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978-1-107-06403-4 - Prisoners of Reason: Game Theory and Neoliberal Political Economy

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Prisoners of Reason

Is capitalism inherently predatory? Must there be winners and losers? Is public interest outdated and free-riding rational? Is consumer choice the same as self-determination? Must bargainers abandon the no-harm principle?

Prisoners of Reason recalls that classical liberal capitalism exalted the no-harm principle. Although imperfect and exclusionary, modern liberalism recognized individual human dignity alongside individuals' responsibility to respect others. Neoliberalism, by contrast, views life as a ceaseless struggle. Agents vie for scarce resources in antagonistic competition in which every individual seeks dominance. This political theory is codified in noncooperative game theory; the neoliberal citizen and consumer is the strategic rational actor. Rational choice justifies ends irrespective of means. Money becomes the medium of all value. Solidarity and good will are invalidated. Relationships are conducted on a quid pro quo basis. However, agents can freely opt out of this cynical race to the bottom by embracing a more expansive range of coherent action.

S. M. Amadae is a research affiliate at the Massachusetts Institute of Technology and has held positions as an assistant professor of political science at the Ohio State University and as an associate professor of political science at the Central European University. Amadae's first book, *Rationalizing Capitalist Democracy: The Cold War Origins of Rational Choice Liberalism* (2003), was awarded the American Political Science Association's J. David Greenstone book award for History and Politics in 2004. This thought-provoking political theorist who works on the foundations of liberalism and the philosophy of political economy has also contributed articles to the *Journal of Economic Methodology*, *History of European Ideas*, *Studies in the History and Philosophy of Science*, *Economics and Philosophy*, the *American Journal of Economics and Sociology*, *Ethics*, and *Idealistic Studies*. Amadae graduated with a PhD from the University of California, Berkeley and has held appointments at Cambridge University, the London School of Economics, the University of British Columbia Vancouver, the New School, and Harvard University's Kennedy School of Government.

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Massachusetts Institute of Technology



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To András Rátonyi

A Hippocratic Oath for Humankind

I swear to fulfill, to the best of my ability and judgment, this covenant:

I will respect the hard-won scientific gains of those ... [researchers] in whose steps I walk, and gladly share such knowledge as is mine with those who are to follow.

I will apply, for the benefit of the ... [suffering], all measures which are required, avoiding those twin traps of overtreatment and therapeutic nihilism.

I will remember that there is art to ... [politics] as well as science, and that warmth, sympathy, and understanding may outweigh the ... [expert's judgment] or the ... [law's enforcement].

I will not be ashamed to say "I know not," nor will I fail to call in my colleague when the skills of another are needed for ... [an individual's] recovery.

I will respect the privacy of my ... [fellows], for their problems are not disclosed to me that the world may know. Most especially must I tread with care in matters of life and death. If it is given me to save a life, all thanks. But it may also be within my power to take a life; this awesome responsibility must be faced with great humbleness and awareness of my own frailty. Above all, I must not play at God.

I will remember that I do not treat a fever chart, a cancerous growth, but a[n] ... [anguished] ... human being, whose illness may affect the person's family and economic stability. My responsibility includes these related problems, if I am to care adequately for the ... [deprived].

I will prevent ... [affliction] whenever I can, for prevention is preferable to cure.

I will remember that I remain a member of society, with special obligations to all my fellow human beings, those sound of mind and body as well as the infirm.

If I do not violate this oath, may I enjoy life and art, respected while I live and remembered with affection thereafter. May I always act so as to preserve the finest traditions of my calling and may I long experience the joy of healing those who seek my help.

Quoted from, with language more general than of the medical doctor-patient relationship in the original, Louis Lasagna, "Oath," undated document, D302, Box 2, Folder 3, Courtesy of the Department of Rare Books, Special Collections and Preservation, University of Rochester River Campus Libraries. I replaced references to sickness and medicine with references to suffering and science more broadly.

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Prologue

In this century, great advances in the most fundamental and theoretical branches of the physical sciences have created a nuclear dilemma that threatens the survival of our civilization. People seem to have learned more about how to design physical systems for exploiting radioactive materials than about how to create social systems for moderating human behavior in conflict. Thus, it may be natural to hope that advances in the most fundamental and theoretical branches of the social sciences might be able to provide the understanding that we need to match our great advances in the physical sciences. This hope is one of the motivations that has led many mathematicians and social scientists to work in game theory during the past 50 years.

—Roger B. Myerson, 1991¹

In 1989, as the Cold War was coming to a close, Francis Fukuyama argued that liberal democracy represented the “end point of mankind’s ideological evolution” and the “final form of human government.” It constituted, he asserted, the “end of history.”² With the fall of the Berlin Wall and the collapse of the Soviet Union, many Westerners concluded that there were no longer viable alternatives to capitalist democracy.³ To its advocates, this system, manifest in a combination of consumer capitalism and thin political democracy, “resolved all of the contradictions of life for which, through the course of history, individuals have been prepared to fight.”⁴ Yet within a mere dozen years, the United States,

¹ Myerson was awarded the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel in 2007; quote is from *Game Theory: Analysis of Conflict* (Cambridge, MA: Harvard University Press, 1991), 1–2.

² Francis Fukuyama writing about his 1989 article, “The End of History?” (*National Interest*, summer 1989), in *The End of History and the Last Man* (New York: Avon Books, 1992), xi.

³ For reference to this institution see Richard A. Posner, *Crisis of Capitalist Democracy* (Cambridge, MA: Harvard University Press, 2011); S. M. Amadae, *Rationalizing Capitalist Democracy* (Chicago: University of Chicago Press, 2003); phrase first sentence of Kenneth J. Arrow, *Social Choice and Individual Values*, 2nd ed. (Yale University Press, 1963), 1.

⁴ Michael W. Doyle’s description of Francis Fukuyama’s argument in *Ways of War and Peace* (New York: W. W. Norton, 1997), 474–475.

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which had been the world's leading proponent of this ideology, took on a leading role in a global war on terror. American presidents, pundits, and citizens confronted an uncomfortable new reality characterized by entrenched military engagement in the Middle East and a shift of economic power from the West to the Far East.

Prisoners of Reason suggests that this unsatisfactory conclusion to the Cold War in part resulted from seeds sown from within that gave rise to neoliberal capitalism. The price of winning the Cold War was not only a vast nuclear arsenal and budget deficit but also the transformation of individual autonomy and collective sovereignty. By the close of the twentieth century, the free markets and democratic governance alluded to by Fukuyama had become unmoored from their classical liberal ideals and refashioned according to the strategic rationality of game theory. The no-harm principle at the root of classical liberalism no longer, neither in theory nor practice, animates the action of rational actors who instead seek gain despite others. The concept of mutual benefit has yielded to the inevitability of winners and losers. Norm bound negotiation has given way to coercive bargaining. Financialization, risk management, and algorithmic control replace the efficient use of resources and technological innovations as the major engines for profit. Freedom, once rooted in self-determination and equality before the law, is reduced to individual choice as defined by one's willingness and ability to pay for a product or service.

The exemplary neoliberal citizen and consumer is the strategic rational actor modeled by orthodox game theory. This observation is both trivial and profound. It is trivial because rational choice theory, which dominated the social sciences and professional schools by the 1980s, makes the identical claim. It is profound because of how game theory has come to shape the unique practices of contemporary late-modern capitalism.⁵ The strategic rational actor was codified in a mathematically tractable and operationalizable form particularly suited to rational deterrence: the US national security state was the world's first rational actor.⁶ Given demands of nuclear security, strategists' pursuit of fail-safe policy created the appeal for a comprehensive science of decision making. In its standard form, strategic rationality is consequentialist, realist, individualistic, and amoral. Undoubtedly, this canonical rational actor is a simplification, a straw man.⁷ Yet

⁵ Max Weber used the phrase "instrumental rationality" to refer to bureaucratic rule-following rationality that left little room for individual judgment. He writes, "Rational calculation . . . reduces every worker to a cog in this [bureaucratic] machine and, seeing himself in this light, he will merely ask how to transform himself . . . to a somewhat bigger cog . . . The passion for bureaucratization at this meeting drives us to despair." Quote from Max Weber, *Economy and Society: An Outline of Interpretive Sociology* (Berkeley: University of California Press, 1978), lix; for reference to the "iron cage of reason," see Weber's chap. 5, "Asceticism and the Spirit of Capitalism," in *The Protestant Ethic and the Spirit of Capitalism* (London: Routledge, [1905]/1985).

⁶ Jack L. Snyder, *The Soviet Strategic Culture: Implications for Limited Nuclear Options* (Santa Monica, CA: RAND, Sept. 1977), "Generic Rational Man versus Soviet Man," 4.

⁷ Amartya K. Sen, "Rational Fools: A Critique of the Behavioral Foundations of Economic Theory," *Philosophy and Public Affairs* (1977) 6:4, 317–344.

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within the context of the Cold War, this fictional character came to stand in for ideal rational agents throughout international relations, civil politics, and even evolutionary biology. Through its dissemination in the pedagogy of elite institutions, the neoliberal subject invented by game theory has come to animate contemporary markets and politics.⁸

Prisoners of Reason advances three arguments. First, strategic rationality, which game theorists understand to be an all-encompassing theory of rational decision making, informs an important strand of postmodern neoliberal subjectivity and agency: that operative in advanced capitalism. Rational choice theorists model complex interactions to predict collective outcomes and generate public policy, legislation, or institutional design.⁹ Thus, second, their research has resulted in a canonical set of findings that characterize neoliberal theory and which this book will explore. These novel game theoretic findings directly correlate with the particular late-modern expression of capitalist democracy. Third, the political theory consistent with strategic rationality marks a distinct break with classical liberalism. In its standard form, rational choice theory rejects the rule-following normativity and logic of appropriateness embodied in classical liberal principles of no-harm, fair play, consent, and contractual commitment.¹⁰ Game theory develops a theory of fungible value consistent with philosophical realism, which, in alliance with international relations realism, further distances this system of thought and practice from

⁸ Studies have shown that students exposed to game theory will tend to demonstrate behavior consistent with its tenets. See Robert Frank, Thomas Gilovich, and Donald Regan, "Does Studying Economics Inhibit Cooperation?" *Journal of Economic Perspectives* (1993) 7, 159–171; Dale Miller, "The Norm of Self-Interest," *American Psychologist* (1999) 54, 1–8; for studies showing that students exposed to economics are more prone to cheating, see Donald McCabe and Linda Klebe Trevino, "Academic Dishonesty," *Journal of Higher Education* (1993) 64:5, 522–538; Donald McCabe and Linda Klebe Trevino, "Cheating among Business Students," *Journal of Management Education* (1995), 19:2, 205–218; and Donald McCabe, Kenneth Butterfield, and Linda Klebe Trevino, "Academic Dishonesty in Graduate Business Programs," *Academy of Management Learning and Education* (2006) 5:3, 294–305.

⁹ Gary Becker, Sveriges Riksbank (Nobel) Prize winner in Economic Science, 1992, *The Economic Approach to Human Behavior* (Chicago: University of Chicago Press, 1978); Douglass C. North, Sveriges Riksbank (Nobel) Prize winner in Economic Science, 1993, *Institutions, Institutional Change and Economic Performance (Political Economy of Institutions and Decisions)* (Cambridge: Cambridge University Press, 1993); for a recent example, see *The Stern Review: The Economics of Climate Change*, which is available online, http://webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/sternreview_index.htm, see chap. 21, accessed July 20, 2015.

¹⁰ My critique is not of formal modeling per se, but rather of the orthodox application of game theory. Joseph Heath, *Communicative Rationality and Rational Choice* (Cambridge, MA: MIT Press, 2003); and Gerald Gaus, *The Order of Public Reason: A Theory of Freedom and Morality in a Diverse and Bounded World* (Cambridge: Cambridge University Press, 2012); both strive to accommodate the side constraints or commitment characteristic of classical liberalism by expanding the formal framework initiated by game theory. For another approach to commitment, see Margaret Gilbert, *Joint Commitment: How We Make the Social World* (New York: Oxford University Press, 2013).

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classical liberalism.¹¹ Orthodox game theory assumes that actors must be strategic, or individualistically competitive against others, and thus rejects joint maximization and shared intention, and reduces preference satisfaction to narrow self-interest.¹²

The association of game theory, as a systematic body of knowledge encompassing all coherent choice, with late-modern neoliberal political economy may seem jarring at first. On the one hand, “neoliberalism” is a phrase coined by leftist critics of contemporary capitalism to draw attention to its extraction of monetary value from all human relations and its erosion of the public sphere, producing unprecedented levels of inequality. What is new about this stage of capitalism, contemporary critics argue, is the financialization and commodification of *all* experiential value.¹³ On the other hand, “neoliberal institutionalism” is a school of international relations theory that applies the tools of game theory to model complex interactions.¹⁴ These theorists argue that actors in a state of nature can achieve cooperation through building regimes and institutions. From their perspective, cooperative norms can emerge which reflect stable behavioral patterns that arise when actors’ preferences and choices cohere naturally or when appropriate incentives are introduced to modify choice.

On the surface, these two uses of the term “neoliberalism” are distinctly at odds with each other. Neoliberal critics of late-modern capitalism carry forth Karl Marx’s dissatisfaction with laborers’ plight in industrial capitalism and thus critically assess contemporary market practices, their apparent destruction of lower and middle classes, and their creation of new means of extracting surplus value.¹⁵ Neoliberal institutionalists use game theory to show how

¹¹ See John von Neumann and Oskar Morgenstern, *Theory of Games and Economic Behavior* (Princeton, NJ: Princeton University Press), 60th anniversary edition, 2004, 617–631; on the assumption of fungible value in international relations, see Michael Doyle, *Ways of War and Peace: Realism, Liberalism, and Socialism* (New York: W. W. Norton, 1997), 47.

¹² Robert Sugden and Michael Bacharach expand individualistic maximization to permit team reasoning or joint maximization: Michael Bacharach, *Beyond Individual Choice: Teams and Frames in Game Theory*, ed. by Natalie Gold and Robert Sugden (Princeton, NJ: Princeton University Press, 2006). Joseph Heath touches on these themes in *Following the Rules: Practical Reasoning and Deontic Constraint* (New York: Oxford University Press, 2011), 12–41. Altruistic or other-regarding preferences can be admitted, see, e.g., Alvin Goldman, *Joint Ventures: Mindreading, Mirroring, and Embodied Cognition* (New York: Oxford University Press, 2012). However, because game theory tends to treat other actors as “complex objects” that can be incorporated into instrumental action, it loses the moral grounding of treating other agents as ends in themselves with human dignity; see Heath, *Following the Rules*, 2011, 41, 10–11.

¹³ David Harvey, *A Brief History of Neoliberalism* (New York: Oxford University Press, 2007); Pierre Bourdieu, *Acts of Resistance: Against the Tyranny of the Market* (New York: The New Press, 1999).

¹⁴ For an excellent overview of the neoliberal school of international relations theory, see David A. Baldwin, ed., *Neorealism and Neoliberalism* (New York: Columbia University Press, 1993). In particular, see Robert Axelrod and Robert O. Keohane, “Achieving Cooperation under Anarchy: Strategies and Institutions,” Baldwin, ed., *Neorealism and Neoliberalism*, 85–115.

¹⁵ Harvey, *A Brief History of Neoliberalism*, 2007.

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classical liberal achievements, namely effective governance and economic exchange, can be attained notwithstanding the minimalist and even cynical view of human agency that rational choice accepts.¹⁶ Surely, they reason, if mutually beneficial governance and markets can be derived from strategic rationality, proponents of an international relations realism are overly pessimistic in finding the inevitability of conflict. However, *Prisoners of Reason* argues that neoliberal market capitalism and neoliberal institutionalism share a common foundation: the assumption that strategic rationality governs all purposive agency.

Elite institutions of higher education in the West treat orthodox game theory as a canonical statement of instrumental rationality.¹⁷ It thus seems a mere truism to observe that contemporary citizens and consumers must either conform to its dictates or risk acting “irrationally.” Yet, if game theory shapes actors’ subjective awareness of the meaning of their interactions; alters their behavior; and informs public policy, laws, and institutions, then we must examine the possibility that late-modern capitalism enacted by strategically rational actors is distinct from its earlier forms.¹⁸ If indeed so, it would not be surprising that game theoretic models both analytically predict outcomes consistent with neoliberal theory and that these analytic conclusions directly correlate with contemporary empirically evident neoliberal practices.

Such a view of the transformative aspect of game theory is antithetical to its portrayal as a value-neutral tool and the perennial structure of purposive agency.¹⁹

¹⁶ Robert Axelrod and Robert O. Keohane, “Achieving Cooperation under Anarchy: Strategies and Institutions,” in Baldwin, ed., *Neorealism and Neoliberalism*, 1993, 85–115; on the cynicism inherent in rational choice explanations, see Russell Hardin, *Collective Action* (Johns Hopkins University Press, 1982), xv.

¹⁷ For a compelling statement that expected utility theory represents our state of the art understanding of instrumental rationality, see Donald C. Hubin, “The Groundless Normativity of Instrumental Rationality,” *The Journal of Philosophy* (2001) 98, 445–465; for discussion of the restrictions on expected utility theory useful in game theory (strategic rationality and the debate over whether language is primordial and strategic action parasitic, or vice versa), see also Heath, *Following the Rules*, 2008, 12–41; and Heath, *Communicative Action and Rational Choice* (Cambridge, MA: MIT Press, 2001), 49–81; Daniel M. Hausman and Michael S. McPherson, *Economic Analysis, Moral Philosophy, and Public Policy*, 2nd ed. (Cambridge: Cambridge University Press, 2006).

¹⁸ Elinor Ostrom, *Governing the Commons* (Cambridge: Cambridge University Press, 1990), 1–28; Robert Frank, Thomas Gilovich, and Donald Regan, “Does Studying Economics Inhibit Cooperation?” *Journal of Economic Perspectives* (1993) 7, 159–171; Dale Miller, “The Norm of Self-Interest,” 1999, 1–8; for studies showing that students exposed to economics are more prone to cheating, see McCabe and Klebe Trevino, “Academic Dishonesty,” 1993; McCabe and Klebe Trevino, “Cheating among Business Students,” 1995; and McCabe, Butterfield, and Klebe Trevino, “Academic Dishonesty in Graduate Business Programs.”

¹⁹ Herbert Gintis, *Bounds of Reason* (Oxford: Oxford University Press, 2009); Stephen Quackenbush, “The Rationality of Rational Choice Theory,” *International Interactions: Empirical and Theoretical Research in International Relations* (2004) 30:2, 87–107. For the relationship between rational choice and confidence in social science, see Gary King, Robert O. Keohane, and Stanley Verba, *Designing Social Inquiry: Scientific Inference in Qualitative Research* (Princeton, NJ: Princeton University Press, 1994).

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Game theory itself is a mathematical theory and thus derives its validity from analytic consistency.²⁰ It cannot be tested as a valid instrumental theory of rationality without establishing a consistent common means to provide a universally recognized mapping of every individual's subjective evaluation of the idiosyncratic features of outcomes and their relationship to the tangible phenomenal world governed by the laws of physics.²¹ Operationalizing orthodox strategic rationality invents a particular subjectivity, either as an ideal type or as an experiential fact, insofar as individuals are taught to master and apply strategic rationality in various contexts of choice.²² Thus, *Prisoners of Reason* analyzes what assumptions game theorists introduce about individuals' choice to make interaction contexts, or "games," susceptible to modeling and application in descriptive, normative, and prescriptive contexts.²³

This book analyses the work of game theorists who address rational deterrence, the social contract and collective action, and the emergence of cooperation among pre-social actors in evolutionary biology. Theorists apply the same tools and models to these widely divergent fields of investigation, thus showing how game theory offers a unified methodology and results in a comprehensive understanding of agency from actors without deliberate intention, to humans and the nation state as a multiparty composite actor. Chapters focus on the prominent theorists Thomas Schelling, James R. Schlesinger, James M. Buchanan, Richard Posner, Russell Hardin, Richard Dawkins, and Robert Axelrod. Most chapters centrally address the Prisoner's Dilemma game because many of these theorists gave this model priority in their contributions.²⁴ Part I:

²⁰ Ken Binmore, *Game Theory and the Social Contract*, vol. 1, *Playing Fair* (Cambridge, MA: MIT Press, 1994), 95.

²¹ Myerson, *Game Theory: Analysis of Conflict*, 1991, does the best job outlining this, 22–25; on the common knowledge assumption, see also Shaun Hargreaves Heap and Yanis Varoufakis, *Game Theory: A Critical Introduction*, 2nd ed. (New York: Routledge, 2004), 27; see also David Lewis, *Convention: A Philosophical Study* (Oxford: Blackwell, 2002), 52–60.

²² For an accessible statement of orthodox game theory, see Heath, *Following the Rules*, 2011, 12–41.

²³ Mary Morgan argues that the practice of formal modeling has led to the model itself being treated as reality, rather than as a mere representation of reality: "The Curious Case of the Prisoner's Dilemma: Model Situation?" in A. N. H. Creager, E. Lunbeck, and M. N. Wise, *Science without Laws: Models Systems, Cases, Exemplary Narratives* (Durham, NC: Duke University Press, 2007), 157–85.

²⁴ The most prominent texts are the following: Duncan R. Luce and Howard Raiffa, *Games and Decisions: Introduction and Critical Survey* (New York: Wiley, 1957); Anatol Rapoport and Albert M. Chammah, *Prisoner's Dilemma: A Study in Conflict and Cooperation* (Ann Arbor: University of Michigan Press, 1965); Anatol Rapoport, *Fights, Games and Debates* (Ann Arbor: University of Michigan Press, 1960); Thomas Schelling, "Hockey Helmets, Concealed Weapons, and Daylight Saving: A Study of Binary Choices with Externalities," *Journal of Conflict Resolution* (1973) 17:3, 381–428; Richmond Campbell and Lanning Snowden, eds., *Paradoxes of Rationality and Cooperation: Prisoner's Dilemma and Newcomb's Problem* (Vancouver: University of British Columbia Press, 1985); Roger B. Myerson, *Game Theory: Analysis of Conflict* (Cambridge, MA: Harvard University Press, 1991); Dennis C. Mueller,

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War discusses the development of nuclear deterrence theory and practice.²⁵ Part II: Government analyzes the implications of the novel game theoretic findings for neoliberal, as opposed to classical liberal, political theory and practice. Part III: Evolution explores how game theorists attribute strategic rationality to biological organisms in their behavioral programming. These three parts together show how game theorists suggest that strategic rationality provides a comprehensive account of purposive action operative at all levels of organization from pre-intentional action to individual's choice and international relations strategy.

Prisoners of Reason participates in the enduring Western celebration of reason and the contemporary critical discussion of rational choice. This discussion is comprehensive and directly impinges on the implications of game theory for understanding and achieving social order.²⁶ With respect to international relations theory, the discussion of critical assessments of rational choice mainly

Public Choice III (New York: Cambridge University Press, 2004); Hargreaves Heap and Varoufakis, *Game Theory*, 2004.

²⁵ The most prominent here are Herman Kahn, *On Thermonuclear War* (Princeton, NJ: Princeton University Press, 1960); Thomas Schelling, *Strategy of Conflict* (Cambridge, MA: Harvard University Press, 1960); Glenn H. Snyder, *Deterrence and Defense: Toward a Theory of National Security* (Princeton, NJ: Princeton University Press, 1961); Philip Green, *Deadly Logic: The Theory of Nuclear Deterrence* (Columbus: Ohio State University Press, 1966); Jack Snyder, *The Soviet Strategic Culture: Implications for Limited Nuclear Options* (Santa Monica, CA: RAND Corporation, Sept. 1977); Robert Jervis, *The Illogic of Nuclear Strategy* (Cornell University Press, 1984); Lawrence Freedman, *The Evolution of Nuclear Strategy* (New York: St. Martin's Press, 1981); Fred M. Kaplan, *The Wizards of Armageddon* (New York: Simon & Schuster, 1983); Gregg Herken, *Counsels of War* (New York: Alfred A. Knopf, 1985); Douglas P. Lackey, "The American Debate on Nuclear Weapons Policy: A Review of the Literature 1945–85," *Analyse and Kritik* 9 (1987), 7–46; Joseph S. Nye Jr., *Nuclear Ethics* (London: Free Press, 1986); Steven J. Brams, *Superpower Games: Applying Game Theory to Superpower Conflict* (Yale University Press, 1985).

²⁶ With respect to the large and general critique of game theory, key texts are Sen, "Rational Fools," 1990; Jane Mansbridge, ed., *Beyond Self Interest* (Chicago: University of Chicago Press, 1990); Jon Elster, *Sour Grapes: Studies in the Subversion of Rationality* (New York: Cambridge University Press, 1985), and *Ulysses and the Sirens: Studies in Rationality and Irrationality* (New York: Cambridge University Press, 1979); Donald P. Green and Ian Shapiro, *Pathologies of Rational Choice Theory: A Critique of Applications in Political Science* (Yale University Press, 1994); Kristen Renwick Munroe, *The Economic Approach to Politics: A Critical Reassessment of the Theory of Rational Action* (New York: HarperCollins, 1991). With respect to the particular texts analyzing the implications of strategic rationality for social contract theory and collective action, see James M. Buchanan, *Limits of Liberty: Between Anarchy and Leviathan* (Chicago: Chicago University Press, 1975); Michael Taylor, *Anarchy and Cooperation* (New York: Wiley, 1976), and *The Possibility of Cooperation* (New York: Cambridge University Press, 1987); Russell Hardin, *Collective Action* (Johns Hopkins University Press, 1982); David Gauthier, *Morals by Agreement* (Oxford: Clarendon Press, 1986); Martin Hollis, *Trust within Reason* (Cambridge: Cambridge University Press, 1998); Ken Binmore, *Playing Fair*, 1994, and *Game Theory and the Social Contract*, vol. 2, *Just Playing* (Cambridge, MA: MIT Press, 1998); Joseph Heath, *Communication Action and Rational Choice* (Cambridge, MA: MIT Press, 2001); Gintis, *Bounds of Reason*, 2009; and Gaus, *Order of Public Reason*, 2012.

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follows the contours of the debate between the schools of realism and neoliberal institutionalism.²⁷ This book intersects with researchers investigating the historical roots of game theory in the Cold War.²⁸ *Prisoners of Reason* also relates to the burgeoning critical engagement with neoliberal capitalism.²⁹

The central argument of *Prisoners of Reason* builds on recent analyses of modern liberal political theory by Michael Doyle, Richard Tuck, and Elaine Scarry. Doyle, in his *Ways of War and Peace* (1997), provides a discussion of theories of international relations, including classical realism and classical liberalism, to pave the way toward revitalizing a commitment to liberal international relations theory. He identifies theoretical principles of classical liberalism that ground individual freedom, private property, and equality of opportunity and extend to the domain of relations among

²⁷ Robert Jervis wrote an early paper addressing the relationship between realism and game theory: "Realism, Game Theory, and Cooperation," *World Politics* (1988) 40, 317–349; see also Jervis, "Realism, Neoliberalism, and Cooperation: Understanding the Debate," *International Security* (1999), 24, 42–63. Baldwin's edited collection sets forth the debate as it developed in the 1980s and makes clear that advocates of realism promote strategic rationality and a commitment to underlying objective sources of power, and that neoliberal institutionalists concede this framework but argue that even under this most limited set of assumptions, cooperation in international institutions and regimes is still attainable: Baldwin, *Neorealism and Neoliberalism*, 1993. Michael Doyle's *Ways of War and Peace* (1997) discusses the debate between a contemporary renewed commitment to the classical liberal tradition in international relations and a realist approach. *Prisoners of Reason* dovetails with Doyle's *Ways of War and Peace* in drawing attention to the assumptions and structure of classical liberalism vis-à-vis contemporary realism and instrumentalism consistent with orthodox game theory. On rational deterrence and rational decision theory (game theory), see Keith Kraus, "Rationality and Deterrence in Theory and Practice," in *Contemporary Security and Strategy*, ed. by Craig A. Snyder (New York: Routledge, 1999), 120–149.

²⁸ Key texts are Philip Mirowski, *Machine Dreams: Economics Becomes a Cyborg Science* (New York: Cambridge University Press, 2002); S. M. Amadae, *Rationalizing Capitalist Democracy* (Chicago: University of Chicago Press, 2003); Robert Leonard, *Von Neumann, Morgenstern, and the Creation of Game Theory: From Chess to Social Science, 1900–1960* (New York: Cambridge University Press, 2010); Paul Erikson et al., *How Reason Almost Lost Its Mind: The Strange Career of Cold War Rationality* (Chicago: University of Chicago Press, 2013); William Thomas, *Rational Action: The Sciences of Policy in Britain and America, 1940–1960* (Cambridge, MA: MIT Press, 2015); Paul Erickson, *The World the Game Theorists Made* (Chicago: University of Chicago Press, 2015). On Cold War social science more generally see Jamie Cohen-Cole, *The Open Mind: Cold War Politics and the Sciences of Human Nature* (Chicago: Chicago University Press, 2014); and Mark Solovey, *Shaky Foundations: The Politics-Patronage-Social Science Nexus in Cold War America* (New Brunswick, NJ: Rutgers University Press, 2013).

²⁹ Crucial texts in this investigation are Harvey, *Brief History of Neoliberalism*, 2007; Philip Mirowski and Dieter Plehwe, eds., *The Road from Mount Pelerin: The Making of the Neoliberal Thought Collective* (Cambridge, MA: Harvard University Press, 2009); Manfred B. Steger and Ravi K. Roy, *Neoliberalism: A Very Short Introduction* (New York: Oxford University Press, 2010); Michel Foucault, *Birth of Biopolitics: Lectures at the Collège de France, 1978–1979* (London: Picador Reprint ed., 2010); Angus Burgin, *The Great Persuasion: Reinventing Free Markets since the Depression* (Cambridge, MA: Harvard University Press, 2012).

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nations. For liberal political theory, individual freedom is premised on “the right to be treated and the duty to treat others as ethical subjects, not as objects or means only.”³⁰ Although the “will to subjugate” may be an ever-present concern, this need not compromise an actor’s intention to seek peace and build “the mutual confidence and respect that establishing a true peace will require.”³¹

Tuck’s *Free Riding* (2008) provides a template for *Prisoners of Reason* in combining historical insights with philosophical analysis to focus attention on how contemporary rational choice theory inverts commonsense understanding of the causal efficacy of collective intention. Tuck provides examples from modern European political thought to demonstrate that theorists, including David Hume and John Stuart Mill, stressed the rationality of collaboration. Thus, throughout the modern era, the state had to introduce legally backed sanctions to prevent collusion among firms or collaboration among individuals pursuing collective bargaining rights.³² Tuck argues that large-scale market competition defies the logic of strategic competition because no individual actor has the causal power to make any appreciable difference on collective outcomes. The foremost concern over the failure of collective action is thus the worry about individuals’ lack of causal efficacy in large-scale undertakings, and not the Prisoner’s Dilemma concern that rational individuals seek to free ride on others’ efforts. Like *Free Riding*, *Prisoners of Reason* highlights how rational choice introduces a novel approach to coherent action that displaces earlier conventional wisdom.³³ Specifically, neoliberalism jettisons the commonsense understanding that civil society depends on mutual respect and the good will to make at least one person better off and no one worse off in every interaction.

Scarry’s *Thermonuclear Monarchy: Choosing between Democracy and Doom* (2014) draws attention to how the invention of nuclear weapons altered the US practice of sovereignty from republican democracy with the military under civilian authority, to a system of command and control with its own prerogatives and little respect for either citizens’ participation or the no-harm principle. Scarry contrasts modern liberal political theory, which stresses the inviolability of corporeal persons, with the post-World War II reliance on secrecy and disregard for embodied persons. Scarry’s discussion of the social contract points out the ways in which the exercise of sovereignty through the

³⁰ Doyle, *Ways of War and Peace*, 1997, 207. Richard Tuck’s *The Rights of War and Peace: Political Thought and the International Order from Grotius to Kant* (New York: Oxford University Press, 2001) argues that the classical liberal subject was first established with respect to nations before it was articulated in civil political theory.

³¹ Doyle, *Ways of War and Peace*, 1997, 255–256.

³² Amadae, *Rationalizing Capitalist Democracy* (2003) argues that the theory of liberalism consistent with rational choice theory proved that cooperation in various guises is irrational.

³³ Russell Hardin, “The Free Rider Problem,” *Stanford Encyclopedia of Philosophy*, May 21, 2003, available online at <http://plato.stanford.edu/entries/free-rider/>, accessed June 16, 2015 provides an example of how the argument that it is rational to free ride on others’ efforts goes across the grain of conventional wisdom.

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threat to destroy peoples and civilizations with weapons of mass destruction interrupts the classical liberal commitment to a contract among the ruled and those who rule. Her chapter on “Consent and the Body” reminds readers how throughout modern political philosophy, giving consent was an embodied practice with direct implications for the well-being of those voicing a willingness to participate. Scarry’s analysis in *Thermonuclear Monarchy* complements *Prisoners of Reason*’s argument that the development of game theory and its integration into law and public policy facilitated the exercise of nuclear sovereignty. Game theory views individuals as abstracted sets of preference rankings free from corporeal embodiment, and it empties the practice of consent of meaning because actors’ preferences exist outside of time and thus can be artificially incorporated into public decision making without the direct participation of citizens.

Finally, this book incorporates methodological insights from Sheila Jasanoff’s *States of Knowledge: The Co-Production of Science and the Social Order* (2004). Jasanoff contributes to the methodology of science, technology, and society studies and argues that scientific innovation and its incorporation into social life unfold in a process of co-production.³⁴ Applied to the US exercise of superpower sovereignty through deterrent threats of catastrophic harm and the manifestation of neoliberal subjectivity in the form of deferring to rational choice theory as the ultimate science of purposive decision making, Jasanoff’s perspective invites us to investigate into how individual autonomy and collective agency coevolve with the decision technologies that rationalize action. Such a perspective helps show how game theory developed together with the “nuclear dilemma.” John von Neumann, a cardinal architect of neoliberal economics, formalized game theory, axiomatized quantum thermodynamics, and contributed to the Manhattan Project. Von Neumann views the social world in terms of relentless competition over scarce resources that everyone alike seeks, and he inscribes this worldview into the mathematical foundations of his social science. *Prisoners of Reason* excavates these original foundational assumptions and reveals their implications for instantiating late-modern political economy on their basis.

OUTLINE OF THE BOOK

Prisoners of Reason starts with two preliminary chapters that set the stage for its central argument that game theory provides a singular approach to purposive agency and collective action that informs late-modern neoliberal descriptive and predictive models. Chapter 1, “Neoliberalism,” discusses how classical liberalism differs from neoliberalism, primarily in the latter’s rejection of the Archimedean no-harm principle that grounds the reciprocal respect of

³⁴ *Thermonuclear Monarchy: Between Democracy and Doom* (New York: Routledge, 2014). I am grateful to Sheila Jasanoff who invented the title *Prisoners of Reason*.

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individuals' rights to their persons, property, and contracts. This chapter addresses the apparent gap between the uses of the term "neoliberal" by critics of late-modern capitalism and the international relations school of neoliberal institutionalism. Critics of neoliberal political economy point to its propagation of gross disparities in wealth distribution, its tendency to socialize debt and privatize profit, and its treatment of all experiences as potential means to extract surplus value. In contrast, neoliberal institutionalism strives to rescue the classical liberal vision of mutual benefit while accepting that only strategic rationality governs purposive conduct.

Given the neoliberal institutionalists' commitment to employing game theoretic models to make the case that cooperation can emerge among egoists even in a state of anarchy in which no other actor can be trusted to cooperate, not even oneself, the association of this school with neoliberal economic practices may seem off-putting or unjustified. However, the goal of this book is to identify how, despite researchers' best intentions, strategic rationality condones predatory behavior as a feasible and even necessary means to secure individual survival and success. Rational choice theorists acknowledge they are "generally concerned with pushing cynical explanations to their limit" to address the worst possible case and come up with sound remedies.³⁵ Yet, as the pages ahead document, rather than finding such remedies, this analytic style is more likely to lead to the validation of cynical *modus operandi* and dismissal of alternatives. Thus, because strategic rationality is recognized as the gold standard of reason, actors are rewarded for, or pressured into, following its rules for choice. Idiosyncratic neoliberal economic practices coincidentally conform to the predictions of the game theoretic models.

The second preliminary chapter, "Prisoner's Dilemma," follows game theorists in their identification of the particular prominence of this recalcitrant game in which individuals' self-interest is mutually destructive, rather than mutually beneficial.³⁶ The Prisoner's Dilemma belies the classical liberal argument that self-interest results in mutual prosperity. The chapter demonstrates how the pedagogy of the Prisoner's Dilemma (PD) relies on a set of tacit assumptions that must be accepted to master this game. Mastering the Prisoner's Dilemma, and therein embracing the assumptions underlying its standard operationalization, makes it difficult to resist the powerful logic of strategic rationality and inevitably leads actors to assimilate and accommodate neoliberal subjectivity.

Part I: War follows the progress of game theory in its entanglement with nuclear strategy. Chapter 3, "Assurance," centers on the economist and strategist Thomas Schelling. This future Nobel Memorial Prize recipient uses game

³⁵ Hardin, *Collective Action*, 1982, xv.

³⁶ E.g., *ibid.*; Campbell and Sowden, *Paradoxes of Rationality and Cooperation*, 1985; Ostrom, *Governing the Commons*, 1990; Hargreaves Heap and Varoufakis, *Game Theory*. For a more contemporary discussion of the Prisoner's Dilemma's central role in modeling the neoliberal challenge of achieving social order, see Heath, *Following the Rules*, 2011, 35–40.

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theory to develop the mentality of strategic rationality, which he first used to analyze nuclear deterrence before applying it more broadly to economics, politics, and conflict resolution. Although his research precedes the neoliberal institutionalist school, his work is consistent with those researchers' aims. Schelling uses strategic rationality to identify and resolve the worst-case scenario to build a nuclear peace resembling the classical liberal commitment to mutual respect in the form of reciprocal deterrence. The accompanying discussion of nuclear strategy and arms development shows how game theory informed and made possible the integration of nuclear planning into US sovereignty using rational decision technologies. Game theorists and game theory were indispensable for wielding nuclear weapons and exercising nuclear sovereignty. Strategists altered sovereignty so that it resided less in the judgments of an individual commander in chief and more in the office itself, seamlessly integrated with algorithmic judgment afforded by strategic rationality.

This chapter also introduces the consequential nuclear security debate between the two positions of mutual assured destruction (MAD), supported by Schelling, and nuclear utilization targeting selection (NUTS), supported by the defense analyst Herman Kahn. Given the outlay of hundreds of billions of dollars during the Cold War on nuclear hardware, and the additional \$900 billion spent on command and control, the nuclear security debate is not only central to US history but also reflective of the application of game theory to render intelligible nuclear deterrence.³⁷ Although the average US citizen may have been unaware of NUTS, this aggressive strategy dedicated to preparing to fight and prevail in protracted nuclear war won the Cold War nuclear security debate by the end of Jimmy Carter's presidency in 1980. Rational deterrence theory armed American strategists with the confidence and clout to mobilize these weapons of mass destruction in the service of American security and sovereignty.

Chapter 4, "Deterrence," follows the conclusion of the debate between the liberal stance of MAD and the offensive realist policy of NUTS. The champions of neoliberal agency firmly suppose that in facing the worst-case scenario, mutual cooperation resembling classical liberalism can still be achieved. And yet, as is evident in the logical capitulation of MAD to NUTS, the inherent cynicism of supposing that every individual pursues ends despite other agents without regard for the dignity of personhood or the legitimacy of principles of conduct ends up ceding the classical liberal promise of mutual benefit to the neoliberal realism of coercive bargaining, predatory gain, and asymmetric deterrence. Chapter 4 follows nuclear strategy under President Jimmy Carter to show how neoliberal principles consistent with strategic rationality grew out of an ultimately futile effort to retain classical liberal practices of mutual security and exchange in a non-classical world.

³⁷ Daniel Volmar, PhD dissertation, *The Power of the Atom: US Nuclear Command, Control, and Communications, 1945–1965*, Harvard University, forthcoming 2016, p. 13 (\$926 billion on Command and Control, in 1996 US dollars).

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Part II: Government follows the application of game theory to modeling interactions constitutive of markets and governance. The themes in Part II will be familiar to anyone who knows game theory: the Prisoner's Dilemma analysis of Hobbesian anarchy, the Prisoner's Dilemma account of the social contract, the role of unanimous agreement, the role of consent, and the problem of collective action. These chapters discuss the core game theoretic findings in these areas of research and pinpoint what is unique to neoliberal political philosophy predicated on strategic rational action, specifically insofar as it deviates from classical liberalism.

Chapter 5, "Hobbesian Anarchy," discusses how game theorists interpret Hobbes's state of nature to be a Prisoner's Dilemma game and see in his authoritarian *Leviathan* a solution: maintaining social order at the point of a sword. However, Hobbes viewed the problem of achieving social order akin to an Assurance Game, in which actors who prefer to cooperate end up seeking individual gain despite others because of a lack of trust, not a Prisoner's Dilemma. Members of a commonwealth choose to cooperate once assured of others' like preferment or commitment; their first preference is not to defect. Moreover, Hobbes's solution is achieved by individuals laying down the right to all things. Any mode of action resembling strategic rationality is laid aside in favor of adopting side constraints as a precondition for harmonious living in civil society.

Chapter 6, "Social Contract," follows James M. Buchanan's application of the Prisoner's Dilemma to social contract theory. Buchanan's *Limits of Liberty: Between Liberty and Leviathan* exemplifies neoliberal political theory. Buchanan uses the Prisoner's Dilemma to argue that as long as the social contract offers more than the state of nature – for him defined by the worst every individual can threaten on every other actor – citizens will conform to its division of goods. Whereas John Rawls believes that stability under the social contract is achieved when actors are motivated by tacit consent under the veil of ignorance, Buchanan argues that actors will accommodate any social contract backed by sufficient coercive force. Therefore, he calls for force rather than legitimacy to address the civil unrest characterizing the late 1960s and early 1970s.

Chapter 7, "Unanimity," follows Buchanan further in his attempt to apply a key insight of the neoclassical economists who identified in the principle of unanimous agreement a solid ground for government and collective decisions. Surely, if every member of a community agrees that one outcome is superior to all the rest, then the leadership and citizens can confidently enact it as law. However, counterintuitively, in neoliberal political theory, unanimous agreement has no intrinsic mobilizing force for collective action. Since individuals each relentlessly maximize expected utility in competition with one another, their agreement to an outcome or a law can only ever be strategic. At any moment when spoils are on the table to be shared, regardless of any prior unanimous agreement on divisions, renegotiations are inevitable, with actors

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forming unstable coalitions, engaging in coercive bargaining, and preferring to sucker others.

Chapter 8, “Consent,” examines Richard Posner’s treatment of this titular topic throughout his school of law and economics, which defines justice as wealth maximization. Posner relies on rational choice theory’s stipulation that rational individuals have preference rankings over all outcomes independent of time to conclude that consent prior to an exchange and consent after an exchange are equivalent. Thus, consent to terms no longer connotes deliberate action or conscious judgment. Posner’s approach justifies the state’s arbitrary redistribution of rights on the basis of wealth maximization: if one party has a greater willingness and ability to pay for a good or a better prospect of reaping profit from a resource than its current owner, the state can forcibly transfer the property rights accordingly.

Chapter 9, “Collective Action,” examines the standard game theoretic extension of the two-person Prisoner’s Dilemma to a large number of individuals. Game theorists argue that voluntary cooperation must fail because all actors prefer to free ride on others’ contributions. This chapter contrasts this neoliberal PD logic with Mancur Olson’s *Logic of Collective Action* (1965), which argues that group size dictates a group’s ability to cooperate. Olson proposes that in large-scale collective ventures, agents fail to cooperate for the same reason that perfect competition requires that no single actor can alter the price of a product: in large group settings, no single individual has the where-withal to causally impact the outcome for the group or any one of its members. Individuals’ failure to cooperate, then, stems from a sense of causal impotence rather than a desire to free ride.

Part III, “Evolution,” explores how strategic rationality has been used to model organisms in a state of evolutionary natural selection. Chapter 10, “Selfish Gene,” follows the application of game theory to evolutionary biology with the implication that all life forms are deduced to follow the laws of strategic rationality to survive the demands of natural selection. Game theory provides algorithms that may have been programmed into organisms’ behavior and assumes no conscious choice. Evolutionary game theorists hold that organisms compete over a source of objective fitness value and that each organism’s survival depends on gaining more than others. Richard Dawkins uses these analytic models to argue that humans must have evolved to carry a gene for selfish behavior that conforms to the principles of noncooperative game theory.

Chapter 11, “Tit for Tat,” discusses Robert Axelrod’s argument that cooperation can emerge among the egoistic utility maximizers modeled by noncooperative game theory. Axelrod uses a repeated Prisoner’s Dilemma game played by two actors to argue that reciprocal altruism along the line of the golden rule would be a successful strategy in this setting. Axelrod’s argument is pivotal for the neoliberal institutionalists’ hopes that cooperation can emerge even among actors who abide by the principles of noncooperative game theory. Hence, according to this analysis, markets and institutions reminiscent of classical

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liberalism can be sustained notwithstanding the pessimistic assumptions about the character of actors. However, as this chapter shows, Tit for Tat cooperation is an idealized solution that must be supplemented by coercive sanctions and vigilante punishment for cooperation to emerge in settings beyond those with two individuals interacting indefinitely with perfect recall who play their strategies without error and value the future as much as the present.

The final chapter, *Pax Americana*, restates the unique findings of neoliberal theory derived from rational choice. Neoliberal subjects are those stymied by the Prisoner's Dilemmas theorized to exist throughout life's experiences. However, acting in accordance with the strategic imperatives of noncooperative game theory is optional. One can instead choose to actualize the classical liberal disposition to acknowledge others' right to exist, a more comprehensive view of value that transcends fixed-sum resources, and permits both joint maximization and the classic liberal imperfect duty of altruism. The Prisoner's Dilemma is a loaded trap that seems perplexing precisely because its historical development has superimposed the will to dominate others on top of the motive to act cautiously and independently to protect one's interests. The bright-line test of whether actors are really caught in a PD game, and whether they qualify as neoliberal subjects, is whether these individuals would choose to cooperate after the other actor has already chosen to do so in situations classified as tangible resource dilemmas in which everyone seeks to secure scarce goods. Classic liberal society is constructed on the premise that if others cooperate in market exchange and provision of public goods, then one will voluntarily do so as well. Neoliberal theory asserts that every actor will likely cheat, free ride, and seek self-gain by threatening harm on others even if others cooperate. It may seem that strategic actors can simply incorporate a predilection for cooperation into their utility functions. However, in its orthodox form, noncooperative game theory permits only the consideration of consequences, views joint maximization as unsound, and stresses fungible rewards directly associated with actors' chances of instrumental success. Rather than regarding norms and rule following as deliberate choices, game theory views norms as behavioral patterns that emerge solely as a consequence of individualistic preference satisfaction.