Kan een octopus gereedschap gebruiken? Weten chimpansees wat eerlijk is? Kan een vogel raden wat een andere vogel weet? Voelen ratten empathie met hun vrienden? Niet zo lang geleden zou het antwoord op al deze vragen 'Nee' geweest zijn, maar nu zijn we er niet meer zo zeker van. Het zijn vragen die Frans de Waal al zijn hele carrière bezighouden. De laatste jaren heeft het onderzoek naar dierlijke intelligentie een grote vlucht genomen. Onderzoekers proberen zich steeds meer te verplaatsen in het standpunt van dieren en als je goed kijkt, blijken dieren een stuk slimmer te zijn dan we dachten. 'Zijn we slim genoeg om te weten hoe slim dieren zijn?' is een fascinerend boek dat je op een werkelijk andere manier laat kijken naar wat dier én mens kunnen.

How can the world's most powerful nations cooperate despite their conflicting interests? In *Three-Way Street*, Joshua S. Goldstein and John R. Freeman analyze the complex intersection defined by relations among the United States, the Soviet Union, and China over the past forty years. The authors demonstrate that three major schools of international relations theory--all game-theoretic, psychological, and quantitative-empirical approaches--have all advocated a strategy that employs cooperative initiatives and reciprocal responses in order to elicit cooperation from other countries. Critics have questioned whether such approaches can model how countries actually behave, but Goldstein and Freeman provide a wealth of detailed empirical evidence showing the existence

and effectiveness of strategic reciprocity among the three countries between 1948 and 1989. Specifically, they establish that relations among the three countries have improved in recent decades through a "two steps forward, one step back" pattern. Their innovative and remarkably accessible synthesis of leading theoretical perspectives brilliantly illuminates the nature and workings of international cooperation.

By combining excerpts from key historical writings with editors' introductions and further reading material, *Philosophy of Biology: An Anthology* offers a comprehensive, accessible, and up-to-date collection of the field's most significant works. Addresses central questions such as 'What is life?' and 'How did it begin?', and the most current research and arguments on evolution and developmental biology Editorial notes throughout the text define, clarify, and qualify ideas, concepts and arguments Includes material on evolutionary psychology and evolutionary developmental biology not found in other standard philosophy of biology anthologies Further reading material assists novices in delving deeper into research in philosophy of biology

International efforts to prevent the spread of weapons of mass destruction (WMD)—including nuclear, biological, and chemical weapons—rest upon foundations provided by global treaties such as the Nuclear Non-Proliferation Treaty (NPT) and the Chemical Weapons Convention (CWC). Over time, however, states have created a number of other mechanisms for organizing international cooperation to promote nonproliferation. Examples range from regional efforts to various worldwide export-control regimes and nuclear security summit meetings initiated by U.S. president Barack Obama. Many of these additional nonproliferation arrangements are less formal and have fewer members than the global treaties. International Cooperation on WMD

Nonproliferation calls attention to the emergence of international cooperation beyond the core global nonproliferation treaties. The contributors examine why these other cooperative nonproliferation mechanisms have emerged, assess their effectiveness, and ask how well the different pieces of the global nonproliferation regime complex fit together. Collectively, the essayists show that states have added new forms of international cooperation to combat WMD proliferation for multiple reasons, including the need to address new problems and the entrepreneurial activities of key state leaders. Despite the complications created by the existence of so many different cooperative arrangements, this collection shows the world is witnessing a process of building cooperation that is leading to greater levels of activity in support of norms against WMD and terrorism.

"This volume ... emerged from papers and commentaries given at the annual meeting of the American Society for Political and Legal Philosophy (ASPLP) in Boston on August 28-29, 2008"--Preface.

Emphasizing its historical, methodological and constructive dimensions, *Religion and Science* takes the pulse of pertinent current research as the interdisciplinary

study of science and religion gains momentum.

This paper examines evolutionary dynamic behavior in the finitely repeated prisoner's dilemma. It is first noted that the fitness of cooperation found in the best known simulation of this type, that by Robert Axelrod, stems from strategy set restrictions that altered Nash equilibrium behavior: Axelrod's restricted game has a continuum of pure cooperation equilibria and no pure defection equilibrium. New simulations, maintaining the finite game's equilibrium structure, are presented here. It is found that although cooperation is ultimately exploited and extinguished, dynamic paths can pseudo converge in ways that allow partial cooperation to flourish for extended periods of time. (Author) (kr).

Robert Axelrod is widely known for his groundbreaking work in game theory and complexity theory. He is a leader in applying computer modeling to social science problems. His book *The Evolution of Cooperation* has been hailed as a seminal contribution and has been translated into eight languages since its initial publication. *The Complexity of Cooperation* is a sequel to that landmark book. It collects seven essays, originally published in a broad range of journals, and adds an extensive new introduction to the collection, along with new prefaces to each essay and a useful new appendix of additional resources. Written in Axelrod's acclaimed, accessible style, this collection serves as an introductory text on complexity theory and computer modeling in the social sciences and as an overview of the current state of the art in the field. The articles move beyond the basic paradigm of the Prisoner's Dilemma to study a rich set of issues, including how to cope with errors in perception or implementation, how norms emerge, and how new political actors and regions of shared culture can develop. They use the shared methodology of agent-based modeling, a powerful technique that specifies the rules of interaction between individuals and uses computer simulation to discover emergent properties of the social system. *The Complexity of Cooperation* is essential reading for all social scientists who are interested in issues of cooperation and complexity.

More than any other altruistic gesture, blood and organ donation exemplifies the true spirit of self-sacrifice. Donors literally give of themselves for no reward so that the life of an individual—often anonymous—may be spared. But as the demand for blood and organs has grown, the value of a system that depends solely on gifts has been called into question, and the possibility has surfaced that donors might be supplemented or replaced by paid suppliers. *Last Best Gifts* offers a fresh perspective on this ethical dilemma by examining the social organization of blood and organ donation in Europe and the United States. Gifts of blood and organs are not given everywhere in the same way or to the same extent—contrasts that allow Kieran Healy to uncover the pivotal role that institutions play in fashioning the contexts for donations. Procurement organizations, he shows, sustain altruism by providing opportunities to give and by producing public accounts of what giving means. In the end, Healy suggests, successful systems rest on the fairness of the exchange, rather than the purity of

a donor's altruism or the size of a financial incentive.

Uses game theory to model institutions

A famed political scientist's classic argument for a more cooperative world We assume that, in a world ruled by natural selection, selfishness pays. So why cooperate? In *The Evolution of Cooperation*, political scientist Robert Axelrod seeks to answer this question. In 1980, he organized the famed Computer Prisoners Dilemma Tournament, which sought to find the optimal strategy for survival in a particular game. Over and over, the simplest strategy, a cooperative program called Tit for Tat, shut out the competition. In other words, cooperation, not unfettered competition, turns out to be our best chance for survival. A vital book for leaders and decision makers, *The Evolution of Cooperation* reveals how cooperative principles help us think better about everything from military strategy, to political elections, to family dynamics.

Games, or contexts of strategic interaction, pervade and suffuse our lives and the lives of all organisms. How are we to make sense of and cope with such situations? How should an agent play? When will and when won't cooperation arise and be maintained? Using examples and a careful digestion of the literature, *Agents, Games, and Evolution: Strategies at Work and Play* addresses these encompassing themes throughout, and is organized into four parts: Part I introduces classical game theory and strategy selection. It compares ideally rational and the "naturalist" approach used by this book, which focuses on how actual agents chose their strategies, and the effects of these strategies on model systems. Part II explores a number of basic games, using models in which agents have fixed strategies. This section draws heavily on the substantial literature associated with the relevant application areas in the social sciences. Part III reviews core results and applications of agent-based models in which strategic interaction is present and for which design issues have genuine practical import. This section draws heavily on the substantial literature associated with the application area to hand. Part IV addresses miscellaneous topics in strategic interaction, including lying in negotiations, reasoning by backward induction, and evolutionary models. Modeled after the authors' *Agents, Games, and Evolution* course at the University of Pennsylvania, this book keeps mathematics to a minimum, focusing on computational strategies and useful methods for dealing with a variety of situations.

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