

Prisoners of Reason

Game Theory and Neoliberal Political Economy

S. M. AMADAE

Massachusetts Institute of Technology



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To András Rátonyi

Neoliberalism

The political effects of nuclear weapons are also a serious consideration. American values have been affected. Our central government is larger, and the executive branch plays a larger role in foreign affairs. Interaction between strategic adversaries involves secrecy, and secrecy is difficult to reconcile with democracy. Many of these changes began before 1945, but enormous life-and-death decisions are nevertheless delegated to the president or his successors, and the circumstances may not permit congressional involvement. Knowledge of the details of nuclear targeting plans tends to be restricted to the military, and there have been cases in the past where a significant gap existed between military plans and what elected officials thought to be policy.

Joseph S. Nye Jr., 1986¹

The distinction between acting parametrically on a passive world and acting non-parametrically on a world [of game theory] that tries to act in anticipation of these actions is fundamental. If you wish to kick a rock down a hill, you need only concern yourself with the rock's mass relative to the force of your blow. . . . By contrast, if you wish to kick a person down the hill, then unless the person is unconscious, bound or otherwise incapacitated, you will likely not succeed unless you can disguise your plans until it's too late for him to take either evasive or forestalling action.

Don Ross, 2006²

The resultant dominant ideology is founded on the illusion that observed inequality is not to be explained in terms of the social power of one class or group over the other but, instead, is the result of different abilities, work ethic, etc. . . . Indeed, mainstream economics, and by association game theory, may be thought of as the highest form of this ideology . . .

Our world may have never before been so ruthlessly divided along the lines of extractive power between those with and those without access to productive means. And yet never before has the dominant ideology been so successful at

¹ Joseph S. Nye Jr., *Nuclear Ethics* (New York: Free Press, 1986), 78.

² Don Ross, "Game Theory," *Stanford Encyclopedia of Philosophy*, published 1997, substantially revised 2014, available on line, <http://plato.stanford.edu/entries/game-theory> (accessed September 1, 2015).

convincing most people that there are no systematic social divisions; that the poor are mostly undeserving and that talent and application is all the weak need in order to grow socially powerful.

Shaun Hargreaves Heap and Yanis Varoufakis, 2004³

After September 11, 2001, it became obvious that Francis Fukuyama's predicted *End of History* failed to materialize in prosperous global markets and inclusive democratic governance. This disappointing outcome to the Cold War, and the attendant ongoing deprivation faced by billions worldwide, encourages contemporary critics of capitalism to investigate the unique features of late-modern political economy. They point out that both the reach of the market and differentials in access to resources are wholly unprecedented. Keeping company with the varied efforts to explain the unique features of postmodern market discipline and government rule, *Prisoners of Reason* advances the simple thesis that neoliberalism reflects both the mentality and institutions consistent with orthodox game theory. To some, this might seem like targeting the straw man strategic actor, much as Thorstein Veblen ridiculed the ideal *Homo economicus* of neo-classical economics.⁴ However, this *Homo strategicus* remains at the epicenter of standard game theory pedagogy and continues to represent the most readily operationalized agency modeled by the theory.⁵ It is difficult to imagine teaching game theory without introducing new students to the canonical rational actor who only considers outcomes in terms of direct personal advantage and renders all decision making commensurable on a single scale translatable into money.⁶

This chapter briefly discusses contemporary authors' efforts to identify the unique features of neoliberal political economy. This scholarly engagement with capitalism veers from blurring the distinctions between classical liberal and late-modern capitalism on the one hand to pointing out all of the oppressive features of contemporary economic practice on the other. The first section advances the thesis that neoliberal economics and politics are best understood as the result of modeling agency and designing institutions according to the

³ Shaun Hargreaves Heap and Yanis Varoufakis, *Game Theory*, 2nd ed. (New York: Routledge, 2004), 262–263.

⁴ Thorstein Veblen, "Why Is Economics Not an Evolutionary Science?" reprinted in *The Place of Science in Modern Civilization* (New York: Viking, 1919), 73.

⁵ Note, for example, that the Nash equilibrium solution concept of "mutual-best-reply" is only guaranteed when mixed (randomized) strategies relying on expected utility theory are permitted; furthermore, in many useful applications, interpersonally transferable sources are assumed (hence permitting that players can offer side payments to other players). For discussion, see Duncan Luce and Howard Raiffa, *Games and Decisions* (New York: Wiley, 1957), 88–113.

⁶ See how Roger B. Myerson introduces game theory with the idea that money serves as a useful means to model interactions: *Game Theory* (Cambridge, MA: Harvard University Press, 1991), 3. See also Ken Binmore's treatment, *Game Theory: A Very Short Introduction* (New York: Oxford University Press, 2007). The *Economist* magazine makes clear that to use the tool of cost-benefit analysis, common in neoliberal economic practice, all decision making must be made as if outcomes have prices: "Economic Focus: Never the Twain Shall Meet," *Economist*, February 2, 2002, 82.

principles of orthodox game theory. The second section explores how the political philosophy consistent with rational choice theory departs from the founding principles of classical liberal markets and government. Neoliberal theory negates side constraints, deontic commitments, and due process. Classical liberalism depends on the no-harm principle and mutual respect for its defense of free markets and a minimal state. Neoliberalism cannot define harm; even if actors agreed on a standard of harm, still they would advance their self-interest at the expense of others, breaking agreements and free riding whenever possible.

This chapter's final section provides an overview of how neoliberal theory starts with the minimal assumptions of strategic rationality and attempts to derive a basis for a social order that roughly resembles modern free markets and democratic governance. Numerous rational choice theorists have viewed the challenge of achieving peace out of anarchy as a version of Prisoner's Dilemma under the assumption that every individual will seek self-benefit at a cost to others. Their solution is the introduction of incentives to mobilize individuals' compliance with laws. Although neoliberalism seems to offer a means to achieve stability, it differs from classical liberalism by normalizing the pursuit of gain at the expense of others and the implementation of governance through coercive sanctions, leaving little room for legitimacy and voluntary compliance.

The arc of *Prisoners of Reason* begins with the international relations nuclear security dilemma, then proceeds to the identical security dilemma proposed to underlie civil government, and ends with the similarly formulated question of how evolving life forms individually survive and achieve stable, resource efficient, equilibria. In each case, theorists have found that the Prisoner's Dilemma game represented a key decision problem confronting actors. This chapter's final section, "Neoliberalism and Nuclearism," articulates how orthodox game theory resonated with the *realpolitik* approach to international relations popular during the Cold War period. Exploring this overlap between game theory and international relations realism helps clarify the implications of applying the same assumptions to the structure of civil society.

DEFINING NEOLIBERALISM

The term *neoliberalism* is currently in vogue.⁷ At least since David Harvey published *A Brief History of Neoliberalism* (2007), there has been a mushrooming

⁷ Harvey's *Neoliberalism* was published by Oxford University Press, 2007; see also Henry A. Giroux, *The Terror of Neoliberalism: Authoritarianism and the Eclipse of Democracy* (London: Paradigm Publishers, 2004), on Carter, see 22–23; for a more recent overview of the field of inquiry, see Mathieu Hilgers, "The Three Anthropological Approaches to Neoliberalism," *International Social Science Journal* (2010) 61:202, 351–364, and his "The Historicity of the Neoliberal State," *Social Anthropology* (2012) 20:1, 80–94. Oxford University Press published *Neoliberalism: A Very Brief Introduction* by Manfred B. Steger and Ravi K. Roy, 2010. See also Pierre Bourdieu, *Acts of Resistance: Against the Tyranny of the Market* (New York: New Press, 1999); and Michel

inquiry into the nature of the practices constituting late-modern political economy, often dated to the late 1970s when President Jimmy Carter appointed Paul Volcker to chair the Federal Reserve Bank and actively promoted policies of deregulation. Following the planned economy of the New Deal and World War II, and the ensuing fiscal Keynesianism, public choice theorists supported a renewed enthusiasm for the power of markets to solve social problems and generate prosperity.⁸

This late twentieth-century incarnation of capitalism, associated with Margaret Thatcher, Ronald Reagan, Deng Xiaoping, and later John Williamson's 1989 Washington Consensus, has come to be referred to as neoliberalism.⁹ Harvey argues that neoliberalism, as a mode of discourse, has become hegemonic, producing "pervasive effects on ways of thought to the point where it has become incorporated into the common-sense way many of us interpret, live in, and understand the world."¹⁰ Neoliberalism, he explains, argues that "the social good will be maximized by maximizing the reach and frequency of market transactions" and thus "seeks to bring all human action into the domain of the market."¹¹ Michael Sandel draws attention to similar concerns in his recently published book *What Money Can't Buy: The Moral Limits of Markets*.¹² His argument, that the contemporary practice of monetizing all value displaces moral and other-regarding dimensions of action,

Foucault, *The Birth of Biopolitics: Lectures at the Collège de France, 1978–1979* (Lectures at the Collège de France, Picador Reprint Edition, 2010). For a theoretical analysis of the distinction between a classic liberal and neoliberal author, see Javier Avanzadi, *Liberalism against Liberalism: Theoretical Analysis of the Writings of Ludwig von Mises and Gary Becker* (London: Routledge, 2006). On the contrast between neoliberalism and neoconservatism, see Wendy Brown, "American Nightmare Neoliberalism, Neoconservatism, and De-Democratization," *Political Theory* (2006), 34:6, 690–714. For a skeptical position on neoliberalism, see Rajesh Venugopal, "Neoliberalism as a Concept," *Economy and Society* (2015) 44:2, 165–187.

⁸ Some observers view the return to a pro-market orientation in opposition to the legacy of the New Deal and Keynesian economics as neoliberalism and point to Friedrich Hayek and Milton Friedman as paving the way. See Philip Mirowski and Dieter Plehwe, eds., *The Road from Mount Pelerin: The Making of the Neoliberal Thought Collective* (Cambridge, MA: Harvard University Press, 2009); see also Angus Burgin, *The Great Persuasion: Reinventing Free Markets since the Depression* (Cambridge, MA: Harvard University Press, 2012). My analysis associates the unification of *Wall Street Journal* Republicanism and traditional religion with neoconservatism and reserves the term "neoliberalism" for a secular approach to political economy and security; the term "*Wall Street Journal* Republican" is taken from Francis Fukuyama, *End of History* (New York: Free Press, 2006); Hayek is committed to the rule of law, which connotes a legitimacy distinct from the mere positive treatment of law consistent with the rational choice approach to liberalism. On public choice theory, see S. M. Amadae, *Rationalizing Capitalist Democracy* (Chicago: University of Chicago Press, 2003), 133–155.

⁹ John Williamson, "Democracy and the 'Washington Consensus,'" *World Development* (1991) 21:8, 1329–1336.

¹⁰ Harvey, *A Brief History of Neoliberalism*, 2007, 3.

¹¹ *Ibid.*

¹² Michael Sandel, *What Money Can't Buy: The Moral Limits of Markets* (New York: Farrar, Straus, Giroux Reprint edition, 2013); for commentary, see Thomas L. Friedman, "This Column Is Not Sponsored by Anyone," *New York Times*, May 13, 2012, SR13.

resonates with the thesis explored in *Prisoners of Reason*: that the exhaustive application of game theory and rational expectations as our orthodox understanding of rational action effectively distills out ethical action, other-regarding considerations, and the ability to voluntarily cooperate in groups.¹³

Neoliberalism has a number of agreed-upon facets. All value is commodified and financialized.¹⁴ Work and gradual wealth accumulation are replaced with speculation, risk management, and casino finance.¹⁵ Elite institutions spread the ethos of neoliberal agency and public policy.¹⁶ Citizens experience an increasing disparity in access to resources, income, and wealth. Consumers accept the inevitability that there are winners and losers, counter to the belief that markets will bring progressively improving living conditions for everyone.¹⁷ Experts denounce the possibility for collective action and meaningful democratic will formation, or even the existence of a public interest.¹⁸ Government and business incentivize compliance with performance metrics and regulations formulated to achieve social order.¹⁹ Individuals experience responsibility in terms of pay-as-you-go access to conditions necessary to sustain life.²⁰ Entrepreneurs accept predatory practices to promote profit, circumventing mutual exchange.²¹ New practices of coercive bargaining are resolved through binding arbitration and debt bondage instead of public courts of justice and normative conduct oriented toward mutual exchange and reciprocal respect.²²

¹³ For a complementary treatment, see Daniel T. Rodgers, "Rediscovery of the Market," in *Age of Fracture* (Cambridge, MA: Belknap Press, 2012), 41–76. See also Debra Satz, *Why Some Things Should Not Be for Sale: The Moral Limits of Markets* (New York: Oxford University Press, 2010).

¹⁴ Discussed by Hilgers, "Historicity of the Neoliberal State," 2012, 84–85; Harvey, *Neoliberalism*, 2005, 3, 33, 165–172. For recent and comprehensive treatment of neoliberalism that makes similar points, see Wendy Brown, *Undoing the Demos: Neoliberalism's Stealth Revolution* (New York: Zone Books, 2015); on financialization of all value, see 63–78.

¹⁵ Discussed by Hilgers, "Three Anthropological Approaches," 2011, 353–354.

¹⁶ *Ibid.*, 359–360.

¹⁷ A central theme in studies of neoliberalism is the increasing disparity of wealth in addition to the politics of wealth accumulation through dispossession. See Harvey, *Neoliberalism*, 2007, 31–35.

¹⁸ Theme of Giroux, *Terror of Neoliberalism*, 2004; see also Harvey, *Neoliberalism*, 2007, 66.

¹⁹ See Hilgers, "Three Anthropological Approaches," 2011, 356; there is an acknowledgment that rules of law are the product of interests, but there is also a sense of the inevitability of positive law and the power underlying the promotion of self-interest, e.g. Harvey, *Neoliberalism*, 2007, 77, 203. See also Brown, *Undoing the Demos*, 2015, 115–150.

²⁰ This is consistent with a neo-Darwinist approach to social policy that resonates with Richard Dawkins's *Selfish Gene* (Oxford: Oxford University Press, 1976). See also Hilgers, "Three Anthropological Approaches," 2011, 356; Hilgers, "Historicity of the Neoliberal State," 2012, 85–86; and Brown, *Undoing the Demos*, 2015, 131–134.

²¹ See, e.g., Harvey, *Neoliberalism*, 2005, 36; see also G. A. Cohen, *Why Not Socialism?* (Princeton, NJ: Princeton University Press, 2009). See also Charles H. Ferguson, *Predator Nation: Corporate Criminals, Political Corruption, and the Hijacking of America* (New York: Crown Business, 2012).

²² On the acceptance of encumbered debt that is essentially permanently unresolvable, see Hilgers, "Historicity of the Neoliberal State," 2012, 83–84; on the rise of binding arbitration, see the documentary, *Hot Coffee* (2011), directed by Susan Saladoff.

Some researchers have traced the origins of neoliberalism to Friedrich Hayek, the Mont Pèlerin Society, and the Chicago school of economics.²³ Both critics and proponents of the turn to privatization and free market solutions seem unclear about whether there is anything new in contemporary forms of capitalism. Consider, for example, Harvey's definition that "the neoliberal state should favour strong individual property rights, the rule of law, and the institution of freely functioning markets and free trade."²⁴ There seems to be little to differentiate this contemporary confidence in the power of markets to empower individuals through choice from the classical liberal idea of self-determination through the exercise of private property rights.²⁵ Harvey's definition leaves vague what makes neoliberalism distinct from Adam Smith's original *laissez-faire*.²⁶

The two current extremes in addressing neoliberal political economy are either to define it in such a way that its core principles seem indistinct from eighteenth- or nineteenth-century *laissez-faire*, as Harvey does or to use the term as a multi-purpose critique for varying forms of oppression. Mathieu Hilgers voices such a caution, noting that "the term 'neoliberalism' has no single definition on which all agree . . . it is used by alterglobalisation activists, within political debates and also as a scientific term by some academic researchers."²⁷ Hilgers contrasts the use of "neoliberalism" as a critique of runaway market enthusiasm with the neoliberal institutionalist school of international relations, which has its own distinct methodology and terminology.

Prisoners of Reason argues that a key feature unifying neoliberal theories, institutions, and practices is game theory, first articulated by John von Neumann and Oskar Morgenstern in their now famous *Theory of Games and Economic Behavior* (1944). Gesturing toward this thesis, Daniel T. Rodgers writes in his recent *Age of Fracture*, "Market ideas moved out of economics departments to become the new standard currency of the social sciences. Certain game theory

²³ See the edited collection by Mirowski and Plehwe, *The Road from Mont Pèlerin*, 2009. See also Burgin, *The Great Persuasion*, 2012. For a counterargument that the center of gravity of the neoliberal movement is the Virginia School rather than the Mont Pèlerin Society or the Chicago school, see Nancy MacLean, *Chaining Leviathan: The Decades-Long Plan of the Radical Right to Shackle Democracy* (New York: Viking, forthcoming).

²⁴ Harvey, *Brief History of Neoliberalism*, 2007, 64.

²⁵ For an analysis of how markets have come to be associated with freedom, see Eric MacGilvray, *Market Freedom* (Cambridge: Cambridge University Press, 2010).

²⁶ Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, 2 vols., ed. by R. H. Campbell and A. S. Skinner (Indianapolis: Liberty Fund, 1976); for commentary on variations between the rational choice approach to liberalism and Adam Smith's, see Amadae, *Rationalizing Capitalist Democracy* 2003, 193–219; and S. M. Amadae, "Utility, Universality, and Impartiality in Adam Smith's Jurisprudence," *Adam Smith Review* (2008) 4, 238–246.

²⁷ Hilgers, "The Three Anthropological Approaches," 2010; and his "The Historicity of the Neoliberal State," 2012, 20, 80–94; quote is from Hilgers, "Three Anthropological Approaches," 352. On the term's plural applications with an extensive literature review, see Rajesh Venugopal, "Neoliberalism as a Concept," *Economy and Society* (2015) 44:2, 165–187.

set-pieces – the free-rider problem, the prisoner's dilemma, the tragedy of the commons – became fixtures of common sense."²⁸ Rodgers points out how game theory offers the intellectual infrastructure for contemporary economic analysis. Rational choice theory assumes that actors maximize expected gain and compete with one another strategically.²⁹ The integration of game theory and rational expectations into economic science marks a new period in the history of economic thought sequential to both the initial classical period from Adam Smith's *Inquiry into the Nature and Causes of the Wealth of Nations* (1776) to Karl Marx's *Das Capital* (1867–94) and to the subsequent neoclassical period encompassing William Stanley Jevon's *Theory of Political Economy* (1871), Vilfredo Pareto's *Manuel of Political Economy* (1906), and Lionel Robbins's *Nature and Scope of Economic Science* (1932).³⁰

The ideas of game theory are historically unprecedented and have justified, and rendered plausible or even inevitable, the iconoclastic features of neoliberalism.³¹ The financialization of all value is consistent with game theory but not with classical or neoclassical economics.³² Collective action, public

²⁸ Daniel T. Rodgers, *Age of Fracture* (Cambridge, MA: Harvard University Press, 2011), 10. Amadae, *Rationalizing Capitalist Democracy*, 2003, argues that the belief that rational choice theory emerged from within the discipline of economics is a common misunderstanding. Richard Tuck, *Free Riding* (Cambridge, MA: Harvard University Press, 2008) argues that free riding is, indeed, a relatively new "commonsense" intuition not sustained in earlier periods of thought.

²⁹ Von Neumann and Morgenstern articulate the basic mathematical arguments of game theory and mainly study two-person zero-sum games in which the total value gained is conserved. Their extension of game theory to non-zero-sum games assumes the same concept of value as that developed for zero-sum games: *Theory of Games and Economic Behavior*, 60th anniversary edition (Princeton, NJ: Princeton University Press, 2007); note the subtitle to Roger B. Myerson's *Game Theory: Analysis of Conflict*, 1991.

³⁰ For analysis of the paradigmatic shift from neoclassical economics to game theory, see Amadae, *Rationalizing Capitalist Democracy*, 2003, 220–250; Philip Mirowski, *Machine Dreams: Economics Becomes a Cyborg Science* (Cambridge: Cambridge University Press, 2002).

³¹ The pioneers of game theory were acutely aware that they were contributing a new method for economics and social science. See von Neumann and Morgenstern, *Theory of Games*, 2007, 1–45; Luce and Raiffa, *Games and Decisions*, 1958, 1–11.

³² To see this, consider how Lionel Robbins argued that economics is concerned with scarce resources that serve as means to ends and that money can only ever be a means and not an end, *Essay on the Nature and Significance of Economic Science*, 2nd ed. (London: Macmillan, 1962). Classical political economists viewed the cost of subsistence as the basis from which to evaluate profit and surplus value. See Istvan Hont and Michael Ignatieff, "Needs and Justice in *The Wealth of Nations*," in their edited collection *Wealth and Virtue: The Shaping of Political Economy in the Scottish Enlightenment* (Cambridge: Cambridge University Press, 1983), 1–44. By contrast, according to contemporary economics, "Trade-offs can be struck between competing ends . . . choices must be made. Even if environmentalists ruled the world, difficult choices would have to be confronted – and, working backwards from those choices [using revealed preference theory], made according to whatever criteria, it will always be possible to calculate economic values . . . trade-offs, measurable in dollar terms, had in fact been struck" ("Economic Focus," 2002, 82). Expected utility theory, with its requirement that all outcomes be ranked on a single scale, and its application to empirical phenomena via the identification of a salient tangible property, often introduces a monetary metric as the default against which all value is ascertained; see, e.g., Myerson, *Game Theory*, 1991, 3–25.

interest, voluntary cooperation, trades unions, social solidarity, and even voting are all irrational according to rational choice theory.³³ Consent is rendered superfluous because knowledge of an individual's preferences over all possible outcomes makes it possible to deduce what that individual would choose to do "in every situation which may conceivably arise."³⁴ The invisible hand of classical political economy and general equilibrium theory becomes an old-school myth that must be countered by the backside of the invisible hand via coercive sanctions.³⁵ Given the way that incentive schemes function in game theory such that *everything* of value to an agent must be reflected in a common metric, such as money, food calories, energy, time, and information, non-scarce resources such as integrity and trust are treated as though they were costly and finite.³⁶ This results in a mentality whereby every decision is evaluated on a cost-benefit analysis basis of how it promotes individual interest in accordance to a fungible rewards scheme. It thus becomes rational to cheat if one can do so without getting caught.³⁷ Instead of one market-clearing, public price that

³³ This is proven by Kenneth J. Arrow's *Social Choice and Individual Values*, 2nd ed. (Yale University Press, 1970). For discussion, see Amadae, *Rationalizing Capitalist Democracy*, 2003, 83–154; for technical discussion, see Tuck, *Free Riding*, 2008; for a critique internal to the rational choice paradigm, see Elinor Ostrom, *Governing the Commons* (New York: Cambridge University Press, 1990).

³⁴ Von Neumann and Morgenstern, *Theory of Games*, 2004, 31; this permits Richard Posner's equation of *ex ante* and *ex post* consent, see *Prisoners of Reason*, Chapter 8.

³⁵ For this analysis and vocabulary, see Russell Hardin "The Back Side of the Invisible Hand," *Collective Action* (Resources for the Future, 1982), 6–15; see also Geoffrey Brennan and Philip Pettit, "Hands Tangible and Intangible," *Synthese* (1993) 94, 191–225.

³⁶ "A prize [payoff] in our sense could be any commodity bundle or resource allocation. We are assuming that the prizes in X [total set of possible outcomes or payoffs] have to be defined so that they are mutually exclusive and exhaust the possible consequences of the decision-maker's decisions. Furthermore, we assume that each prize in X represents a complete specification of all aspects that the decision-maker cares about in the situation resulting from his decision" [emphasis added]; realizable utility is finite and bounded, see Myerson, *Game Theory*, 1991, 7–8, 13. This covers the requirements for each individual's single scale ranking over all conceivable outcomes; for this metric to be common across actors (although not assuming that a certain number of units on this metric have equivalent experiential utility for various actors), agents must base evaluation on a common unit of measurement, and "for many situations money serves this purpose," Luce and Raiffa, *Games and Decisions*, 1958, 145; see also Myerson, *Game Theory*, 1991, 3; for discussion, see Anatol Rapoport, *Fights, Games, and Debates* (Ann Arbor: University of Michigan Press, 1960): "The real difficulty is to define and estimate 'utilities,' which game theory simply takes for granted. Except where money or some other easily measurable commodity can be taken to be equivalent to utilities or at least related to utilities in an ascertainable manner, the determination of utilities or even a proof of their existence is a most difficult matter," 164, 180–194; and von Neumann and Morgenstern, *Theory of Games*, 2004, 20–24.

³⁷ In rational choice scholarship, the principles of commitment, honesty, and integrity can only be evaluated on a cost-benefit analysis basis, thereby losing intrinsic significance. See Amartya K. Sen, "Rational Fools: A Critique of the Behavioral Foundations of Economic Theory," *Philosophy and Public Affairs* (1977) 6:4, 317–344. See also Daniel Hausman and Michael McPherson, *Economic Analysis, Moral Philosophy and Public Policy*, 2nd ed. (Cambridge: Cambridge University Press, 2006), 72. For an experimental critique of the rational incentives

forms an equilibrium of supply and demand, pricing becomes private and invisible to general scrutiny, finely honed to each individual's personal willingness and ability to pay, knowable through comprehensive, non-anonymous, asymmetrically leveraged data mining.³⁸ New means of systematically exploiting surplus value by finding ways to charge individuals scarce cash value for positive-sum, inherently unlimited resources create new opportunities for profit.³⁹

Rational decision theory, first solidified as rational deterrence theory in the 1960s, was integrated into evolutionary biology and analyses of political economy in the 1970s and finally became mainstream in economics in the 1980s. John Harsanyi, Reinhard Selten, and Robert Aumann contributed game theory analyses to *Models of Gradual Reduction of Arms* (1967) before going on to win Nobel Prizes in economics in 1994, 1994, and 2005, respectively. Similarly, Thomas Schelling was preeminent for his work on nuclear deterrence and arms control in the 1960s before becoming a Nobel Laureate in economic science in 2005.⁴⁰ Strategic rationality can help build descriptive models, but more importantly, it offers a normative and prescriptive understanding of rationality that may inform decision making and structure subjective appraisals over appropriate action choices. It exists as a powerful pedagogy that can revise actors' interpretations of valid and effective courses of action.⁴¹ Given that the ideas examined in *Prisoners of Reason* received recognition at the same time as the onset of neoliberal institutions and practices, we may hypothesize that this congruence is not coincidental or accidental. Certainly, the core ideas that inform neoliberal governance and market discipline are structured in accordance with game theory and are markedly distinct from the body of ideas defining classical liberalism.

RECALLING CLASSICAL LIBERALISM

The shift in orientation from liberalism to neoliberalism is sufficiently stark that it calls for a reexamination of the bedrock theoretical commitments underlying

approach to ethical conduct, see Nina Mazar and Daniel Arieli, "Dishonesty in Everyday Life and Its Policy Implications," *Journal of Public Policy and Marketing* (2006) 25:1, 117–126.

³⁸ For an analysis of aspects of this phenomenon permitting the privatization of pricing see *Assessing the Impact of Online Personalization on Algorithmic Culture*, a project of inquiry at Northeastern University, Boston, MA: www.northeastern.edu/nulab/personalization-research-northeastern/, accessed January 30, 2015.

³⁹ Sam Han, "American Cultural Theory," *Routledge Handbook of Social and Cultural Theory* (New York: Routledge, 2013), 239–256.

⁴⁰ Many post-World War II economists whose contributions have been acknowledged with a Sveriges Riksbank Prize in Economic Sciences in memory of Alfred Nobel contributed to or used game theory: Kenneth J. Arrow, James M. Buchanan, Gary S. Becker, John C. Harsanyi, John F. Nash Jr., Reinhard Selton, Douglass C. North, Roger B. Myerson, Robert J. Aumann, Daniel Kahneman, and two theorists whose work is critical of the paradigm – Amartya K. Sen and Elinor Ostrom.

⁴¹ Myerson acknowledges this point, *Game Theory*, 1991, at 22.

the family of liberal political philosophies.⁴² We may perceive of distinct classical, progressive, and welfarist liberalisms, which are articulated by John Locke, Adam Smith, and Immanuel Kant; T. H. Green, John Stuart Mill, and John Dewey; and John Rawls, respectively.⁴³ We could also include the mid-century renewed faith in free markets, pointing to Friedrich Hayek and Milton Friedman, as well as Robert Nozick's libertarianism.⁴⁴ We might also incorporate the instrumentalist approach to liberalism, encompassing Hugo Grotius, Thomas Hobbes, and David Gauthier.⁴⁵ We could see liberalism based on an empirical pragmatist approach, best characterizing Adam Smith's method, or on a deontological ethics consistent with Kant's work.⁴⁶ Classical liberalism can also be viewed in terms of achieving accord among nations.⁴⁷ Liberalism is obviously a multifaceted approach to understanding individual freedom and the proper relationship between government and private citizens.⁴⁸

⁴² For contemporary commentary, see Michael J. Sandel, *Liberalism and the Limits of Justice*, 2nd ed. (Cambridge: Cambridge University Press, 1998); Gerald Gaus, "Liberalism," *Stanford Encyclopedia of Philosophy*, online, substantially revised, 2010; Alan Ryan, *The Making of Modern Liberalism* (Princeton, NJ: Princeton University Press, 2014).

⁴³ John Locke, *Second Treatise of Government*, ed. by C.B. Macpherson (Indianapolis: Hackett, 1980); Adam Smith, *Theory of Moral Sentiments*, ed. by D. D. Raphael and A. L. Macfie (Indianapolis: Liberty Fund, 1982); Immanuel Kant, *Groundwork of the Metaphysics of Morals*, trans. by H. J. Paton (New York: Harper and Row, 1964); Immanuel Kant, *The Metaphysical Elements of Justice*, trans. by John Ladd (Indianapolis: Bobbs-Merrill, 1964); T. H. Green, *Lectures on the Principles of Political Obligation* (Kitchener, ONT: Batoche Books, 1999); John Stuart Mill, *J. S. Mill On Liberty and Other Writings*, ed. by Stefan Collini (Cambridge: Cambridge University Press, 1989); John Dewey, *Public and Its Problems* (Chicago: Swallow Press, 1954); John Rawls, *Theory of Justice*, revised ed. (Cambridge, MA: Belknap Press, 1999).

⁴⁴ Friedrich Hayek, *Constitution of Liberty*, ed. by Ronald Hamowy (Chicago: University of Chicago Press, 2011); Milton Friedman, *Capitalism and Freedom*, Fortieth Anniversary Edition (Chicago: University of Chicago Press, 2002); Robert Nozick, *Anarchy, State, and Utopia*, 2nd ed. (New York: Basic Books, 2013).

⁴⁵ Hugo Grotius, *The Rights of War and Peace*, 3 vols., ed. by Richard Tuck (Liberty Fund, 2005); Thomas Hobbes, *Leviathan*, ed. by Richard Tuck (Cambridge: Cambridge University Press, 1996); David Gauthier, *Morals by Agreement* (Oxford: Oxford University Press, 1987), although this latter work is pivotal in the shift from classical to neoliberalism.

⁴⁶ Smith, *Theory of Moral Sentiments*, 1982; Kant, *Groundwork*, 1964.

⁴⁷ Richard Tuck argues that classical liberalism was first defined in terms of international relations theory during early modernity: *The Rights of War and Peace: Political Thought and the International Order from Grotius to Kant* (Oxford: Oxford University Press, 2001); for discussion of the classical liberal approach in international relations theory, see also Michael Doyle, *Ways of War and Peace* (New York: W. W. Norton, 1997), 205–314.

⁴⁸ Duncan Bell argues that "liberalism" refers to such a variety of political theories that the term lacks specificity and furthermore was used in the mid-twentieth century in the Cold War effort to ground democracy; "What Is Liberalism?" *Political Theory* (2014) 42:6, 682–715. Russell Hardin argues that there was so much disagreement by the end of the twentieth century among the select theorists who actively recognized a common philosophical tradition (including John Rawls, Robert Nozick, and James M. Buchanan) that the sheer fact of such disagreement demonstrates the lack of theoretical cogency to "liberalism"; "Contractarianism: Wistful Thinking," *Constitutional Political Economy* (1990) 1:2, 35–52; Gerald Gaus identifies

In looking for a common denominator underlying the myriad liberalisms coexisting as a family of political theories, freedom from interference or freedom from arbitrary power stands prominent because even the progressive, welfarist, and so-called positive versions of liberalism rest on this elementary foundation. Kant formulates the understanding of classical liberal freedom thus: "Freedom (independence from the constraint of another's will), insofar as it is compatible with the freedom of everyone else in accordance with a universal law, is the one sole and original right that belongs to every human being by virtue of his humanity."⁴⁹ Rawls similarly states this essential observation: "Each person is to have an equal right to the most extensive system of equal basic liberty compatible with a similar system for all."⁵⁰ For this common ground to transcend a state of natural anarchy in which all individuals please themselves at will regardless of their impact on others, liberal philosophy must stipulate how any single individual's sphere of free action can be compatible with others' similar spheres.⁵¹ This is an important point because neoliberal practices of political economy are divorced from this common liberal understanding and, at best, adopt a concept of freedom of choice defined by each particular individual's preferences only constrained by available opportunities.

Traditional liberalism, consistent with a minimal state whose function is restricted to maintaining commutative justice and security, rests on the Archimedean reference point that individuals' claim to rights is concomitant with their obligation to respect the rights of others.⁵² This point of reference is self-evident to reasoned reflection.⁵³ Actors may test the appropriateness of actions according to criteria of impartiality and universalizability so that courses of action are mutually consistent in principle, no matter who originates them. This willingness to respect others' right to exist, as commensurate with one's own human dignity and like right, is a prerequisite for identifying the content of rights and respecting them.

liberalism as a coherent family of political orders, "The Diversity of Comprehensive Liberalisms"; see also Eric Mack and Gerald Gaus, "Classical Liberalism and Libertarianism: The Liberal Tradition," both essays in Gerald F. Gaus and Chandran Kukathas, eds., *Handbook of Political Theory* (London: Sage, 2004), 100–114 and 115–130.

⁴⁹ Kant, *Metaphysical Elements of Justice*, 1965, 43–44.

⁵⁰ Rawls, *Theory of Justice*, 1999, 220.

⁵¹ For example, Amartya K. Sen defines the "minimal liberal" condition to permit every individual a choice among two outcomes, which hence limits another individual's freedom of choice over that pair of outcomes, and yet Sen discovers a contradiction between this condition and that of Pareto optimality, holding that if all members of a community prefer state *a* to state *b*, then the group as a whole must also prefer state *a* to state *b*. He therefore concludes that there is no way to uphold the classical liberal concept of freedom of choice and also respect the Pareto conditions of market efficiency: "Impossibility of a Paretian Liberal," in his *Choice, Welfare and Measurement* (Cambridge, MA: Harvard University Press, 1982), 285–290.

⁵² See, e.g., Nozick's concept of side constraints, *Anarchy, State, and Utopia*, 2013, 28–32.

⁵³ As an example, see Locke, *Second Treatise of Government*, 1988, section 7.

The key insight of the classical liberal approach is that state intervention can be kept to a minimum because individuals by and large gratuitously respect one another's rights. Citizens recognize this commitment to be entailed by their own assertion of liberty. Richard Tuck elucidates the insights of Hugo Grotius:

All men would agree that everyone has a fundamental *right* to preserve themselves, and that wanton or unnecessary injury to another person is unjustifiable. No social life was possible if the members of a society denied either of these two propositions, but no other principles were necessary for social existence, at least on a rudimentary level.⁵⁴

The classic liberal derivation of voluntary self-constraint thus follows from extending one's own right to self-preservation to all human actors. Self-preservation is a natural right coextensive with the reality that agents have an innate drive to protect themselves. Classical liberal civil society emerges from individuals' recognition that acknowledging and respecting others' right to exist, and the conditions for their liberty with respect to the sanctity of their persons and personal possessions, is the basis for peaceful coexistence. For classical liberal theorists, even though positive law may have differing means of legitimation, from Hobbesian authoritarianism to Lockean representative democracy, there is still a common understanding *prior to codified law* in individuals' tacit acknowledgment that the liberty of person possible in a civil society relies on individuals' voluntarily yielding their right to all things, including one another's persons.⁵⁵

Consequently, in classical liberal theory, all individuals' rights exist as a function of respecting others' like rights as a matter of first principle, fleshed out with respect to the specific content of rights. This point is so essential and incontrovertible that the words of Locke bear recalling:

The *Freedom* then of Man and Liberty of acting according to his own Will, is grounded on his having *Reason*, which is able to instruct him in that Law he is to govern himself by, and make him know how far he is left to the freedom of his own will . . . And reason, which is that Law, teaches all Mankind, who will but consult it, that being all equal and independent, no one ought to harm another in his Life, Health, Liberty, or Possessions.⁵⁶

Individuals can only meaningfully exercise their own right to life, property, and the pursuit of happiness insofar as they of their own accord cede to others the liberty of person, possession, and pursuit of happiness.

Two theoretical commitments are entailed in this classical liberal approach to achieving social order, each of which neoliberalism rejects. First, individuals must recognize others' right to exist. Second, individuals must integrate this

⁵⁴ Richard Tuck, *Hobbes: A Very Short Introduction* (Oxford: Oxford University Press, 2002), 26; emphasis in original for all quotations unless otherwise noted.

⁵⁵ Gerald Gaus argues that various grounding principles for a liberal political order can obtain, as long as they satisfy some sufficient conditions, *The Order of Public Reason* (Cambridge: Cambridge University Press, 2011), pp. 321–33; see also his “Public Reason Liberalism,” in *The Cambridge Companion to Liberalism*, edited by Steven Wall (Cambridge: Cambridge University Press, 2015), 112–40.

⁵⁶ John Locke, *Second Treatise on Government*, 1980 (subsection 63, “Of Civil Government”).

respect for others into their own decisions for action. The classical liberal political process assumes these two orientations and has the task of reinforcing them in state-sponsored legislation. In contemporary parlance, this limitation on action may be viewed as each individual voluntarily complying with the Pareto principle that every choice must make at least one individual better off and no one worse off.

To differing degrees, Kant, Nozick, Rawls, and Locke reflect a deontological approach to liberal political philosophy that justifies norms of conduct in accordance with the application of reasoned reflection.⁵⁷ However, even self-claimed proponents of minimal classical liberalism who look to tradition, custom, or convention reach the same conclusion that the claim to liberty is dependent on acquiescence to guidelines of conduct that respect others' pursuit of freedom. This effective self-governance underwrites the minimal state. As Hayek explains, “It is indeed a truth, which all of the great apostles of freedom . . . have never tired of emphasizing, that freedom has never worked without deeply ingrained moral beliefs and that coercion can be reduced to a minimum only where individuals can be expected as a rule to conform voluntarily to certain principles.”⁵⁸ For Hayek, the enactment of a system of mutual liberty follows from individuals' recognition of moral obligation and their voluntary compliance with these moral guidelines that inform action yet are prior to positive law.

Isaiah Berlin, who also eschews the need to supply metaphysical or deontological justifications for liberty, concurs with this elementary position. In his support of the “sanctity of person,”⁵⁹ he observes,

I must establish a society in which there must be some frontiers of freedom which nobody should be permitted to cross. Different names or natures may be given to the rules that determine these frontiers. They may be called natural rights, the word of God, natural law, the demands of utility, or the “permanent interests of man”; I may believe them to be valid a priori or assert them to be my own ultimate ends or those of my society or culture.⁶⁰

Berlin clarifies further, “What these rules or commandments will have in common is that they are accepted so widely, and are grounded so deeply in the actual nature of men as they have developed through history, as to be, by now, an essential part of what we mean by being a normal human being.”⁶¹ He is adamant that “genuine belief in the inviolability of a minimum extent of individual liberty entails some such absolute stand.”⁶²

Berlin upholds the tradition of classical liberalism that gradually narrowed its claims from (1) Smith's confident “System of Natural Liberty” buttressed by an

⁵⁷ See Sandel, *Liberalism*, 2nd ed., 1998, 1–13.

⁵⁸ Hayek, *Constitution of Liberty*, 2011, 123.

⁵⁹ Isaiah Berlin, *Four Essays on Liberty* (New York: Oxford University Press, 2002), 69.

⁶⁰ *Ibid.*, 210.

⁶¹ *Ibid.*

⁶² *Ibid.*

invisible hand that guarantees mutual prosperity, to (2) Mill's soft paternalistic encouragement of individual development within the framework of a no-harm principle, and then to (3) a final minimalist stand. Yet, as Berlin himself acknowledges, this stand is so pertinent to liberalism that it bears restating:

No society is free unless it is governed by at any rate two interrelated principles: first, that no power, but only rights can be regarded as absolute, so that all men, whatever power governs them, have an absolute right to refuse to behave inhumanly; and, second, that there are frontiers, not artificially drawn, within which men should be inviolable, these frontiers being defined in terms of rules so long and widely accepted that their observance has entered into the very conception of what it is to be a normal human being.⁶³

From the vantage of liberal tradition, which defines individual liberty as freedom from interference, this agreement on the boundaries that define the sanctity of persons is sufficiently self-evident so that it informs individual action such that, for the most part, individuals avoid harming one another.⁶⁴ Classical liberals are confident that individuals can distinguish between harmful and benign acts. Moreover, they accept that the rationale and motive force underlying the prohibition on committing harmful acts is sufficiently self-evident, as a result of the conditions for mutual recognition, treating every agent as an end in him- or herself, or agentive autonomy.⁶⁵

The role of the state is thereby minimal because it need only apportion police force and judicial oversight to those pathological individuals who do not agree to recognize or uphold the sanctity of persons, or to anomalous cases defying ready judgment in accordance with precedents. Actors' recognition that liberty is dependent on their accepting the responsibility for avoiding harming other persons, or interfering with their basic rights, is essential to any form of liberalism. Otherwise, maintaining social order would rely on police force and private vigilantism. Thus, in classical liberalism and the family of liberal political philosophies that it inspired, actors are inclined to uphold a principle of noninterference. Even if, admittedly, harm may need to be legislatively defined, agents are motivated to refrain from harming others and to recognize other individuals as ends in themselves, not mere means or active opponents whom one must strategically dominate to attain personal satisfaction.⁶⁶ Actors enter into normative bargains in which they keep agreements made by their own volition, thereby obviating the coercive bargaining characteristic of noncooperative game

⁶³ Ibid., 211.

⁶⁴ Philip Pettit focuses on noninterference to characterize the classic liberal tradition, *Republicanism: A Theory of Freedom and Government* (Oxford: Oxford University Press, 1997), 9.

⁶⁵ Brown, *Undoing the Demos*, 2015, makes similar points referencing Adam Smith in contrast to contemporary neoliberal practice, 79–99.

⁶⁶ Rapoport describes how "game theory extends these methods [of strategic rationality] to apply to situations where an intelligent and usually malevolent opponent is operating" (163–164) discusses the importance of leveraging threats of harm in bargaining (171–173), and contrasts prudential and contra-prudential (threatening the worst on the opponent) strategy (192–212), *Fights, Games, and Debates*, 1960.

theory and governance via the calibrated threat of sanctions consistent with the rational choice account of action.

NEOLIBERALISM AND NUCLEARIZED SOVEREIGNTY

Classical liberalism, as explained earlier, is premised on individual freedom, typically conceptualized in terms of sanctity of personhood and private property, sustained by the negative virtue commitment to avoid harming others. Self-determination and individual initiative sustain voluntary exchange, efficient production, the gradual accumulation of wealth, and mutual prosperity. Free market forces of supply and demand alleviate scarcity and lower the cost of living and are justified for this reason.⁶⁷

By contrast, in neoliberal political economy, individuals are identified by their preferences and opportunities. Freedom becomes the prerogative to make *any available* choice and thus conveys more of a tautological rather than normative imperative.⁶⁸ Agents profit through effective risk management or the creation of "externalities," that is, self-gain at a cost to another party.⁶⁹ Intelligence is algorithmic, bargaining is coercive, and norm-following behavior, if it arises, is an equilibrium outcome of individualistic utility maximization. The role of government is to improve social equilibria through monitoring behavior and threatening sanctions. Mass incarceration is tolerated if it costs less to house prison inmates than to guarantee employment opportunities. There is no characteristic distinction between a citizen and a criminal, because all rational actors would break the law if the benefits outweigh the costs.⁷⁰

The attributes of classical liberalism are consistent with its founding association of liberty with the sanctity of personhood from violation by the state or individual actors. The practices characterizing neoliberalism are consistent with strategic rationality according to which common knowledge of other actors' preferences replaces reciprocal acknowledgment of one another's right to exist.⁷¹ This new interpretation of political economy delineated using game theory is intimately connected with the changing practice of market exchange from

⁶⁷ On Adam Smith's system of natural liberty predicated on negative virtue and promising mutual prosperity, see Amadae, *Rationalizing Capitalist Democracy*, 2003, 193–219.

⁶⁸ The only way to prevent choice from automatically being that which the agent prefers is to identify a salient property of the decision environment enabling a criterion for consistency to be applied: Myerson, *Game Theory*, 1997, 25.

⁶⁹ Thomas Schelling employs this vocabulary in "Hockey Helmets, Concealed Weapons, and Daylight Saving: A Study of Binary Choices with Externalities," *Journal of Conflict Resolution* (1973) 17:3, 381–428.

⁷⁰ Gary Becker, *The Economic Approach to Human Behavior* (Chicago: University of Chicago Press, 1978).

⁷¹ On common knowledge, see David Lewis, *Convention: A Philosophical Investigation* (Oxford: Blackwell, 2002), 52–60.

modernity to postmodernity.⁷² The modern human sciences yield to rational choice theory and behavioral economics.⁷³ Double entry bookkeeping that views values as ratios of exchange gives way to market accounting that pegs value to anticipated future sales and tracks a single criterion, namely dollars.⁷⁴

This shift in the understanding of the agents who inhabit civil society, from individuals who voluntarily respect others' human dignity and right to exist as a condition of their own, to those who pursue self-interest without regard – or even with active disregard – for their impact on others, undermines a classical liberal commonwealth. *Prisoners of Reason* identifies both the novelty of this new approach to human behavior and its coevolution with nuclear deterrence and the exercise of nuclearized sovereignty. The maintenance of nuclear deterrence seemed to require that the United States stand ready to deliver on its promise to destroy the Soviet Union should its leaders initiate nuclear war against Americans. However, strategists viewed this threat to harm as incredible because it relied on engaging in an instrumentally pointless act of atrocious destruction *after* deterrence had already failed. The bipolar Cold War world replete with an overkill supply of thermonuclear warheads guaranteed that mutual assured destruction was an existential reality and not a strategic plan. Seeking to make nuclear weapons effective deterrent threats, strategists looked to rational deterrence theory, which is theoretically equivalent to noncooperative game theory, to inform US nuclear policy. Orthodox game theory stood outside of moral reasoning, which only seemed to weaken US strategic initiatives and the credibility of deterrent threats.⁷⁵

Orthodox game theory is particularly suited to realism in international relations, the school that flourished after World War II.⁷⁶ Four assumptions

⁷² This is a theme that Michel Foucault worked to articulate as he investigated neoliberalism in his final lectures, *The Birth of Biopolitics*, 2010, distinguishing it from modern governmentality described in *Discipline and Punish* (New York: Vintage, 1979). A key distinction toward which Foucault gestures is that modern liberalism permits the internalization of the disciplining gaze so that actors voluntarily abide by norms of efficient capitalist productivity. In neoliberalism, actors are only governed by external sanctions, which are either the official product of a state or the informal product of shaming. See Becker, *The Economic Approach to Human Behavior*, 1978.

⁷³ Hausman and McPherson, *Economic Analysis, Moral Philosophy and Public Policy*, 2nd ed., 2006; Richard H. Thaler and Cass R. Sunstein, *Nudge: Improving Decisions about Health, Wealth, and Happiness*, revised and expanded (New York: Penguin, 2009). Rational choice public policy introduces institutions that compensate for individuals' inability to achieve collectively rational outcomes on their own volition, and for systematically revealed cognitive deficits preventing individuals from acting rationally.

⁷⁴ On the relationship of modern capitalism to double-entry bookkeeping, see Jacob Soll, *The Reckoning: Financial Accountability and the Rise and Fall of Nations* (New York: Basic Books, 2014); for discussion of late-modern accounting practices, see Sebastian Botzem, *The Politics of Accounting Regulation: Organizing Transnational Standard Setting in Financial Reporting* (Cheltenham, UK: Edward Elgar, 2012).

⁷⁵ This point is amply discussed by Philip Green in *Deadly Logic: The Theory of Nuclear Deterrence* (Columbus: Ohio State University Press, 1966).

⁷⁶ David A. Baldwin, "Neorealism, Neoliberalism, and World Politics" (1993) makes this point, 12, in Baldwin, ed., *Neorealism and Neoliberalism: The Contemporary Debate* (New York:

that ground the standard application of game theory are consistent with realism. First, only outcomes matter, not the means by which they are achieved.⁷⁷ Second, the source of value or power is fungible: it is divisible and transferable, like money.⁷⁸ Third, rational actors must act independently and individualistically; they cannot act jointly or with solidarity.⁷⁹ Fourth, gratuitous altruism, imperfect duty, and other-regarding preferences are irrational. By contrast, in classical liberalism, actors have the perfect and therefore justiciable duty to refrain from harming others. They also have the imperfect duty of personal conscience to consider contributing to those in need, but because every specific choice is the product of private judgment and represents one possible use of scarce resources rather than a precise prohibition, such actions are not subject to legislation.⁸⁰ Although it may appear merely coincidental that the progression of the national security debate over nuclear deterrence occurred at the same time as the development of game theory, the two fields were, in fact, intimately connected. Orthodox game theory, articulated in von Neumann and Morgenstern's *Theory of Games and Economic Behavior* as an exhaustive and comprehensive science of decision making, adopts a stance of *realpolitik* that offers such a thoroughgoing instrumentalist approach that other actors are treated as complex objects or malevolent opponents.⁸¹ In the game

Columbia University Press, 1993), 3–28, as does Joseph M. Grieco, "Anarchy and the Limits of Cooperation: A Realist Critique of the Newest Liberal Institutionalism," in Baldwin, ed., *Neorealism and Neoliberalism*, 1993, 116–142, at 116. See also Kenneth N. Waltz, *Man, the State, and War: A Theoretical Analysis* (New York: Columbia University Press, 1959) is a key text in post-World War II realist theory.

⁷⁷ In *Nuclear Ethics* (London: Free Press, 1986), Joseph S. Nye Jr. observes that deterrence theory is consistent with a thoroughgoing instrumentalism, that some have argued that having nuclear weapons necessarily defeats the modern Western commitment to just war theory (44), and that merely having and by extension intending to use such weapons of mass destruction in itself is an immoral action (50–51).

⁷⁸ Doyle, *Ways of War and Peace*, 1997, points out the consistency between the assumption of fungible sources of power and realism, 47; Baldwin points out how Robert Axelrod's Tit-for-Tat solution of the indefinitely repeated Prisoner's Dilemma game often used to model anarchy in international relations assumes that actors compete over fungible sources of value, "Neoliberalism, Neorealism, and World Politics," 1993, 20; Thomas Schelling makes clear the importance of fungible value in repeating, multiparty Prisoner Dilemma games: "Hockey Helmets, Concealed Weapons, and Daylight Saving," 1973.

⁷⁹ The need to go it alone and pursue interests independently is favored in international realism. For discussion, see Art Stein, "Coordination and Collaboration: Regimes in an Anarchic World," in Baldwin, ed., *Neorealism and Neoliberalism*, 1993, 29–59, at 31. Although it is conceivable that solidarity, joint maximization, and team reasoning could be modeled using game theoretic tools, this method and assumption counters the game theoretic orthodoxy that actors maximize independently from one another. See Michael Bacharach, Natalie Gold, and Robert Sugden, *Beyond Individual Choice* (Princeton, NJ: Princeton University Press, 2006).

⁸⁰ Amadae, *Rationalizing Capitalist Democracy*, 2003, 205–212; on this theme, see Amartya K. Sen, "Elements of a Theory of Human Rights," *Philosophy and Public Affairs* (2004) 32:4, 315–356.

⁸¹ Rapoport, *Fights, Games, and Debates*, 1960, 163; Heath, *Following the Rules*, 2011, 41.

of life, actors are ceaselessly jockeying for resources and status against one another.⁸²

The agency normalized by strategic game theory reinforces the understanding of agency presumed by international relations realists. *Prisoners of Reason* follows the nuclear security debate between proponents of mutual assured destruction (MAD), who accepted the classical liberal position that deterrence should be restricted to bilateral or multilateral self-defense, and the advocates of nuclear utilization targeting selection (NUTS), who argued that the pursuit of strategic dominance was part of self-defense. Game theory intersected with this debate because nuclear strategy was a nonempirical science appropriate for abstract and analytic formal modeling. Although, as a theory of rational action, game theory appeared solely to provide rigorous argumentation devoid of content, the assumptions buried within its original formalization helped secure the analytic victory of NUTS over MAD. Whereas strategic rationality could be deemed one logic of action among many, its construction presupposes that it provides a comprehensive treatment of rational action that necessarily subsumes all other considerations for action under its auspices.⁸³ Thus, rather than permit logics of appropriateness, solidarity, and imperfect duty to coexist either alongside or within strategic rationality, game theory instead negates these alternative means of attributing intelligibility to action.

Nuclear strategy appears to be a world apart from markets and democratic governance. However, understanding the nuclear security debate is crucial for grasping how game theory came to characterize all purposive agency during and beyond the Cold War era.⁸⁴ In its orthodox form, game theory asserts a purely consequentialist evaluation of outcomes, a realist single criterion metric for value, and individualistic combat. Whereas self-determination and reciprocal respect of human dignity were the starting points for classical liberal theory, neoliberal theory offers the freedom of individual choice to do as he or she pleases constrained only by feasible options. Under neoliberal political philosophy, even affording to others rights of personhood and human dignity is regarded as a weakness and moralism at odds with strategic conduct.

In 1986, Joseph S. Nye Jr. argued that it was “a serious exaggeration to say that ‘nuclearism’ [the exercise of national sovereignty by projecting power through nuclear deterrence] has caused a cultural, as well as a political and

⁸² “We cannot fail to recognize that people are constantly jockeying to better their lot in a manner which is quite analogous to playing in an extremely complicated many-person game,” Luce and Raiffa, *Games and Decisions*, 1958, 105.

⁸³ Von Neumann and Morgenstern present an exhaustive theory of decisions that views all individual decisions and social interactions as games formalized in their *Theory of Games and Economic Decisions*, [1944]/2004. See especially 31–34: “The immediate concept of a solution is plausibly a set of rules for each participant which tell him how to behave in every situation which may conceivably arise” (at 31).

⁸⁴ Texts that make these points quickly accessible are Heath, *Following the Rules*, 2011; Rapoport, *Fights, Games, and Debates*, 1960; and Daniel Ellsberg, “Theory of the Reluctant Duelist,” *The American Economic Review* (1956) 46:5, 909–923.

constitutional breakdown.”⁸⁵ However, assessing the entanglement of rational deterrence theory, or game theory, with civil political theory and practice leads one to the opposite conclusion. The type of reasoning that strategists found useful for buttressing nuclear deterrence was specifically that of orthodox game theory, which openly broke with classical liberal mutual self-regard.⁸⁶ Game theory coevolved with US nuclear deterrence, which by 1980 had moved from a stance consistent with classical liberal reciprocal respect of the right to self-preservation to the neoliberal, or offensive realist, posture that credibly sustaining deterrent threats relies on demonstrating the intention and capability to prevail in all levels of conflict by leveraging asymmetric power.⁸⁷

Nye’s *Nuclear Ethics* provides an overview of the Cold War strategic debate in which those who supported NUTS “attacked MAD in the 1970s in order to urge the development of new, prompt counter-silo weapons [and] failed to distinguish between the *doctrine* of assured destruction targeting and the *condition* of ultimate vulnerability that remains even when the doctrine is changed.”⁸⁸ *Nuclear Ethics* makes clear that nuclear deterrence theory was predicated on the irrationality of ever using nuclear weapons but also dedicated to establishing “credible options for the use of nuclear weapons that encourage prudence in the calculation of a rational opponent.”⁸⁹ With respect to the former, which Nye

⁸⁵ Joseph S. Nye Jr., *Nuclear Ethics* (New York: Free Press, 1986, 78; Nye is quoting Robert Jay Lifton and Richard A. Falk, *Indefensible Weapons* (New York: Basic Books, 1983), 262. Elaine Scarry’s *Thermonuclear Monarchy* (New York: W. W. Norton, 2014) concurs with Lifton and Falk.

⁸⁶ This much is evident in the common knowledge assumption, and in the ready applicability of game theoretic modeling to the evolution of prehuman ancestors. On the common knowledge assumption, see Shaun Hargreaves Heap and Yanis Varoufakis, *Game Theory*, 2nd ed. (London: Routledge, 2004), 60–78. On dissolving the distinction between humans and other life forms, see Robert Axelrod, *Evolution of Cooperation* (New York: Basic Books, 1984).

⁸⁷ The abnegation of the “no first use” pledge is consistent with the Schlesinger Doctrine’s flexible response and slips into treating nuclear weapons as conventional weapons; Nye discusses the strategic rationality for rejecting a no first use pledge, *Nuclear Ethics*, 1986, 49–58, specifically 52; Thomas Schelling speaks at length of the US strategic advantage in maintaining the threat to use nuclear weapons on a first use basis only balanced by the negative evaluation this policy may evoke from other nations:

The most critical question about nuclear weapons for the United States Government is whether the widespread taboo against nuclear weapons and its inhibition on their use is in our favor or against us. If it is in the American interest, as I believe obvious, advertising a continued dependence on nuclear weapons, i.e. a U.S. readiness to use them, a U.S. need for new nuclear capabilities (and new nuclear tests) – let alone ever using them against an enemy – has to be weighed against the corrosive effect on a nearly universal attitude that has been cultivated through universal abstinence of sixty years.

“An Astonishing Sixty Years: The Legacy of Hiroshima,” Prize Lecture, December 8, 2005, available at www.nobelprize.org/nobel_prizes/economicsciences/laureates/2005/schelling-lecture.pdf, accessed December 31, 2014.

⁸⁸ Nye, *Nuclear Ethics*, 1986, 110–111.

⁸⁹ *Ibid.*, 107.

refers to as the “hard core” of nuclear deterrence, actors worldwide are, or should be, united in pursuing the avoidance of nuclear war, which risks ending advanced civilization and even exterminating the human species.

Nye’s *Nuclear Ethics* explains how ethical reasoning must overshadow nuclear deterrence for the threat to deploy nuclear weapons to avoid becoming a quest for superiority, and to uphold the classical liberal commitment to “certain minimal obligations of common humanity.”⁹⁰ Nye argues that even international relations realists, for whom “prudence [is] the supreme virtue of politics” will acknowledge this point, at least to a limited extent, insofar as they generally accept that “we do not kill [members of common humanity] for food or pleasure.”⁹¹ The question is how to blend ethical considerations consistent with a realist-cosmopolitan hybrid into the practice of brandishing nuclear weapons.⁹² Nye supposes that we must work within a framework that accepts our common humanity but respects that every nation is autonomous, that there is no common definition of “the good,” and that preserving peace and order in a nuclear world is a top priority.⁹³ Using the familiar language of classical liberalism, he explains, “When we recognize each other as part of common humanity despite national differences, we admit negative duties not to kill, enslave, or destroy the autonomy of other peoples as part of our definition of the term ‘humanity.’”⁹⁴ He further adds that we should take responsibility for how our actions affect foreigners and accord with the positive duty of charity and good samaritanism consistent with not making fellow citizens “significantly worse off.”⁹⁵

In discussing the ethics of exercising US sovereignty through wielding the threat to engage in nuclear combat, Nye classifies considerations into intentions, means, and ends. He argues that the *intention* to use nuclear weapons should be limited to self-defense, understanding that meaningfully protecting oneself must include defending the core values for which one stands, and that self-defense cannot be defined so broadly as to encompass disproportionate interests. Prudence and morality can be aligned in the threat to use nuclear weapons only to maintain crucial interests. When it comes to *means*, it is difficult to morally justify any threat to use nuclear weapons, especially because there can be no guarantee that escalation will stop short of mutual annihilation. Herein lies the crux of the nuclear deterrence paradox: “If there is absolutely no possibility of the use of nuclear weapons, or if that is believed to be the case, they will have no deterrent effects.”⁹⁶ It thus seems impossible to wield the deterrent

⁹⁰ Ibid., 98, 34.

⁹¹ Ibid., 29, 36.

⁹² Nye introduces the “realist-cosmopolitan” hybrid because realism alone, he suggests, does not incorporate core ethical values essential to the type of national self-identity he observes is consistent with the US and the Western tradition of universal and impartial values that encompass *legitimacy* as a sought after value not reducible to simply achieving order, *ibid.*, 31–41.

⁹³ Ibid., 38.

⁹⁴ Ibid., 39.

⁹⁵ Ibid., 40.

⁹⁶ Ibid., 52.

threat and maintain just war theory because, at a minimum, deterrence relies on making a credible threat to harm innocent lives, and, at a maximum, any actor credibly threatening deterrence must acknowledge the lack of any guarantee for the survival of the human species.⁹⁷

Nye identifies five maxims of nuclear ethics derived from extending the just war tradition to address nuclear deterrence. First, with respect to motives, self-defense is a just but limited motive. Second and third, with respect to means, “never treat nuclear weapons as normal weapons” and “minimize harm to innocent people.”⁹⁸ And fourth and fifth, with respect to ends, reduce the risk of nuclear war in the short term and the reliance on nuclear weapons in the long term.⁹⁹ Given Nye’s acknowledgment that deterrence has one foot in the sphere of strategic rationality and one foot in the domain of core values, and his acknowledgment that mutual assured destruction is an existential fact, he suggests that not much is necessary to deter.¹⁰⁰

However, in following the contours of the debate between the limited deterrence option of mutual assured destruction and the pro-nuclear use war-fighting school, moral constraints on deterrent threats stood in the way of maintaining credible, and hence effective, deterrence. Although the classical liberal framework grounded the modern era with its negative duty to avoid harm and its positive duty to engage in charity when possible, strategic rationality broke with this tradition and buttressed nuclear deterrence with a hard-nosed realism exclusive of respect for side constraints and the recognition of common human dignity. Side constraints on action consistent with the no-harm principle, such as those Nye recommends, have no role in either nuclear deterrence or in the mathematical formalism of game theory. Orthodox game theory therefore breaks with the classical liberal tradition because it has no provision for respecting human dignity or the negative virtue of avoiding injuring people. By accepting that national security depends on wielding deterrent threats to wage nuclear war, game theory offers an abstract formal means to model the security dilemma and evaluate the credibility of threats. Subsequently, after first offering guidance in the form of rational deterrence theory, strategic rationality soon became recognized as the state of the art theory for capturing prudence throughout international relations and soon thereafter the behavioral standard for reasoned judgment for all human relationships.¹⁰¹

⁹⁷ Ibid., 52–57, 45.

⁹⁸ Schelling reports how it may well be in the interest of the United States to threaten the use of nuclear war as though nuclear weapons were indistinguishable from conventional weapons, “Astonishing Sixty Years,” 2005.

⁹⁹ Nye, *Nuclear Ethics*, 1986, 99.

¹⁰⁰ Ibid., 107.

¹⁰¹ See, e.g., most recently Steven J. Brams’s advocacy of using game theory to understand the humanities, *Game Theory and the Humanities: Bridging Two Worlds* (Cambridge, MA: MIT Press, 2012). Brams first wrote *Superpower Games: Applying Game Theory to Superpower Conflict* (Yale University Press, 1985).