

If You Can't Beat Them, Kill Them: Complex Adaptive Systems Theory and the Rise in Targeted Killing

*Carla Crandall**

I.	INTRODUCTION.....	596
II.	COMPLEX ADAPTIVE SYSTEMS THEORY, WAR, AND THE LAW.....	601
	A. The Theory of Complex Adaptive Systems.....	602
	1. Complexity.....	604
	2. Nonlinearity and Emergence.....	605
	3. Adaptability, Evolution, and Self-Organization	606
	4. Uncertainty and Unpredictability.....	607
	B. The Legal System and War as Interdependent Complex Adaptive Systems.....	608
	1. The Legal System as a Complex Adaptive System	608
	2. War as a Complex Adaptive System	612
III.	THE CREATION AND EVOLUTION OF THE GOVERNMENT'S DETENTION AND INTERROGATION POLICIES.....	615
	A. Legal Framework for Detentions	615
	B. Enhanced Interrogation Techniques	621
	C. The Evolution of the Government's Detention Policies..	623
	1. The Supreme Court's Habeas Cases.....	624
	2. The End of Enhanced Interrogation Techniques	628
IV.	COMPLEX ADAPTIVE SYSTEMS THEORY AND THE RISE OF THE DRONE	630
	A. Targeted Killing: A Primer	630
	B. Complexity, Adaptability, Self-Organization, and Unpredictability: Like Squeezing Jell-O.....	634
	C. The Implications of Thinking of War & Law as Co- Evolving Complex Adaptive Systems	639
V.	CONCLUSION	641

* Law Clerk to the Honorable Carolyn Dineen King, U.S. Court of Appeals for the Fifth Circuit. J.D., J. Reuben Clark Law School, Brigham Young University. The author wishes to thank David Moore, Howard Nielson, and William Hains for their helpful comments on previous drafts of this Article. Although the author previously was employed by the National Geospatial-Intelligence Agency, nothing in this Article contains classified information obtained as a result of that employment. The views expressed herein are entirely those of the author.

I. INTRODUCTION

On January 11, 2002, the first group of detainees captured by the United States as part of its war on terror arrived at the U.S. Naval Station, Guantánamo Bay, Cuba.¹ In the years since, the base has housed nearly eight hundred detainees allegedly posing a threat to U.S. national security.² Although detaining these individuals supposedly has advanced the United States's security interests,³ critics consistently have lodged scathing attacks on the executive's detention policies, variously labeling operations carried out at Guantánamo Bay as a "national disgrace,"⁴ a "grave mistake,"⁵ and an "embarrassing stain on the United States' reputation."⁶ Citing widespread incidents of improper detention, abuse, and even torture—all carried out under the guise of "enhanced interrogation techniques"⁷—groups

¹ See Melissa A. Jamison, *Detention of Juvenile Enemy Combatants at Guantánamo Bay: The Special Concerns of the Children*, 9 U.C. DAVIS J. JUV. L. & POL'Y 127, 130 (2005).

² See Kenneth Roth, *After Guantánamo: The Case Against Preventative Detention*, 87 FOREIGN AFF. 9, 9 (2008).

³ See Erin Chlopak, *Dealing with the Detainees at Guantánamo Bay: Humanitarian and Human Rights Obligations Under the Geneva Conventions*, 9 HUM. RTS. BRIEF 6, 9 (2002) ("The U.S. government has defended its detention practices as necessary security measures."); Steven Lee Myers, *Bush Decides to Keep Guantánamo Open*, N.Y. TIMES, Oct. 20, 2008, at A16 (quoting then President George W. Bush as saying that, while he would "like to close Guantánamo," he also "recognize[d] that we're holding some people that are darn dangerous").

⁴ Gerald L. Neuman, *Closing the Guantánamo Loophole*, 50 LOY. L. REV. 1, 1 (2004) ("The Administration's claims concerning a total absence of legal constraints on its actions at Guantánamo have become a national disgrace."); Ben Wizner, *Guantánamo: The Road to Closure*, ACLU (July 26, 2007), <http://www.aclu.org/2007/07/26/guantanamo-the-road-to-closure/> ("We're now in the sixth year of the national disgrace that may one day be remembered as the Guantánamo Era.").

⁵ Carol Rosenberg, *Detentions at Guantánamo Bay 'Grave Mistake,' Lawmakers Say*, MIAMI HERALD, Jan. 7, 2004, at 14.

⁶ Roth, *supra* note 2, at 9; see also Darrel J. Vandeveld, *I Was Slow to Recognize the Stain of Guantánamo*, WASH. POST, Jan. 18, 2009, available at <http://www.washingtonpost.com/wp-dyn/content/article/2009/01/14/AR2009011402319.html>. Before resigning, Vandeveld, a former lieutenant colonel in the U.S. Army Reserve, worked as a prosecutor in the Office of Military Commissions at Guantánamo Bay. *Id.*

⁷ See Exec. Order No. 13,440, Interpretation of the Geneva Conventions Common Article 3 as Applied to a Program of Detention and Interrogation Operated by the Central Intelligence Agency, 72 Fed. Reg. 40707 (July 24, 2007) available at <http://edocket.access.gpo.gov/2007/pdf/07-3656.pdf> (stating that the practices that became known as enhanced interrogation techniques were in full compliance with the Geneva Conventions); DEP'T OF JUSTICE, OFFICE OF PROF'L RESPONSIBILITY REPORT, INVESTIGATION INTO THE OFFICE OF LEGAL COUNSEL'S MEMORANDA CONCERNING ISSUES RELATING TO THE CENTRAL INTELLIGENCE AGENCY'S USE OF "ENHANCED INTERROGATION TECHNIQUES" ON SUSPECTED TERRORISTS 70–82 (2009) [hereinafter OFFICE OF PROF'L RESPONSIBILITY REPORT] (detailing the Office of Legal Counsel's advice regarding interrogation of detainees at Guantánamo Bay),

such as the American Civil Liberties Union (ACLU), Amnesty International, and the International Red Cross launched campaigns to influence public opinion and prompt judicial intervention into the war effort.⁸ Ultimately, these battles were waged in an attempt to shape the government's detention policies, and from at least one perspective, they were widely successful. Enhanced interrogation techniques have been banned by executive order⁹ and, as a result of litigation largely furthered by civil liberties groups,¹⁰ the U.S. Supreme Court has granted an increasing number of rights to Guantánamo detainees.¹¹

But while these developments have been hailed as victories by civil libertarians, they have not come without significant cost. With increasing frequency, journalists and scholars have begun to document the marked expansion in the government's use of drones to kill targets who purportedly pose a threat to U.S. national security.¹² Though a few observers have intimated that there may be a

available at <http://judiciary.house.gov/hearings/pdf/oprfinalreport090729.pdf>.

⁸ See Mika C. Morse, *Honor or Betrayal?: The Ethics of Government Lawyer-Whistleblowers*, 23 GEO. J. LEGAL ETHICS 421, 427–28 (2010) (explaining that details of the government's use of "waterboarding, sleep deprivation, isolation, and physical violence on the detainees" were exposed after "groups such as the ACLU pushed forward [Freedom of Information Act] requests"); AMNESTY INT'L, GUANTÁNAMO: A DECADE OF DAMAGE TO HUMAN RIGHTS 12–18 (2011), available at <http://www.amnesty.org/en/library/info/AMR51/103/2011/en> (chronicling numerous accounts of detainees alleged or found by courts to have been held improperly); Neil A. Lewis, *Red Cross Finds Detainee Abuse in Guantanamo*, N.Y. TIMES, Nov. 30, 2004, at A1 (explaining that the "International Committee of the Red Cross has charged . . . that the American military has intentionally used psychological and sometimes physical coercion 'tantamount to torture' on prisoners at Guantánamo Bay").

⁹ See Exec. Order No. 13,491, Ensuring Lawful Interrogations, 74 Fed. Reg. 4893 (Jan. 27, 2009), available at <http://edocket.access.gpo.gov/2009/pdf/E9-1885.pdf> (revoking executive order 13,440, see 72 Fed. Reg. 40707, *supra* note 7, and directing U.S. personnel to refrain from engaging in enhanced interrogation techniques); Peter M. Shane, *The Obama Administration and the Prospects for a Democratic Presidency in a Post-9/11 World*, 56 N.Y.L. SCH. L. REV. 27, 33 (2011) (noting that executive order 13,491, signed by President Barack Obama, "renounced all legal guidance regarding interrogation rendered between September 11, 2001, and January 20, 2009").

¹⁰ See, e.g., Peyton Cooke, *Bringing the Spies in from the Cold: Legal Cosmopolitanism and Intelligence Under the Laws of War*, 44 U.S.F. L. REV. 601, 607–08 (2010) (noting that the Center for Constitutional Rights "has been involved in almost every significant aspect of Guantánamo litigation . . . and boasts having filed the first case on behalf of detainees at Guantánamo") (internal citation and quotations omitted).

¹¹ See *infra* Part III.C.1.

¹² See John Yoo, *Assassination or Targeted Killings After 9/11*, 56 N.Y.L. SCH. L. REV. 57, 61 (2011) ("Despite its campaign criticism of Bush's approach to the war, the Obama administration has accelerated the use of drones."); Helene Cooper & Mark Landler, *Targeted Killing is New U.S. Focus in Afghanistan*, N.Y. TIMES, July 31, 2010, at

causal connection between the increase in targeted killing and the growing dearth of unfettered detention options,¹³ the actual link between these phenomena has not been thoroughly explored.

This Article fills that gap. Examining the connection between the government's detention and targeted killing policies, this Article argues that attempts to remove the "stain" of Guantánamo Bay have created what might be an even greater crisis. Specifically, while civil libertarians have claimed success in executive and judicial efforts to grant detainees greater protections, this success has produced an unintended incentive for the government to kill rather than capture individuals involved in the war on terror. This perverse outcome has occurred not as a result of a foreseeable linear process whereby one phenomenon *caused* the other, but rather as an unanticipated reaction to changes thrust into the nonlinear dynamic systems¹⁴ of warfare and national security law.¹⁵

A1; Christopher Drew, *Drones Are Playing a Growing Role in Afghanistan*, N.Y. TIMES, Feb. 19, 2010, at A6; Peter Bergen & Katherine Tiedemann, *Revenge of the Drones: An Analysis of Drone Strikes in Pakistan*, NEW AMERICA FOUNDATION (Oct. 19, 2009), http://www.newamerica.net/publications/policy/revenge_of_the_drones ("Obama, far from curtailing the drone program he inherited from President George W. Bush, has instead dramatically increased the number of U.S. Predator and Reaper drone strikes.").

¹³ See Hillel Ofek, *The Tortured Logic of Obama's Drone War*, 27 NEW ATLANTIS 35, 37 (2010) ("[P]erhaps the [Obama] administration's opposition to Guantánamo and to enhanced interrogation has led it to see even more clearly the convenience of taking the fight to the enemies' homes and hideouts and killing them before they come within the purview of the U.S. justice system."); Karen DeYoung & Joby Warrick, *Under Obama, More Targeted Killings than Captures in Counterterrorism Efforts*, WASH. POST, Feb. 14, 2010, at A01 (noting that the Obama Administration "has escalated U.S. attacks on the leadership of al-Qaeda" given that "options for where to keep U.S. captives have dwindled").

¹⁴ Dynamic systems are those with properties changing over time, while nonlinear systems are those wherein "the system components' relationships are nonproportional (e.g., as x increases, y increases at a varying rate)." J.B. Ruhl, *Complexity Theory as a Paradigm for the Dynamical Law-and-Society System: A Wake-Up Call for Legal Reductionism and the Modern Administrative State*, 45 DUKE L.J. 849, 854 n.5 (1996) [hereinafter *Complexity Theory as a Paradigm*] (citing PETER COVENEY & ROGER HIGHFIELD, *THE ARROW OF TIME* 184 (1990)). These principles are discussed in greater detail in Part II.

¹⁵ Since September 11th, scholars have explored many examples of apparently unforeseen results flowing from legal issues surrounding the war on terror. See, e.g., PETER W. GALBRAITH, *UNINTENDED CONSEQUENCES: HOW WAR IN IRAQ STRENGTHENED AMERICA'S ENEMIES* (2008); Victor C. Johnson, *Immigration Policy and International Students: A Threat to National Security*, 19 ST. JOHN'S J. LEGAL COMMENT. 25, 25 (2004) (arguing that "well[-]intentioned actions" taken in response to September 11th will, in fact, have the deleterious effect of hindering international scholarly exchanges previously seen as an "investment in foreign policy"); Danica Curavic, Note, *Compensating Victims of Terrorism or Frustrating Cultural Diplomacy?: The Unintended Consequences of the Foreign Sovereign Immunities Act's Terrorism Provisions*, 43 CORNELL

To uncover the relationship between the government's detention and targeted killing programs, this Article invokes the insights of complex adaptive systems theory.¹⁶ While scholars have employed chaos and complexity theory to examine legal issues for some time,¹⁷ the more nuanced theory of complex adaptive systems is a relative newcomer.¹⁸ Nevertheless, scholars are increasingly making the case that the theory offers a useful means by which to understand the legal system and the effects that flow from changes introduced thereto.¹⁹

This Article explains and builds upon that work by arguing that legal policies regulating the war on terror actually implicate two

INT'L L.J. 381, 384 (2010) ("Rather than providing a new weapon against terrorism or a means to compensate victims of terrorist acts, the FSIA's terrorism exception aggravates already strained relations between the United States and foreign nations that have historically sponsored terrorism directly or indirectly."); GEORGETOWN UNIV. LAW CTR., HUMAN RIGHTS INST., UNINTENDED CONSEQUENCES: REFUGEE VICTIMS OF THE WAR ON TERROR i (May 2006), available at http://scholarship.law.georgetown.edu/cgi/viewcontent.cgi?article=1000&context=hri_papers (suggesting that material support laws passed after 9/11 have "led to over-inclusive and irrational results antithetical to [their] purpose"). Though a thorough examination of each of these examples is beyond the scope of this Article, they serve as further evidence that the complexity inherent within the legal system makes it difficult to anticipate the precise results of introducing changes therein.

¹⁶ See J. B. Ruhl, *Law's Complexity: A Primer*, 24 GA. ST. U. L. REV. 885 (2008) [hereinafter *Law's Complexity*].

¹⁷ See, e.g., Lawrence Cunningham, *From Random Walks to Chaotic Crashes: The Linear Genealogy of the Efficient Capital Market Hypothesis*, 62 GEO. WASH. L. REV. 546 (1994) (explaining how chaos theory can inform the development of securities and corporate law); Vincent Di Lorenzo, *Legislative Chaos: An Exploratory Study*, 12 YALE L. & POL'Y REV. 425 (1994) (proposing that chaos theory can aid in the study of legislation); Eric Kades, *The Laws of Complexity and the Complexity of the Laws: The Implications of Computational Complexity Theory for the Law*, 49 RUTGERS L. REV. 403 (1997) (arguing that computational complexity theory provides a means by which to understand the complexity of the legal system); David G. Post & David R. Johnson, "Chaos Prevailing on Every Continent": *Towards a New Theory of Decentralized Decision-Making in Complex Systems*, 73 CHI.-KENT L. REV. 1055 (1998) (positing that complexity theory has important implications for legal theory, especially in the area of Internet regulation).

¹⁸ See Barbara A. Cherry, *The Telecommunications Economy and Regulation as Coevolving Complex Adaptive Systems: Implications for Federalism*, 59 FED. COMM. L.J. 369, 371 (2007) [hereinafter *Telecommunications Economy*] (arguing that "if the telecommunications sector and the legal/policymaking institutions are viewed as coevolving and complex adaptive systems, then there are important implications for regulatory policy"); Donald T. Hornstein, *Complexity Theory, Adaptation, and Administrative Law*, 54 DUKE L.J. 913, 913 (2005) (exploring the extent to which properties of complex adaptive systems theory "may add value as a matter of positive analysis to the understanding of change within legal systems"); Jeffrey G. Miller, *Evolutionary Statutory Interpretation: Mr. Justice Scalia Meets Darwin*, 20 PACE L. REV. 409 (2000).

¹⁹ See, e.g., *Law's Complexity*, *supra* note 16, at 888.

systems—that of both warfare and law. Because these two systems “interact complexly with each other, as well as with all . . . other complex social and physical systems with which they are interconnected,”²⁰ introducing even small changes into either of these complex adaptive systems can generate dramatic effects that are unforeseeable when the intervention initially is introduced.²¹ Within the context of the war on terror, altering detainee policies may have led to the unintended consequence of encouraging the government to dismiss the option of capturing high-value targets in favor of simply eliminating them with drones.²² This important insight suggests a broader one: thinking of war and national security law as interrelated complex adaptive systems can help policymakers, lawmakers, and judges gain a better appreciation of the practical consequences of their decision-making processes.

To make these arguments, the Article proceeds as follows. Part II introduces the theory of complex adaptive systems and explains that law and war both exhibit properties of these systems. Part III provides a summary of significant post-9/11 legal developments related to war on terror detentions and interrogations, and describes how these developments gradually increased the protections afforded to detainees. Part IV argues that these efforts to protect the civil liberties of detainees may actually have had the perverse effect of encouraging targeted killing. More specifically, using complex adaptive systems theory, Part IV argues that the rise of the drone may be evidence of the adaptive and self-organizing properties inherent within the systems of law and war. Part V concludes that the government’s expanded use of drones is representative of an unexpected and unintended consequence that can arise as a result of human intervention into complex adaptive systems.

²⁰ *Id.*

²¹ The notion that small changes to the status quo can lead to drastic effects has been termed, in chaos theory, “the butterfly effect.” KYLE KIRKLAND, *PHYSICAL SCIENCES: NOTABLE RESEARCH AND DISCOVERIES* 116 (2010). “The butterfly effect refers to the notion that the tiny perturbations caused by the flapping of a butterfly’s wings in South America, for example, could lead to tremendous consequences in the atmosphere, perhaps instigating a tornado in the United States.” *Id.* For an example of the application of this phenomenon in the legal system, see Derek W. Black, *Accounting for Historical Forces in the Effort to Align Law with Science*, 54 ST. LOUIS U. L.J. 1151, 1161–62 (2010) (discussing the butterfly effect in the context of the U.S. Supreme Court’s school desegregation jurisprudence).

²² The law of unintended consequences suggests that well-intentioned efforts to attain a specific goal may actually produce results antithetical to the hoped for effect. See Frank B. Cross, *Paradoxical Perils of the Precautionary Principle*, 53 WASH. & LEE L. REV. 851, 862 (1996).

II. COMPLEX ADAPTIVE SYSTEMS THEORY, WAR, AND THE LAW

In the late 1980s, Professor Laurence Tribe, while discussing the need for a “revision” in constitutional jurisprudence, explained that “the metaphors and intuitions that guide physicists can enrich our comprehension of social and legal issues.”²³ Since then, numerous legal scholars have used these “metaphors and intuitions” as a lens through which to examine various aspects of the law. Nowhere is this more evident, perhaps, than in the growing body of scholarship utilizing complexity theory as a means of improving the legal system.²⁴

One strand of this scholarship has focused on complex adaptive systems theory and its ability “to expand our understanding of [the legal system’s] behavior and properties.”²⁵ Emerging from the more general framework of complexity theory, complex adaptive systems theory developed amidst efforts by scientists to understand precisely what makes behavior within complex systems so difficult to understand and predict.²⁶ The theory postulates that the answer to this mystery rests, in part, on the fact that complex systems have the ability to adapt, and that adaptation itself exacerbates the complexity inherent within already complex systems.²⁷ Or, as one pioneer in complexity science explains, adaptation “gives rise to a kind of complexity that greatly hinders our attempts to solve some of the most important problems currently posed by our world.”²⁸

This has not, of course, prevented scientists and scholars from trying to identify some degree of order and coherence within complex adaptive systems. Indeed, application of the theory has led to useful discoveries in various fields of study, from economics and environmental sciences, to medicine and neuroscience.²⁹ As noted, however, complex adaptive systems theory has only recently been

²³ Laurence H. Tribe, *The Curvature of Constitutional Space: What Lawyers Can Learn from Modern Physics*, 103 HARV. L. REV. 1, 1–2 (1989).

²⁴ See Gregory Todd Jones, *Dynamical Jurisprudence: Law as a Complex System*, 24 GA. ST. U. L. REV. 873, 878–80 (2008) (citing numerous scholarly works applying systems theory to issues in criminal law, law and economics, mediation, environmental law, constitutional law, business law, administrative law, and so forth).

²⁵ *Law’s Complexity*, *supra* note 16, at 888.

²⁶ See JOHN H. HOLLAND, *HIDDEN ORDER: HOW ADAPTATION BUILDS COMPLEXITY* xviii (1995) [hereinafter *HIDDEN ORDER*].

²⁷ *Id.* at xviii, 6–10.

²⁸ *Id.* at xviii.

²⁹ See, e.g., JOHN H. HOLLAND, *EMERGENCE: FROM CHAOS TO ORDER 2* (1998) [hereinafter *EMERGENCE*]; Paul Bourguine, *What is Cognitive Economics*, in *COGNITIVE ECONOMICS* 1, 6 (2004); Simon A. Levin, *Ecosystems and the Biosphere as Complex Adaptive Systems*, 1 *ECOSYSTEMS* 431, 431 (Paul Bourguine & Jean-Pierre Nadal eds., 1998); *Law’s Complexity*, *supra* note 16, at 887 n.11.

imported into legal studies.³⁰ With that in mind, this Part provides a basic introduction to the theory and explains its utility in thinking about warfare and the law as interdependent complex adaptive systems. This understanding will serve as the foundation for later portions of the Article exploring the connection between the government's detention policies and the rise in targeted killing.

A. *The Theory of Complex Adaptive Systems*

Until the middle of the twentieth-century, Newtonian physics dominated scientific efforts to explain and predict various events taking place in the natural world.³¹ Based largely on the notion that physical laws dictated “a neat correspondence between cause and effect,” the Newtonian paradigm led scientists to believe “that they could reduce even the most complex behavior to the interactions of a few simple laws and then calculate the exact behavior of any physical system into the future.”³² This conviction rested largely on the theory that the world was made up of “linear systems”—systems displaying linear causality, such that “effect is *always* directly proportional to cause.”³³ Given the apparent simplistic properties of these systems, scientists operated within a reductionist framework, believing that systems could best be understood by reducing them to their component parts.³⁴

Gradually, however, because systems often did not operate in the manner Newtonian physics would predict, scientists began to question traditional assumptions about the laws of nature.³⁵ In particular, theorists gained a new appreciation for nature's random properties and unpredicted responses.³⁶ This was most evident in their recognition that, when introducing various stimuli into systems, “infinitesimal change[s] in initial conditions could have a profound effect on the evolution of [an] entire system.”³⁷ In other words, contrary to previous beliefs, systems often did not actually exhibit linear and proportional causality. The laws of nature suddenly

³⁰ See *supra* note 18 and accompanying text.

³¹ David H. Freedman, *Is Management Still a Science?*, HARV. BUS. REV., Nov. 1992, at 26, 28–29.

³² *Id.* at 29.

³³ ALAN RANDALL, RISK AND PRECAUTION 65 (2011).

³⁴ See DAVID KERNICK, COMPLEXITY AND HEALTHCARE ORGANIZATION: A VIEW FROM THE STREET 8 (2004).

³⁵ Freedman, *supra* note 31, at 30.

³⁶ *Id.*

³⁷ *Id.*

appeared instead to be “as random as a throw of the dice.”³⁸

These observations gave rise to a new discipline called chaos theory. In common parlance, the term “chaos” suggests a state of disorder. As used by scientists, however, “chaos” refers to the fact that systems within the universe are complex and—though structured—susceptible to highly unpredictable behavior.³⁹ The basic premise of chaos theory is that chaos is really “order *masquerading* as randomness,”⁴⁰ a precept based on the observation “that patterns . . . lurk beneath the seemingly random behavior of these systems.”⁴¹ To gain a deeper understanding of these patterns, theorists had to “mov[e] away from linear, reductionist, simple cause-effect models” grounded in Newtonian physics, and toward models confronting the newly discovered chaos and complexity within many of nature’s systems.⁴² One model designed to do just that is the theory of complex adaptive systems.

Owing perhaps to their recent recognition by scientists,⁴³ there is no universally accepted definition of what constitutes a complex adaptive system. Most simply, theorists have described them as “systems that have a large number of components, often called agents, [which] interact and adapt or learn.”⁴⁴ While this definition is somewhat helpful in broadly framing the discussion, complex adaptive systems are best understood by examining their properties. Accordingly, those most important for the current discussion are explored in detail below.⁴⁵

³⁸ *Id.*

³⁹ KERSTIN PILZ, MAPPING COMPLEXITY: LITERATURE AND SCIENCE IN THE WORKS OF ITALO CALVINO 150 (2005).

⁴⁰ JAMES GLEICK, CHAOS 22 (1987).

⁴¹ Freedman, *supra* note 31, at 30.

⁴² Jerome L. Singer, *Mental Processes and Brain Architecture: Confronting the Complex Adaptive Systems of Human Thought (An Overview)*, in THE MIND, THE BRAIN, AND COMPLEX ADAPTIVE SYSTEMS 1 (Harold J. Morowitz & Jerome L. Singer eds., 1994).

⁴³ See JOHN H. MILLER & SCOTT E. PAGE, COMPLEX ADAPTIVE SYSTEMS: AN INTRODUCTION TO COMPUTATIONAL MODELS OF SOCIAL LIFE xvii (2007) (“[R]esearch in the area of complex adaptive systems is still in its formative stages . . .”).

⁴⁴ John H. Holland, *Studying Complex Adaptive Systems*, 19 J. SYST. SCI. & COMPLEXITY 1, 1 (2006); see also JAMES S. TREFIL, 101 THINGS YOU DON’T KNOW ABOUT SCIENCE AND NO ONE ELSE DOES EITHER 42 (1996) (explaining that complex adaptive systems are those having “many different parts, each of which can change and interact with all the others, and one[s] that as a whole can respond to [their] environment”).

⁴⁵ Admittedly, to the extent these sections give the appearance that the featured properties are not interrelated, they are somewhat arbitrarily organized. This structure should enable the reader, however, to gain a general understanding of these properties.

1. Complexity

One of the most prominent features of complex adaptive systems is their very complexity. As used in this context, complexity refers not to the level of *complication*,⁴⁶ but instead to the fact, as previously noted, that these systems are composed of numerous interconnected components, or agents, dynamically interacting with one another, as well as with other external systems.⁴⁷ Because scientists “tend to focus on *parts* of a system,” they initially assumed that complex systems could “be broken down into a number of smaller units [that could] be managed independently.”⁴⁸ As complexity science developed, however, this reductionism was rejected; scientists began to understand that “system behavior cannot be understood by decomposing the system into parts,”⁴⁹ because “the actions of any single part of the system can only be understood with reference to the entire system.”⁵⁰ Reductionism, therefore, gave way to holism which, while “accept[ing] that a whole is constructed out of many smaller parts, . . . considers that those smaller parts create, via interaction, more than the sum of the separate parts.”⁵¹

The complexity inherent in complex systems is compounded by a principle known as “nesting.” Nesting is a term used to describe the fact that “[t]he components of a complex system may themselves be complex systems. For example, an economy is made up of organizations, which are made up of people, which are made up of cells—all of which are complex systems.”⁵² Given that these systems are embedded within each other, changes to the subsystems—or even the agents within them—can significantly alter the entire system.⁵³ In other words, the inherent interconnectivity and dynamism within

⁴⁶ SANDRA C. DUHÉ, *NEW MEDIA AND PUBLIC RELATIONS* 59 (2007).

⁴⁷ See J. B. Ruhl, *Thinking of Environmental Law as a Complex Adaptive System: How to Clean Up the Environment by Making a Mess of Environmental Law*, 34 HOUS. L. REV. 933, 948–49 (1997) [hereinafter *Thinking of Environmental Law as a Complex Adaptive System*].

⁴⁸ Michael Lyons, *Insights from Complexity: Organizational Change and Systems Modelling*, in *SYSTEMS MODELLING: THEORY AND PRACTICE* 21, 31 (Michael Pidd ed., 2004) (emphasis added).

⁴⁹ *Telecommunications Economy*, *supra* note 18, at 380.

⁵⁰ Glenn D. Walter, *Crime and Chaos: Applying Nonlinear Dynamic Principles to Problems in Criminology*, 43 INT’L J. OFFENDER THERAPY & COMP. CRIMINOLOGY 134, 136 (1999).

⁵¹ WALTER R. J. BAETS, *COMPLEXITY, LEARNING AND ORGANIZATIONS: A QUANTUM INTERPRETATION OF BUSINESS* 20 (2006).

⁵² RANDALL, *supra* note 33, at 65.

⁵³ JANIE B. BUTTS & KAREN L. RICH, *PHILOSOPHIES AND THEORIES FOR ADVANCED NURSING PRACTICE* 128 (2011).

complex adaptive systems make it difficult to understand the impact that intervention in one part of the system will have on other parts.⁵⁴

2. Nonlinearity and Emergence

The complexity in complex adaptive systems is exacerbated by the fact that these systems are not governed by linear causality. As noted previously, “the linear cause and effect model of Newtonian physics” historically dominated scientific theory.⁵⁵ In linear systems, intervention within a system generally has easily measurable and predictable results. Gravity is a prime example—dropping an object from some height will necessarily produce the effect of causing the object to fall. On the other hand, “complex adaptive systems are characterized by inseparable components that can produce counterintuitive results, [and] provide ambiguous and distant links between cause and effect.”⁵⁶ This phenomenon is a result of the “nonlinearity” present in complex systems, a principle describing the fact that “the system components’ relationships are nonproportional.”⁵⁷ Accordingly, “large changes in input may lead to small changes in outcome, and small changes in input may lead to large changes in outcome.”⁵⁸ This aspect of complex adaptive systems makes it such that the “most useful scientific tools for generalizing observations into theory—trend analysis, determination of equilibria, sample means, and so on—are badly blunted.”⁵⁹

A related principle is that complex adaptive systems are especially likely to display emergent behavior.⁶⁰ Emergence has been “described as the outcome of collective [behavior], i.e. interactions among agents (elements, individuals, etc.) performing something individually, or together, which creates some kind of pattern or [behavior] which the agents themselves cannot produce.”⁶¹ The

⁵⁴ This phenomenon explains why complex adaptive systems theory has found great resonance amongst environmental scientists. It has long been recognized that deleterious impacts on the environment have far more than local consequences.

⁵⁵ JEROME S. BERNSTEIN, *LIVING IN THE BORDERLAND: THE EVOLUTION OF CONSCIOUSNESS AND THE CHALLENGE OF HEALING TRAUMA* 48 (2005).

⁵⁶ DUHÉ, *supra* note 46, at 89.

⁵⁷ *Complexity Theory as a Paradigm*, *supra* note 14, at 854 n.5.

⁵⁸ Giovanna Bimonte, *Predictability of SOC Systems: Technological Extreme Events*, in *DECISION THEORY AND CHOICES: A COMPLEXITY APPROACH* 223 (Marisa Faggini & Concetto Paolo Vinci eds., 2010).

⁵⁹ HIDDEN ORDER, *supra* note 26, at 5.

⁶⁰ See EMERGENCE, *supra* note 29, at 184.

⁶¹ Fredrik Nilsson & Vince Darley, *On Complex Adaptive Systems and Agent-Based Modelling for Improving Decision-Making in Manufacturing and Logistics Settings*, 26 INT’L J. OPERATIONS & PROD. MGMT. 1351, 1354 (2006).

property of emergence within complex adaptive systems makes it difficult to ascertain the cause of various effects, because “individual, localized behavior aggregates into global behavior that is, in some sense, disconnected from its origins.”⁶²

3. Adaptability, Evolution, and Self-Organization

The observation that complex adaptive systems display emergent phenomena is connected to the understanding, inherent in the lexicon of complex *adaptive* systems studies, that complex systems exhibit patterns of adaptation. In other words, these systems, as well as the agents within them, are constantly changing in response to information they gather about themselves and their surroundings.⁶³ “Complex adaptive systems *learn* as a natural part of their ability to meet changes in their landscapes.”⁶⁴ With this in mind, some observers have even gone so far as to say these systems have “a life of their own,” in that “they evolve in unpredictable and novel ways.”⁶⁵

This raises the question of precisely what these systems are evolving *toward*. The simple answer to this question is that the agents within systems, and even the systems themselves, constantly trend toward what theorists term self-organization.⁶⁶ Self-organization “may be regarded as a theory about the way chaotic systems organize themselves and attain order.”⁶⁷ Self-organization is evident, for example, in the processes whereby “[m]arketplaces respond to changing technological development, changing lifestyles and preferences, immigration and the price of raw materials.”⁶⁸ Self-organizing behavior is also exhibited when “[n]ational states build new alliances” or when species evolve “to survive better in a changing environment.”⁶⁹ Simply put, self-organization is the process whereby

⁶² MILLER & PAGE, *supra* note 43, at 44.

⁶³ Murray Gell-Mann, *Complex Adaptive Systems*, in THE MIND, THE BRAIN, AND COMPLEX ADAPTIVE SYSTEMS 11, 12 (Harold J. Morowitz & Jerome L. Singer eds., 1994). While this change generally is supposed to be advantageous, Gell-Mann notes that it can, in fact, lead to the development of maladaptive behaviors. *See id.* at 16–17.

⁶⁴ JAMES HITE, JR., LEARNING IN CHAOS: IMPROVING HUMAN PERFORMANCE IN TODAY'S FAST-CHANGING, VOLATILE ORGANIZATIONS 108 (1999) (emphasis added).

⁶⁵ RALPH D. STACEY, COMPLEXITY AND ORGANIZATIONAL REALITY: UNCERTAINTY AND THE NEED TO RETHINK MANAGEMENT AFTER THE COLLAPSE OF INVESTMENT CAPITALISM 133 (2d ed. 2010).

⁶⁶ *See id.* at 64.

⁶⁷ LARS SKYTTNER, GENERAL SYSTEMS THEORY: PROBLEMS, PERSPECTIVES, PRACTICE 296 (2005).

⁶⁸ *Id.*

⁶⁹ *Id.*

a system “transforms itself into states of higher order” in an effort to create structure.⁷⁰

4. Uncertainty and Unpredictability

Though self-organizing behavior does lead to the development of discernible patterns and structure within complex adaptive systems, this property, like all others previously explored, makes it virtually impossible to “understand or predict the behavior of a complex adaptive system with much accuracy.”⁷¹ Given the complexity of these systems, as well as their ability to adapt through various emergent processes, when one “[c]hange[s] the network architecture,” one likely “set[s] in motion . . . changes throughout” the entire system.⁷²

This has significant consequences for those attempting to assess the impact of human intervention upon a complex adaptive system. Not only might small interactions produce monumental changes, but they may also lead to drastic and deleterious *unintended* consequences. Put differently, “small misjudgments about the system’s dynamics have the potential to produce wildly inaccurate predictions of the system’s trajectory over time.”⁷³ Moreover, even if perfect prescience were possible at the time of intervention, the nonlinearity of these systems, as well as their adaptive capacity, makes predictions based on initial conditions somewhat irrelevant, because the systems are likely to change in response to the interaction.⁷⁴

In sum, “it is simply not possible to unravel the tangled strands of . . . complex adaptive systems . . . and snip with surgical precision the undesirable causal chains.”⁷⁵ This does not mean, though, that an understanding of these systems and their properties serves no utility. On the contrary, this Article submits, as others have before, that it would be “worthwhile if [lawmakers] and the courts understood [the properties of complex adaptive systems] well enough to consider their possible consequences in their decision making.”⁷⁶ This is especially true in the field of national security law, where the two complex systems of law and war meet.

⁷⁰ *Id.* at 294.

⁷¹ Pierre de Vries, *The Resilience Principles: A Framework for New ICT Governance*, 9 J. ON TELECOMM. & HIGH TECH. L. 137, 157 (2011).

⁷² *Law’s Complexity*, *supra* note 16, at 893.

⁷³ J.B. Ruhl & James Salzman, *Climate Change, Dead Zones, and Massive Problems in the Administrative State: A Guide for Whittling Away*, 98 CALIF. L. REV. 59, 89 (2010).

⁷⁴ *See* DUHÉ, *supra* note 46, at 59–60.

⁷⁵ Ruhl & Salzman, *supra* note 73, at 89.

⁷⁶ Jones, *supra* note 24, at 878.

B. The Legal System and War as Interdependent Complex Adaptive Systems

As is evident from the discussion in the previous section, complex adaptive systems theory emerged primarily within the realm of the natural sciences. Since its development, though, the theory has found traction in other fields of study, including, among numerous others, “ecology, economics, human physiology as well as human social and organizational systems.”⁷⁷ That said, “[m]aking the jump from physical and biological systems to social systems has seen controversy for the obvious reason that humans are the intentional designers of social systems.”⁷⁸ Stated differently, whereas natural forces are not conscious of their surrounding networks, people are; and people also are capable, based on this understanding, of altering their behavior in an effort to manipulate system changes.⁷⁹ Nevertheless, “people have long appreciated that they are part of social *systems* and that remarkable system properties emerge from their collective interactions” in ways that are often not anticipated.⁸⁰ Accordingly, the fact that humans either have created, or are a part of, a system does not diminish the important insights to be gained from thinking of those systems through the lens of complex adaptive systems theory.

1. The Legal System as a Complex Adaptive System

As explained above, much of the complexity associated with complex adaptive systems derives from the fact that these systems are comprised of various interrelated and interdependent agents or components. So it is with the legal system. Most fundamentally, although “the law” is generally discussed in the United States as if it were a single unified canon, it is in fact composed of various nested complex systems, including those of the common law, statutes, and the Constitution.⁸¹ While each of these parts certainly forms the whole, they are also independently in a state of constant flux as law is created, interpreted, and applied.⁸² Importantly, as each evolves, the impact is felt not only in the context of the particular component

⁷⁷ Glenda H. Eoyang, *Human Systems Dynamics: Competencies in a Complex World*, in PRACTICING ORGANIZATION DEVELOPMENT: A GUIDE FOR CONSULTANTS 541 (William J. Rothwell & Roland L. Sullivan eds., 2d ed. 2005).

⁷⁸ *Law's Complexity*, *supra* note 16, at 896–97.

⁷⁹ *See id.* at 897.

⁸⁰ *Id.*

⁸¹ *See Telecommunications Economy*, *supra* note 18, at 383.

⁸² *See id.*

part, but also within the legal system as a whole.

More broadly, the legal system also exhibits attributes of a complex system by virtue of its various nested institutional components, their internal dynamism, and their interrelationships. Few have difficulty accepting, for example, the idea that the law itself is something that is constantly undergoing an evolutionary process.⁸³ This is most clear, perhaps, within the context of judicial interpretation and its effect on the ever-changing body of common law. But even “[t]he process of legal change and aggregate judicial decision-making is undoubtedly impacted by actors, institutions and social forces exogenous to the judicial branch.”⁸⁴ The legislature, for one, “is a separate and distinct, albeit interrelated, complex adaptive system apart from the judiciary.”⁸⁵ Throughout history, the judiciary’s actions have had significant effect on statutory construction, and vice versa.⁸⁶ Likewise, the authority of the executive branch over the administrative state, as well as its power to issue executive orders and implement policy, further adds to the complexity inherent in the legal system. These “interconnected layer[s] of actors and institutions . . . collectively generate the canon,” and together work toward a form of self-organization, bringing structure and order to the legal system.⁸⁷

Yet, as with other complex adaptive systems, the legal system cannot be fully understood solely by examining either the nature or the activities of its component parts. On the contrary, the complexity of the legal system, as the sum of its parts, is exacerbated by the interaction and adaptation occurring within its agents and subsystems. In other words, the evolution of the whole occurs because “its components (e.g., laws, judges, defendants, witnesses) change with time. Statutory revisions and emendations, the emergence of new case law, and changes in court personnel are several relevant and significant examples” of the legal system’s dynamic properties.⁸⁸ Agents within the legal system, like those

⁸³ See, e.g., Thomas Earl Geu, *Policy and Science: A Review Essay of Wilson’s Consilience: The Unity of Knowledge*, 44 S.D. L. REV. 612, 626 (1999); Daniel M. Katz et al., *Social Architecture, Judicial Peer Effects and the “Evolution” of the Law: Toward a Positive Theory of Judicial Social Structure*, 24 GA. ST. U. L. REV. 977, 980–83 (2008).

⁸⁴ Katz, *supra* note 83, at 1000.

⁸⁵ *Telecommunications Economy*, *supra* note 18, at 383.

⁸⁶ A simple example of this is evident in *INS v. Chadha*, 462 U.S. 919 (1983). In holding there that the legislative veto was unconstitutional, the Court “sound[ed] the death knell for nearly 200 . . . statutory provisions.” *Id.* at 967 (White, J., dissenting).

⁸⁷ Katz, *supra* note 83, at 980.

⁸⁸ CHRISTOPHER R. WILLIAMS & BRUCE A. ARRIGO, LAW, PSYCHOLOGY, AND JUSTICE:

within other systems, also “learn from experience and adapt to changes in the system’s environment.”⁸⁹ Indeed, beyond simply reacting to *external* environmental changes, actors and institutions also exhibit adaptive behavior in response to the actions of other agents and institutions within the system.⁹⁰

One illuminating example of this is the process of constitutional and statutory interpretation within the U.S. legal system. Because both Congress and the courts share some responsibility for these issues, “the judiciary and the legislature . . . engage in a dialogue about constitutional meaning . . . and listen to and learn from each other’s perspective, modifying their own views accordingly.”⁹¹ Of course, the executive branch shares similar duties,⁹² so its activities and interpretations can also cause other actors within the legal system to change their behavior.

Those subject to the law similarly adapt their behavior in response to the changes taking place in the legal system around them. This may result in such things as changed policies, tactics, or even goals. The important point is that, just as these internal actors are learning and adapting as a result of their interactions with one another, these dynamic processes are also contributing to the overall evolution of the law.⁹³

This evolution, along with the inherent complexity and nonlinearity present within the legal system, creates the unpredictability exhibited by all complex adaptive systems. Again, in this context, the contention is not that the law itself is uncertain (though it may well be), but rather that changes made to it often lead to unpredictable results. In other words, the various components of the legal system “interact in unpredictable ways, clashing with, reinforcing, and reacting to each other. No one actor is in a position to sort out these influences. No one actor takes a grand overview. There is no center of command and control.”⁹⁴ These properties

CHAOS THEORY AND THE NEW (DIS)ORDER 30 (2002).

⁸⁹ Barbara A. Cherry, *Maintaining Critical Rules to Enable Sustainable Communications Infrastructures*, 24 GA. ST. U. L. REV. 947, 953 (2008).

⁹⁰ See Patricia A. Martin, *Bioethics and the Whole: Pluralism, Consensus, and the Transmutation of Bioethical Methods into Gold*, 27 J.L. MED. & ETHICS 316, 320 (1999).

⁹¹ Christine Bateup, *The Dialogic Promise: Assessing the Normative Potential of Theories of Constitutional Dialogue*, 71 BROOK. L. REV. 1109, 1171 (2006).

⁹² See, e.g., Michael Stokes Paulsen, *The Most Dangerous Branch: Executive Power to Say What the Law Is*, 83 GEO. L.J. 217 (1994).

⁹³ See Luc B. Tremblay, *The Legitimacy of Judicial Review: The Limits of Dialogue between Courts and Legislatures*, 3 INT’L J. CONST. L. 617, 647–48 (2005).

⁹⁴ M. Gregg Bloche, *The Emergent Logic of Health Law*, 82 S. CAL. L. REV. 389, 396 (2009).

make it such that even mere tinkering with the legal system can wreak unforeseen havoc. Indeed, so common is this phenomenon that it has its own name: the law of unintended consequences.

An illustration within the legal system helps demonstrate the point. Judge Colleen McMahon is a federal judge sitting on the United States District Court for the Southern District of New York.⁹⁵ Without using the terminology associated with complex adaptive systems, she has nevertheless put her finger on the difficulties associated with intervening in complex adaptive systems. “More than a few recent appellate decisions,” she explains, “have brought in their wake unanticipated (and, I am sure, unintended) consequences for the management of cases in trial courts, to the prejudice of litigants and the consternation of the judges who must put the decisions into practice.”⁹⁶ Judge McMahon cites as evidence U.S. Supreme Court opinions—“causing no end of practical problems”—related to federal sentencing guidelines, public officer qualified immunity, and civil pleading standards.⁹⁷ According to Judge McMahon, the unintended consequences to flow from these particular decisions include a lack of judicial uniformity, increases in the time required to adjudicate cases, and deleterious effects on the judiciary’s case management system.⁹⁸

There are other equally instructive examples. Some observers suggest, for example, that stringent sex offender laws often have the unforeseen effect of actually making previously non-violent sex offenders more dangerous.⁹⁹ Others note that significant antitrust regulation has led to unintended consequences such as higher taxes and major delays in the completion of business transactions.¹⁰⁰ Ultimately, these illustrations underscore the argument that, because the legal system is complex and adaptive, it is often impossible to predict the effect of change on the system. As with other complex adaptive systems, even small inputs can lead to significant and unexpected results.

⁹⁵ Hon. Colleen McMahon, *The Law of Unintended Consequences: Shockwaves in the Lower Courts After Bell Atlantic Corp. v. Twombly*, 41 SUFFOLK U. L. REV. 851, 851 n.2 (2008).

⁹⁶ *Id.* at 851.

⁹⁷ *Id.* at 851–52.

⁹⁸ *Id.*

⁹⁹ *When Getting Tough Backfires: Sex Offender Laws Have Unintended Consequences*, MINN. PUB. RADIO (June 18, 2007), <http://minnesota.publicradio.org/display/web/2007/06/11/sexoffender1/>.

¹⁰⁰ Joe Sims & Deborah P. Herman, *The Effect of Twenty Years of Hart-Scott-Rodino on Merger Practice: A Case Study in the Law of Unintended Consequences Applied to Antitrust Legislation*, 65 ANTITRUST L.J. 865, 869 (1997).

2. War as a Complex Adaptive System

Just as the legal system may properly be viewed as a complex adaptive system, so too may warfare. While complex adaptive systems theory is a relatively new concept, recognition of the complexity inherent within war certainly is not. One author suggests, for example, that Carl von Clausewitz—in his seminal treatise *On War*—recognized “that every war is inherently a nonlinear phenomenon, the conduct of which changes its character in ways that cannot be analytically predicted.”¹⁰¹ Clausewitz’s understanding of the nonlinear properties of war was based on his belief that “war” really is a process of interaction between the various components inherent within any particular engagement.¹⁰² He explained, for instance, that:

[t]he military machine—the army and everything related to it—is basically very simple and therefore seems easy to manage. But we should bear in mind that none of its components is of one piece: each part is composed of individuals, . . . the least important of whom may chance to delay things or somehow make them go wrong. . . . This tremendous [interaction], which cannot, as in mechanics, be reduced to a few points, is everywhere in contact with chance, and brings about effects that cannot be measured, just because they are largely due to chance.¹⁰³

The chaos present within war is compounded by the fact, as Clausewitz highlighted, that “[i]n war, the will is directed at an animate object that *reacts*.”¹⁰⁴ Though Clausewitz did not use the terminology of complex adaptive systems per se, he nevertheless understood the importance of interactions taking place between and among the competing forces engaged in battle, as well as between and among the external forces giving context to the war. Indeed, he surmised that this interaction is the very thing that “is bound to make [war] unpredictable.”¹⁰⁵ This unpredictability is compounded by the nonlinear properties of war, which make it such that “[t]he consequences are often disproportionately felt.”¹⁰⁶ As Clausewitz recognized:

the scale of a victory does not increase simply at a rate

¹⁰¹ Alan Beyerchen, *Clausewitz, Nonlinearity, and the Unpredictability of War*, 17 INT’L SECURITY 59, 61 (1993).

¹⁰² *Id.* at 72.

¹⁰³ *Id.* at 75 (quoting CARL VON CLAUSEWITZ, *ON WAR* 119–20 (Michael Howard & Peter Paret eds., 1976)).

¹⁰⁴ *Id.* at 73 (quoting CLAUSEWITZ, *supra* note 103, at 149).

¹⁰⁵ *Id.* (quoting CLAUSEWITZ, *supra* note 103, at 139).

¹⁰⁶ *Id.*

commensurate with the increase in the size of the defeated armies, but progressively. The outcome of a major battle has a greater psychological effect on the loser than the winner. This, in turn, gives rise to additional loss of material strength . . . , which is echoed in loss of morale; the two become mutually interactive as each enhances and intensifies the other.¹⁰⁷

Clausewitz is not the only military strategist to recognize the value of thinking of war as a complex adaptive system. Military leaders throughout history “have sought to organize and direct their armies as to best preserve their order and coherence when faced with the centrifugal forces of chaos unleashed on the battlefield.”¹⁰⁸ In order to do so, these leaders have had to contemplate the effects flowing from the complex interaction taking place between the many components or agents at work within any war, from the actual hostile forces, to the weather, terrain, weaponry, and political context in which battles are fought.¹⁰⁹

Moreover, beyond the complexity associated within any *specific* component—like all complex adaptive systems—war, as a system, is comprised of various nested subsystems. This nesting takes many forms. For one, “interaction with an enemy always occurs at three levels of war: strategic, operational and tactical. In modern war, events at the tactical level can have immediate impact on the strategic level,” and vice versa.¹¹⁰ Likewise, as another example, nested within the application of military air power is the system of target selection, which is based on intelligence, or the process of “analyzing the (potential and actual) effects of air power.”¹¹¹ Though understanding any of these subsystems certainly helps to explain the likelihood of success for the entire air power system, accurate predictions cannot be based solely on an examination of the system’s parts. This is because “[i]ndependently valid intelligence may be invalidated by poor targeting or the poor execution of air power.”¹¹² Thus, the ultimate successfulness of an air operation is “interdependent and

¹⁰⁷ *Id.* at 73 (quoting CLAUSEWITZ, *supra* note 103, at 253).

¹⁰⁸ Antoine Bousquet, *Chaoplectic Warfare or the Future of Military Organization*, 84 INT’L AFF. 915, 918 (2008).

¹⁰⁹ *Id.* (citing MARTIN VAN CREVELD, *COMMAND IN WAR* 264 (2003)).

¹¹⁰ Justin Kelly & David Kilcullen, *Chaos Versus Predictability: A Critique of Effects-Based Operations*, 2 SECURITY CHALLENGES 63, 66 (2006).

¹¹¹ Eric B. Dent & Cameron G. Holt, *CAS in War, Bureaucratic Machine in Peace: The US Air Force Example*, 3 EMERGENCE 90, 98 (2001).

¹¹² *Id.*

mutually causal with both intelligence and targeting.”¹¹³

These examples are illustrative of the fact that, like all complex adaptive systems, war is made complex partly because of the sheer number of interrelated component parts. This complexity is compounded by the fact that these agents and subsystems are constantly evolving. “Like a living organism, a military organization is never in a state of stable equilibrium but is instead in a continuous state of flux—continuously adjusting to its surroundings.”¹¹⁴ This does not mean, however, that the system of war exhibits complete disorder. Rather, emergent processes within the system lead to a form of self-organization. This process was captured by Sun-tzu over two centuries ago when he said

Now an Army may be likened unto water, . . . as water shapes its flow in accordance with the ground, so an army manages its victory in accordance with the situation of the enemy. And as water has no constant form, there are in war no constant conditions. Thus, one able to gain victory by modifying his tactics in accordance with the enemy situation may be said to be divine.¹¹⁵

Beyond adaptation to an enemy’s situation, in the process of self-organizing, military forces must also adapt to the changing political and legal environment within which war is executed. It is with this in mind that the interdependence and interaction between the legal system and the system of war assumes its importance. Simply put, when viewed as either a subsystem of war or, even less drastically, as an interdependent system evolving in conjunction with it, it becomes clear that changes within the legal system to the laws *governing* war may have significant and unpredictable consequences on military operations. The rise in targeted killing is arguably one example of this phenomenon. Before this argument can be further advanced, however, it is necessary to take a brief detour to explore the environment within which the executive is currently operating as it prosecutes the war on terror.

¹¹³ *Id.* at 99.

¹¹⁴ U.S. MARINE CORPS, COMMAND AND CONTROL (MARINE CORPS DOCTRINAL PUBLICATION 6) 46 (1996).

¹¹⁵ SUN TZU, THE ART OF WAR 101 (Samuel B. Griffith trans., 1963).

III. THE CREATION AND EVOLUTION OF THE GOVERNMENT'S DETENTION AND INTERROGATION POLICIES

Days after the attacks of September 11, 2001, Congress overwhelmingly adopted the Authorization for Use of Military Force (AUMF), which granted the President authority “to use all necessary and appropriate force against those nations, organizations, or persons he determines planned, authorized, committed, or aided the terrorist attacks.”¹¹⁶ Because the AUMF did not specifically detail the process for detaining or interrogating those engaged in terrorism against the United States, the executive was largely free, at least initially, to craft its own procedures. This Part briefly explores the evolution of those procedures, especially those pertaining to detention and interrogation of hostile parties captured during the war on terror.¹¹⁷ The aim of this discussion is to provide the background necessary to support the assertion that targeted killing has emerged as an unintended response to changes in these policies.

A. *Legal Framework for Detentions*

Almost immediately after the events of September 11th, the Bush Administration determined that the attacks perpetrated against the United States necessitated a military response. As part of this military campaign, by the end of 2001, the United States and its allies had captured nearly seven thousand suspected al Qaeda and Taliban members in Afghanistan.¹¹⁸ While it was not immediately clear what the government would do with these alleged terrorists, even senior legal advisors to President George W. Bush believed that “[t]he law of armed conflict provide[d] the most appropriate legal framework for

¹¹⁶ Authorization for Use of Military Force, Pub. L. No. 107-40, 115 Stat. 224 (2001).

¹¹⁷ It is not the purpose of this Article to provide a comprehensive overview of these subjects, but rather to explain them sufficiently to provide context for the argument that the growing dearth in detention options was part of the emergent process that led to the rise in targeted killing. Readers seeking more information about the government's detention or enhanced interrogation policies should see JOHN YOO, *WAR BY OTHER MEANS: AN INSIDER'S ACCOUNT OF THE WAR ON TERRORISM* (2006); Diane Marie Amann, *Guantánamo*, 42 COLUM. J. TRANSNAT'L L. 263 (2004); Eric A. Posner & Adrian Vermeule, *Should Coercive Interrogation Be Legal?*, 104 MICH. L. REV. 671 (2005); Jordan J. Praust, *Executive Plans and Authorizations to Violate International Law Concerning Treatment and Interrogation of Detainees*, 43 COLUM. J. TRANSNAT'L L. 811 (2005).

¹¹⁸ Evan J. Wallach, *The Logical Nexus Between the Decision to Deny Application of the Third Geneva Convention to the Taliban and al Qaeda, and the Mistreatment of Prisoners in Abu Ghraib*, 36 CASE W. RES. J. INT'L L. 541, 544 (2004).

regulating the use of force in the war on terrorism.”¹¹⁹

It is easy to understand why this would be the case. Scholars widely recognize that the law of armed conflict, largely codified in the four Geneva Conventions of 1949,¹²⁰ provides the “gold standard regarding the capture, detention, treatment, and trial of prisoners of war and civilian internees.”¹²¹ Under the Conventions, a party’s rights and duties in connection with a captured individual are based upon the legal status of the detainee.¹²² Depending on the degree and legitimacy of a captive’s involvement in hostilities, the law of armed conflict dictates that a captive be designated a lawful combatant, unlawful combatant, or civilian.¹²³

The importance of this categorization process cannot be overemphasized, since designation as a lawful combatant entitles a detainee to special privileges and classification as an unlawful combatant conversely limits a detainee’s rights. For instance, the Third Geneva Convention grants a lawful combatant “[i]n an armed conflict between two or more parties to the . . . Conventions” favored

¹¹⁹ William H. Taft, IV, *The Law of Armed Conflict After 9/11: Some Salient Features*, 28 YALE J. INT’L L. 319, 320 (2003). Taft served as Legal Adviser to the U.S. Department of State during the Bush Administration. *Id.* at 319 n.d1.

¹²⁰ Another significant aspect of the law of war not explored here is customary international law. For more information about its application within the war on terror, see Curtis A. Bradley et al., Sosa, *Customary International Law, and the Continuing Relevance of Erie*, 120 HARV. L. REV. 869, 929–33 (2007).

¹²¹ Leila Nadya Sadat, *Extraordinary Rendition, Torture, and Other Nightmare from the War on Terror*, 75 GEO. WASH. L. REV. 1200, 1211 (2007).

¹²² See Convention Relative to the Treatment of Prisoners of War, Aug. 12, 1949, 6 U.S.T. 3316, 75 U.N.T.S. 135 [hereinafter Geneva Conventions]; PHILIP BOBBITT, TERROR AND CONSENT: THE WARS OF THE TWENTY-FIRST CENTURY 265 (2008); Mary Ellen O’Connell, *Affirming the Ban on Harsh Interrogation*, 66 OHIO ST. L.J. 1231, 1242 (2005).

¹²³ Lawful combatants are: (1) “[m]embers of the armed forces of a Party to the conflict;” (2) “[m]embers of other militias and . . . volunteer corps . . . belonging to a Party to the conflict” who also are “commanded by a person responsible for subordinates,” wear distinctive insignia, “carry arms openly,” and operate “in accordance with the laws and customs of war;” (3) “[m]embers of regular armed forces who profess allegiance to a government or an authority not recognized” by the opposing belligerent; or (4) “[i]nhabitants of a non-occupied territory, who on the approach of the enemy spontaneously take up arms.” Geneva Conventions, *supra* note 122, at art. 4. Unlawful combatants are those with no right to engage in hostilities, while civilians are those persons who take no direct participation. O’Connell, *supra* note 122, at 1242 (citations omitted). The designations of lawful and unlawful combatant are used for simplicity, though it is worth noting that there is some dispute over the legitimacy of the term “unlawful combatant.” See, e.g., Allison M. Danner, *Defining Unlawful Enemy Combatants: A Centripetal Story*, 43 TEX. INT’L L.J. 1, 3 (2007) (arguing that the phrase “‘unlawful enemy combatant’ does not constitute a term of art in the mainstream law of war,” and that “[i]t does not appear . . . in any of the major law or war treaties”).

legal treatment as a prisoner of war (POW).¹²⁴ There are many benefits to being classified as a POW rather than an unlawful belligerent. POWs, for example, “are traditionally immune from criminal prosecution for war-like acts that comply with the laws and customs of war.”¹²⁵ By contrast, the U.S. Supreme Court held in *Ex parte Quirin* that “[u]nlawful combatants are . . . subject to trial and punishment by military tribunals for acts which render their belligerency unlawful.”¹²⁶

In a conventional conflict, properly classifying a captive as a civilian, lawful combatant, or unlawful combatant usually is not difficult. Given the atypical nature of the war on terror, however, this classification process arguably presented novel difficulties that required a nuanced approach. In arriving at that approach, the Bush Administration initially rejected altogether the application of the Conventions to the war, and therefore operated under the assumption that no captive was entitled to POW status.¹²⁷ After this position was widely criticized,¹²⁸ President Bush reversed course and adopted the view that the “Conventions would apply to the conflict and to the Taliban detainees, but not to Al Qaeda—and that neither the Taliban nor Al Qaeda would be granted prisoner-of-war status.”¹²⁹ This seemingly contradictory position was grounded on the argument that, while the Taliban at least purported to constitute the government of Afghanistan, “alleged members of al Qaeda, whether rounded up in Afghanistan or elsewhere, were considered members of a rogue, stateless international terrorist organization.”¹³⁰ As such,

¹²⁴ O’Connell, *supra* note 122, at 1242–43.

¹²⁵ Mark David Maxwell & Sean M. Watts, ‘Unlawful Enemy Combatant’: Status, Theory of Culpability, or Neither?, 5 J. INT’L CRIM. JUST. 19, 21 (2007).

¹²⁶ 317 U.S. 1, 31 (1942). Military commissions are tribunals, operated by officers in the armed forces, which are designed primarily to be conducted in times of war to prosecute those who engage in war crimes. Robert Chesney & Jack Goldsmith, *Terrorism and the Convergence of Criminal and Military Detention Models*, 60 STAN. L. REV. 1079, 1117–18 (2008). Given the context within which these tribunals are conducted, persons subject to their jurisdiction are afforded fewer procedural protections than are normally available in civilian trials or courts-martial. See Edward F. Sherman, *Terrorist Detainee Policies: Can the Constitutional and International Law Principles of the Boumediene Precedents Survive Political Pressures?*, 19 TUL. J. INT’L & COMP. L. 207, 210 (2010).

¹²⁷ See Thom Shanker & Katharine Q. Seelye, *A Nation Challenged: Captives; Behind-the-Scenes Clash Led Bush to Reverse Himself on Applying Geneva Conventions*, N.Y. TIMES, Feb. 22, 2002, at A1.

¹²⁸ *Id.*

¹²⁹ *Id.*; see also Sean D. Murphy, ed., *Contemporary Practice of the United States Relating to International Law: General International and U.S. Foreign Relations Law*, 98 AM. J. INT’L L. 820, 820–24 (2004).

¹³⁰ Paul A. Diller, *When Congress Passes an Intentionally Unconstitutional Law: The*

because al Qaeda, unlike the Taliban, had not been a signatory to the Geneva Conventions, the Bush Administration argued that the organization's members were not entitled to their protections.¹³¹ As for denying the Taliban POW status, the government based its view on the fact that Taliban members failed to comply with certain conditions required by the Conventions for such status, including conducting military operations in accord with the rules of law, wearing distinctive uniforms, and the like.¹³²

This denial of POW status by fiat struck many observers as improper,¹³³ especially in light of provisions within the Geneva Conventions regarding the measures that must be taken in the face of ambiguity about a captive's legal status. In particular, Article 5 of the Third Geneva Convention dictates that, should there be doubt as to whether captives are entitled to POW status, the detaining power must grant those detainees the privileges of POWs "until such time as their status has been determined by a competent tribunal."¹³⁴ In response to calls to hold these Article 5 hearings, however, the Bush Administration responded that "[t]he President—the highest 'competent authority' on the subject—has conclusively determined that al Qaeda and Taliban detainees . . . do not qualify for POW privileges."¹³⁵

Given the executive's adamancy on this point, some have argued that the Bush Administration "took a maximalist position" in determining how detainees would be classified.¹³⁶ Indeed, rather than classifying hostile forces as either lawful or unlawful combatants, the government began instead to designate all detainees as "unlawful enemy combatant[s]"¹³⁷—a designation that, as one scholar argues,

Military Commissions Act of 2006, 61 SMU L. REV. 281, 306 (2008).

¹³¹ See Roberto Iraola, *Enemy Combatants, the Courts, and the Constitution*, 56 OKLA. L. REV. 565, 579–80 (2003) (noting the position of the Bush Administration that "[m]embers of al Qaeda's terrorist network . . . are not covered by the Geneva Conventions because that network was not a party to the signed accords").

¹³² See Memorandum from John Yoo & Robert J. Delahunty, Office of Legal Counsel, U.S. Dep't of Justice, to William J. Haynes II, Gen. Counsel, Dep't of Def. (Jan. 9, 2002), available at <http://www2.gwu.edu/~nsarchiv/NSAEBB/NSAEBB127/02.01.09.pdf>.

¹³³ See, e.g., Neal K. Katyal & Laurence H. Tribe, *Waging War, Deciding Guilt: Trying the Military Tribunals*, 111 YALE L.J. 1259, 1264 (2002).

¹³⁴ Geneva Conventions, *supra* note 122, at art. 5.

¹³⁵ Brief for Respondents at 24, *Hamdi v. Rumsfeld*, 542 U.S. 507 (2004) (No. 03-6696), 2004 WL 724020.

¹³⁶ David Cole, *Out of the Shadows: Preventive Detention, Suspected Terrorists, and War*, 97 CAL. L. REV. 693, 727 (2009).

¹³⁷ What precisely the Bush Administration meant by this designation was not initially clear. See *Hamdi v. Rumsfeld*, 542 U.S. 507, 516 (2004) ("There is some

“plunges an individual into a legal limbo relieved by few rights.”¹³⁸

By classifying detainees as unlawful enemy combatants, the U.S. government signaled its belief “that the detainees were not protected by the Geneva Conventions,” and that they “therefore could be subjected to harsh coercive interrogations.”¹³⁹ Moreover, as the Supreme Court had expressed in *Ex parte Quirin*, designating captives as unlawful enemy combatants also triggered “jurisdiction of the military commissions established to try detainees for alleged violations of the laws of war.”¹⁴⁰ Importantly, these military commissions initially lacked a number of procedural safeguards typical of most civilian trials or even courts-martial: the commissions used evidence obtained via “cruel, inhuman, or degrading interrogation methods”; admitted hearsay statements; penalized a detainee for refusing to testify; and limited a detainee’s ability to choose his own counsel.¹⁴¹

debate as to the proper scope of this term, and the Government has never provided any court with the full criteria that it uses in classifying individuals as such.”). The term was later clarified to include, among others, a captive who “was part of or supporting Taliban or al Qaida forces, or associated forces that are engaged in hostilities against the United States or its coalition partners.” Memorandum for Sec’y of the Military Dep’ts Chairman of the Joint Chiefs of Staff Under Sec’y of Def. for Policy, Combatant Status Review Tribunal Notice to Detainees, July 14, 2006, available at <http://www.defenselink.mil/news/Aug2006/d20060809CSRTProcedures.pdf>. In any event, the category of “unlawful enemy combatant” has been challenged as one that “did not and does not exist under international law.” Peter Jan Honigsberg, *Chasing “Enemy Combatants” and Circumventing International Law: A License for Sanctioned Abuse*, 12 UCLA J. INT’L L. & FOREIGN AFF. 1, 4 (2007) (noting also that, “[p]rior to 9/11, there were only two universally recognized categories of combatants: lawful and unlawful”); see also Muneer I. Ahmad, *Resisting Guantánamo: Rights at the Brink of Dehumanization*, 103 NW. U. L. REV. 1683, 1730–31 (2009) (“International humanitarian law distinguishes between lawful and unlawful belligerents . . . [but the] Bush Administration’s use of ‘enemy combatant’ at times conflated both categories, and at other times seemed to create a third.”).

¹³⁸ Danner, *supra* note 123, at 3.

¹³⁹ Cole, *supra* note 136, at 727; see also *Hamdan v. Rumsfeld*, 548 U.S. 557, 629–30 (2006) (setting forth the government’s position that the Conventions were inapplicable because al Qaeda was not a signatory to them).

¹⁴⁰ Geoffrey S. Corn & Eric Talbot Jensen, *The Obama Administration’s First Year and IHL: A Pragmatist Reclaims the High Ground*, 12 Y.B. OF INT’L HUMANITARIAN LAW 263, 270 (2009). The decision to subject detainees to military commissions had been approved by President Bush in a Military Order issued in November of 2001. Detention, Treatment, and Trial of Certain Non-Citizens in the War Against Terrorism, 66 Fed. Reg. 57,833 (Nov. 13, 2001). In issuing the Order, the President cited authority vested in him “as President and Commander in Chief of the Armed Forces of the United States by the Constitution and laws of the United States.” *Id.*

¹⁴¹ See Barack Obama, U.S. President, Remarks by the President on National Security (May 21, 2009), <http://www.whitehouse.gov/the-press-office/remarks-president-national-security-5-21-09>.

In realistic terms, these circumstances effectively created a situation in which detainees were in a legal black hole. First, there was no mechanism by which they could challenge their classification by President Bush as unlawful enemy combatants. Second, for those charged with violating the laws of war, President Bush had declared in a military order that “military tribunals shall have *exclusive* jurisdiction.”¹⁴² In other words, the executive purported to strip Article III courts of jurisdiction to provide detainees any legal relief. The lack of opportunities available to detainees to challenge their continued captivity was seemingly compounded by the fact that, by January of 2002, the government had begun transporting them to the isolated naval base at Guantánamo Bay, Cuba.

Like most decisions associated with the prosecution of the war on terror, the choice of Guantánamo Bay as a locale for a detention center was not accidental. “Viewing the very extension of judicial process to alleged terrorists as a national security threat,”¹⁴³ the Bush Administration had sought a location that would be “beyond the reach of American courts.”¹⁴⁴ As such, every locale that seriously was considered during the search process was outside the United States.¹⁴⁵ Eventually, the Department of Defense proposed the U.S. Naval Base at Guantánamo Bay, Cuba, given that the isolation of the base protected it “from the prying eyes of other countries.”¹⁴⁶ The issue finally was settled, perhaps, after the Office of Legal Counsel (OLC), in responding to the question of whether U.S. courts would be able to exercise authority over detainees at Guantánamo Bay, concluded “that the great weight of legal authority indicates that a federal district court could not properly exercise habeas jurisdiction over an alien detained [there].”¹⁴⁷

Given the Bush Administration’s position that Guantánamo Bay was beyond the reach of U.S. courts, it seemed like an ideal location

¹⁴² Detention, Treatment, and Trial of Certain Non-Citizens in the War Against Terrorism, 66 Fed. Reg. 57,833 § 7(b)(1) (Nov. 13, 2001) (emphasis added).

¹⁴³ Nathaniel H. Nesbitt, *Meeting Boumediene’s Challenge: The Emergence of an Effective Habeas Jurisprudence and Obsolescence of New Detention Legislation*, 95 MINN. L. REV. 244, 248 (2010).

¹⁴⁴ Sherman, *supra* note 126, at 208.

¹⁴⁵ Tim Golden, *After Terror, a Secret Rewriting of Military Law*, N.Y. TIMES, Oct. 24, 2004, at A1.

¹⁴⁶ Kathleen Clark, *Ethical Issues Raised by the OLC Torture Memorandum*, 1 J. NAT’L. SECURITY L. & POL’Y 455, 455 (2005).

¹⁴⁷ See *Boumediene v. Bush*, 553 U.S. 723, 828 (2008) (Scalia, J., dissenting) (quoting Memorandum from Patrick F. Philbin & John C. Yoo, Deputy Assistant Att’y Gens., Office of Legal Counsel, to William J. Haynes II, Gen. Counsel, Dep’t of Def. (Dec. 28, 2001)).

for detaining terrorists. Beyond serving as a detention facility, however, the U.S. Naval Station at Guantánamo Bay gradually assumed an additional purpose that would eventually engender much controversy. For not only were U.S. personnel at Guantánamo Bay charged with *detaining* enemy combatants, they were also given the added mission of “creating and operating an intelligence collection program to exploit those detainees.”¹⁴⁸ “As proved to be the case at Abu Ghraib, mixing two separate and distinct missions at one detention facility can blur the lines of command and control and generate tensions and adverse consequences.”¹⁴⁹ This was especially true given the Administration’s approval of interrogation techniques thought by many observers to amount to torture.¹⁵⁰

B. Enhanced Interrogation Techniques

John Yoo, a former OLC attorney and one of the chief legal architects of the Bush Administration’s detention and interrogation policies, has said that “[m]ilitary detention is . . . one of our most important sources of intelligence, which in turn is our most important tool in [the war on terror]. We . . . need to know who [the enemies] are, where they are, who is helping them, and what they are planning, which . . . require[s] . . . interrogation of captured enemy combatants.”¹⁵¹ In March of 2002, U.S. personnel captured a senior al Qaeda operative named Abu Zubaydah and began the interrogation process in an effort to answer some of those questions.¹⁵² Initially, the interrogation went well, with Zubaydah providing significant amounts of actionable intelligence, including the names of other senior al Qaeda members and details concerning the organization’s operational plans.¹⁵³ Officials eventually “[grew] frustrated with the interrogation” process, however, after Zubaydah stopped cooperating.¹⁵⁴

¹⁴⁸ Morris D. Davis, *Historical Perspective on Guantánamo Bay: The Arrival of the High-Value Detainees*, 42 CASE W. RES. J. INT’L L. 115, 119 (2009). Morris formerly served as Chief Prosecutor for the Military Commissions at Guantánamo Bay, Cuba. *Id.* at 115.

¹⁴⁹ *Id.*

¹⁵⁰ See David Luban, *Lawfare and Legal Ethics in Guantánamo*, 60 STAN. L. REV. 1981, 2022 (2008) (noting “that everyone but the Bush administration regards” enhanced interrogation techniques “as torture or cruel and degrading treatment”).

¹⁵¹ YOO, *supra* note 117, at 151.

¹⁵² See David Johnston et al., *Nominee Gave Advice to C.I.A. on Torture Law*, N.Y. TIMES, Jan. 29, 2005, at A1.

¹⁵³ CENT. INTELLIGENCE AGENCY, REPORT ON THE CIA INTERROGATION OF ABU ZUBAYDAH 1–2 (2001–2003), available at http://www.aclu.org/files/assets/CIA_interrogation_of_AZ_released_04-15-10.pdf.

¹⁵⁴ Clark, *supra* note 146, at 456.

It was this frustration that opened what President Obama would later call a “dark and painful chapter in [American] history.”¹⁵⁵ In light of Zubaydah’s uncooperativeness in the face of standard interrogation techniques, in the summer of 2002, U.S. interrogators sought approval from the Justice Department to use harsher tactics while questioning him and other high-value detainees.¹⁵⁶ Of primary concern to them was whether harsher practices would be compatible with the U.N. Convention Against Torture (CAT)—an international treaty the United States has signed—and the related federal statute implementing the treaty’s obligations.¹⁵⁷ To resolve this issue, White House Counsel Alberto Gonzalez enlisted OLC,¹⁵⁸ which quickly released what subsequently became known as the “torture memos.”¹⁵⁹

From the outset, OLC’s analysis seemed designed to “eliminate any hurdles posed by the torture law[s].”¹⁶⁰ On August 1, 2002, the office released a memo, written by John Yoo and signed by Assistant Attorney General Jay Bybee,¹⁶¹ concluding that the CAT and its related statute “prohibit[] only the most extreme acts,” and “that for an act to constitute torture . . . it must inflict pain . . . equivalent in intensity to the pain accompanying serious physical injury, such as organ failure, impairment of bodily function, or even death.”¹⁶² Mental distress had a similarly high threshold. The memo indicated that, to qualify as torture, mental pain had to be so severe that it caused “suffering not just at the moment of infliction,” but also “lasting psychological harm.”¹⁶³ OLC further suggested that even this

¹⁵⁵ Statement, President Barack Obama on Release of OLC Memos (Apr. 16, 2009), *available at* http://www.whitehouse.gov/the_press_office/Statement-of-President-Barack-Obama-on-Release-of-OLC-Memos/.

¹⁵⁶ Clark, *supra* note 146, at 456–57.

¹⁵⁷ *Id.*; *see also* United Nations Convention Against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment, June 26, 1987, S. TREATY DOC. NO. 100–20 (1988), 1465 U.N.T.S. 85; 18 U.S.C. §§ 2340–2340A (2006).

¹⁵⁸ Clark, *supra* note 146, at 457.

¹⁵⁹ *See* Michael P. Scharf, *The Torture Lawyers*, 20 DUKE J. COMP. & INT’L LAW 389, 392 (2010).

¹⁶⁰ OFFICE OF PROF’L RESPONSIBILITY REPORT, *supra* note 7, at 160 (quoting Jack Goldsmith, former OLC director).

¹⁶¹ *See id.* at 1.

¹⁶² Memorandum from Jay Bybee, Assistant Att’y Gen., Office of Legal Counsel, to Alberto Gonzales, Counsel to the President, Standards of Conduct for Interrogation under 18 U.S.C. §§ 2340–2340A, 1 (Aug. 1, 2002) [hereinafter Bybee-Gonzales Memo], *available at* <http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB127/02.08.01.pdf>. OLC’s standard as to what constituted torture was not based on any common understanding of this term, but rather on “a Medicare statute setting out the conditions under which hospitals must provide emergency medical care.” Clark, *supra* note 146, at 459.

¹⁶³ Bybee-Gonzales Memo, *supra* note 162, at 46.

narrow ban on torture only applied if the consequence of pain was specifically intended, and not if it occurred as a result of an interrogator's attempt to elicit information necessary for national defense.¹⁶⁴ As the final salvo, in contemplating the constitutionality of the federal law purporting to prevent torture, OLC concluded that it, and any other effort "by Congress to regulate the interrogation of battlefield combatants[,] would violate the Constitution's sole vesting of the Commander-in-Chief authority in the President."¹⁶⁵

Though this memo, during drafting, was known within OLC as the "bad things opinion,"¹⁶⁶ the worst was yet to come. A second OLC memo, issued on August 1, 2002, provided vivid substance to the comparatively antiseptic definition of torture contained in OLC's first opinion. In particular, the second memo addressed the legitimacy of using various interrogation tactics against detainees like Abu Zubaydah, including "(1) attention grasp, (2) walling, (3) facial hold, (4) facial slap (insult slap), (5) cramped confinement, (6) wall standing, (7) stress positions, (8) sleep deprivation, (9) insects placed in a confinement box, and (10) the waterboard."¹⁶⁷ Ultimately, OLC concluded that none of the proposed interrogation procedures would violate the ban on torture, as none would "inflict severe physical pain or suffering," nor was there any evidence that the techniques would "produce[] any prolonged mental harm."¹⁶⁸ Based on this analysis, in the months following the opinion's release, U.S. interrogators waterboarded Zubaydah and another senior al Qaeda operative hundreds of times.¹⁶⁹

C. *The Evolution of the Government's Detention Policies*

Though the procedural deprivations stripping war on terror captives of basic rights were instituted in a matter of months, their repudiation took significantly longer. "Given the difficulty of second-

¹⁶⁴ Scharf, *supra* note 159, at 398; *see also* Bybee-Gonzales Memo, *supra* note 162, at 42–46.

¹⁶⁵ Bybee-Gonzales Memo, *supra* note 162, at 39.

¹⁶⁶ OFFICE OF PROF'L RESPONSIBILITY REPORT, *supra* note 7, at 46.

¹⁶⁷ Memorandum from Jay Bybee, Assistant Att'y Gen., Office of Legal Counsel, to John Rizzo, Acting Gen. Counsel, Cent. Intelligence Agency, Interrogation of al Qaeda Operative, 1–2 (Aug. 1, 2002) [hereinafter Bybee-Rizzo Memo], *available at* http://www.washingtonpost.com/wp-srv/nation/pdf/OfficeofLegalCounsel_Aug2Memo_041609.pdf. These tactics are described in detail throughout the memo.

¹⁶⁸ *Id.* at 18, 11, 16.

¹⁶⁹ Scott Shane, *Waterboarding Used 266 Times on 2 Suspects*, N.Y. TIMES, Apr. 19, 2009, at A1.

guessing the government's initial risk assessment,"¹⁷⁰ the U.S. Supreme Court initially "operated mostly on the margins of the nation's War on Terror policy."¹⁷¹ Similarly, in part because they remained largely classified, the enhanced interrogation techniques approved on the basis of OLC's analysis were only haltingly renounced. Eventually, however, "in recognition of a changing political climate," both the Court and the new executive administration took an increasingly aggressive approach to redefining the rights of detainees.¹⁷²

1. The Supreme Court's Habeas Cases

From 2004 to 2008, the U.S. Supreme Court decided four cases that significantly eroded the powers claimed by President Bush in relation to war on terror detentions. In the first, *Hamdi v. Rumsfeld*, the Court purported to "answer only the narrow question" of whether persons like Yaser Hamdi—a U.S. citizen captured in a combat zone and held in the United States—could be detained by the President as part of the war on terror.¹⁷³ Although, as explained earlier, the Bush Administration believed that Article II vested the President with the ability to detain enemy combatants during times of war, the Court chose not to resolve that issue.¹⁷⁴ Instead, it held that, because the AUMF authorized the President "to use all necessary and appropriate force against" those involved in the September 11th attacks,¹⁷⁵ and since detentions were fundamentally incident to war-making, Congress had implicitly authorized the executive to engage in detention operations when it enacted the AUMF.¹⁷⁶ Though this aspect of the case essentially amounted to a victory for the government, perhaps more significant was the battle it lost.

While concluding that the executive had authority to detain enemy combatants, the *Hamdi* Court also held that "due process demands that a citizen held in the United States as an enemy

¹⁷⁰ Burt Neuborne, *The Role of Courts in Time of War*, 29 N.Y.U. REV. L. & SOC. CHANGE 555, 555 (2005).

¹⁷¹ Richard H. Fallon, Jr., *The Supreme Court, Habeas Corpus, and the War on Terror: An Essay on Law and Political Science*, 110 COLUM. L. REV. 352, 352 (2010).

¹⁷² *Id.*

¹⁷³ *Hamdi v. Rumsfeld*, 542 U.S. 507, 516 (2004). At the time, Hamdi was detained not at Guantánamo Bay, but rather in a military brig in South Carolina. *Id.* at 510.

¹⁷⁴ *Id.* at 517 (stating that the opinion did "not reach the question whether Article II provides such authority").

¹⁷⁵ Authorization for Use of Military Force, Pub. L. No. 107-40, 115 Stat. 224 (2001).

¹⁷⁶ *Hamdi*, 542 U.S. at 518.

combatant be given a meaningful opportunity to contest the factual basis for that detention before a neutral decisionmaker.”¹⁷⁷ This holding was a direct rejection of President Bush’s attempts to unilaterally and “conclusively determine[] that [all] al Qaeda and Taliban” members were indeed subject to detention.¹⁷⁸ Instead, the Court signaled to the government that it would thenceforth be required to fashion procedures that would provide captives of U.S. citizenship with (at least) a “meaningful opportunity” to challenge their legal status.

Just days after the Court released the *Hamdi* opinion, the Department of Defense responded by creating Combatant Status Review Tribunals (CSRTs), which were specifically tasked with the mission of “determin[ing], in a fact-based proceeding, whether the individuals detained by the Department of Defense at the U.S. Naval Base Guantánamo Bay, Cuba, [were] properly classified as enemy combatants.”¹⁷⁹ Although the procedural burden these hearings placed on the government were minimal,¹⁸⁰ the larger issue is that the Bush Administration did not have “the slightest interest in fixing this problem” in the first place, because it simply did not view it as a problem.¹⁸¹

The same day the Court issued the *Hamdi* opinion, it also established in *Rasul v. Bush* that federal courts had jurisdiction, under 28 U.S.C. § 2241, to adjudicate habeas corpus petitions filed by non-U.S. citizens held at Guantánamo Bay.¹⁸² In dissent, Justice Scalia highlighted, as outlined above, that, in shaping the government’s detention policies, “[t]he Commander in Chief and his subordinates

¹⁷⁷ *Id.* at 509.

¹⁷⁸ See *supra* note 137 and accompanying text.

¹⁷⁹ Memorandum from Paul Wolfowitz, Deputy Sec’y of Def., to the Sec’y of the Navy (July 7, 2004) [hereinafter Wolfowitz Memo], available at <http://www.defense.gov/news/Jul2004/d20040707review.pdf>; Sherman, *supra* note 126, at 213; see also STEPHEN DYCUS ET AL., NATIONAL SECURITY LAW 700 (2009).

¹⁸⁰ See Wolfowitz Memo, *supra* note 179; Carla Crandall, *Ready. . .Fire. . .Aim!: A Case for Applying American Due Process Principles Before Engaging in Drone Strikes*, 24 FLA. J. INT’L L. 55, 77 (2012).

¹⁸¹ Editorial, *Guilty Until Confirmed Guilty*, N.Y. TIMES, Oct. 15, 2006, available at <http://www.nytimes.com/2006/10/15/opinion/15sun1.html>. As is evident from the title of this editorial, many observers viewed the procedural protections purported to exist in the CSRTs as a sham. See also Debate, Hamdan and the Military Commissions, 155 U. PA. L. REV. PENNUMBRA 146, 159 (2007).

¹⁸² *Rasul v. Bush*, 542 U.S. 466, 481, 485 (2004). Some have argued that the holding of *Rasul* was actually much broader. See Fallon, *supra* note 171, at 356 (“*Rasul* intimated that the federal courts’ authority to issue the writ on behalf of noncitizen detainees might extend around the world to Iraq and Afghanistan, among other places.”).

had every reason to expect that the internment of combatants at Guantanamo Bay would not have the consequence of bringing the cumbersome machinery of our domestic courts into military affairs.”¹⁸³ Justice Scalia also issued a “dire warning” that the decision would wreak havoc, unforeseeable at the time, on the executive’s ability to wage war.¹⁸⁴ Indeed, after *Rasul*, a flood of “alien detainees at Guantanamo quickly pressed habeas petitions in U.S. courts.”¹⁸⁵

Both the legislature and executive quickly responded to this changed environment. For its part, the executive decided that all detainees—not just U.S. citizens—would undergo an enemy combatant status determination before a CSRT.¹⁸⁶ Meanwhile, Congress enacted legislation, called the Detainee Treatment Act (DTA), which essentially overruled *Rasul* by statutorily stripping federal courts of jurisdiction to hear habeas petitions filed by foreign nationals detained at Guantánamo Bay.¹⁸⁷

The constitutionality of the DTA served as the basis of the next Supreme Court case related to war on terror detentions. In *Hamdan v. Rumsfeld*, the Court held that the DTA’s jurisdiction stripping provision did not apply to cases, like the one then before it, that already were pending at the time the legislation was enacted.¹⁸⁸ As significantly, the Court also determined that the military commissions, as constituted under the direction of President Bush, were improper forums for trying detainees.¹⁸⁹ The Court’s rationale was that the Uniform Code of Military Justice (UCMJ) “conditions the President’s use of military commissions on compliance not only with the American common law of war, but also with the rest of the UCMJ itself . . . and with the rules and precepts of the law of nations.”¹⁹⁰ These rules had been violated, the Court concluded, because both the UCMJ and the Geneva Conventions afforded detainees more process than war on terror detainees were entitled to under the government’s version of military commissions.¹⁹¹ Once again, the Court’s ruling was seen by most observers as an express repudiation of the government’s detention policies.

¹⁸³ *Rasul*, 542 U.S. at 506 (Scalia, J., dissenting).

¹⁸⁴ *Id.* at 498–99.

¹⁸⁵ See DYCUS ET AL., *supra* note 179, at 700.

¹⁸⁶ *See id.*

¹⁸⁷ Detainee Treatment Act of 2005, Pub. L. No. 109-148, 119 Stat. 2739 (2005).

¹⁸⁸ *Hamdan v. Rumsfeld*, 548 U.S. 557, 582–84 (2006).

¹⁸⁹ *Id.* at 612–13.

¹⁹⁰ *Id.* at 613 (internal quotation marks omitted).

¹⁹¹ Sherman, *supra* note 126, at 216.

Yet again, however, Congress reacted to the Court's decision with great haste. Just four months after release of the *Hamdan* opinion, the legislature passed the Military Commissions Act (MCA).¹⁹² Beyond expressly authorizing the military commissions established by the executive to try war on terror detainees, the MCA also clarified that federal courts were statutorily barred from hearing any habeas petition filed by a Guantánamo Bay detainee, no matter when that petition had been filed.¹⁹³ Once more, the enactment of the MCA was an indication that the political branches were in lockstep as to the appropriate approach to take in dealing with war on terror detainees. But again, the Supreme Court found that approach improper.

In *Boumediene v. Bush*, the Court extended *constitutional* habeas rights to individuals confined at Guantánamo Bay.¹⁹⁴ In so doing, it also made clear that Congress's attempt under the MCA to strip federal courts of the power to hear habeas cases "operate[d] as an unconstitutional suspension of the writ" of habeas corpus.¹⁹⁵ Though the Court explicitly noted that it made "no judgment whether the CSRTs, as currently constituted, satisfy due process standards,"¹⁹⁶ it also stated that the procedures contained therein were "not an adequate and effective substitute for habeas corpus."¹⁹⁷ As with *Rasul*, the *Boumediene* decision sparked a flood of subsequent litigation, much of which further eroded the authority of the executive in connection with war on terror detentions.¹⁹⁸

Though the Supreme Court has faced intense criticism for not being aggressive enough in responding to perceived executive

¹⁹² Military Commissions Act, Pub. L. No. 109-366, 120 Stat. 2600 (2006) (codified at 28 U.S.C. § 2241(e) (2008)).

¹⁹³ *Id.*

¹⁹⁴ *Boumediene v. Bush*, 553 U.S. 723, 732 (2008).

¹⁹⁵ *Id.* at 733.

¹⁹⁶ *Id.* at 785.

¹⁹⁷ *Id.* at 733.

¹⁹⁸ *See, e.g., Al Odah v. United States*, 559 F.3d 539, 545 (D.C. Cir. 2009) (rejecting "the government's suggestion that its mere 'certification'—that the information redacted from the version of the return provided to a detainee's counsel 'do[es] not support a determination that the detainee is *not* an enemy combatant'—is sufficient to establish that the information is not material"); *Mattan v. Obama*, 618 F. Supp. 2d 24, 26 (D.D.C. 2009) (holding that the AUMF only granted the President "authority to detain individuals who are 'part of' Taliban, al Qaeda, or associated enemy forces," not those who merely "support" those forces); *Mohamed v. Gates*, 624 F.Supp.2d 40, 44 (D.D.C. 2009) (requiring the government to divulge statements made by detainees if it intends to rely on those statements to justify a detainee's continued incarceration).

overreach during the war on terror,¹⁹⁹ the four cases of *Hamdi*, *Rasul*, *Hamdan*, and *Boumediene* “have had the effect—which was almost surely intended—of unsettling the status quo ante by giving notice to the Executive Branch that its detention policies are not immune from judicial scrutiny.”²⁰⁰ Detainees have responded to this signal by pressing litigation in lower courts with the goal of answering some of the substantive questions left unresolved after *Boumediene*.²⁰¹ “The result has been a kind of ‘percolating’ process through which challenges to executive practices that are initially advanced in the lower federal courts draw public attention and, what is more, lay the foundation for future appeals to the Supreme Court.”²⁰² In this way, the Court has ensured its continued involvement in shaping the executive’s detention policies.²⁰³

2. The End of Enhanced Interrogation Techniques

While the Supreme Court has played a relatively significant role in defining the contours of the executive’s detention authority, it has been virtually silent as to the legitimacy of its interrogation practices. Others familiar with the government’s policies have not, of course, been equally quiet. As early as October of 2003, officials within the Bush Administration internally began to criticize the torture memos as “legally flawed, tendentious in substance and tone, and overbroad.”²⁰⁴ When the memos were leaked to the press in the summer of 2004, the analysis contained in them unleashed a similar wave of criticism—and not just from those who supposedly did not understand the stakes. For example, James Woolsey, a former Director of the CIA, commented that “[w]e do not live in the 14th century, when an outlaw was treated like a wild beast. The president’s need for wise counsel is not well served by arguments that

¹⁹⁹ See, e.g., Stephen I. Vladeck, *The Long War, the Federal Courts, and the Necessity/Legality Paradox*, 43 U. RICH. L. REV. 893, 897 (2009) (“[T]he Supreme Court has been *too* passive, missing opportunities to identify limits on the government’s authority in a number of cases of equal—or even greater—significance than the Guantánamo litigation.”).

²⁰⁰ Fallon, *supra* note 171, at 392.

²⁰¹ One of the most significant is “whether the [*Boumediene*] majority’s reasoning extends to noncitizens held by the United States in foreign territory over which the United States does not exercise the complete and permanent de facto authority that it has over Guantánamo Bay.” Fallon, *supra* note 171, at 382.

²⁰² *Id.* at 392.

²⁰³ *Id.*

²⁰⁴ JACK GOLDSMITH, *THE TERROR PRESIDENCY: LAW AND JUDGMENT INSIDE THE BUSH ADMINISTRATION* 151 (2007).

bend and twist to avoid any legal restrictions.”²⁰⁵

In light of these views, OLC gradually “either withdrew or cautioned against reliance on a number of [its] opinions.”²⁰⁶ Meanwhile, as mentioned, Congress enacted the Detainee Treatment Act (DTA), which, while purporting to strip federal courts of jurisdiction to hear detainees’ habeas petitions, at least barred the use of harsh interrogation techniques against most captives.²⁰⁷ Even this change, however, was not wholesale. “To avoid the President’s threatened veto, the Detainee Treatment legislation was revised before enactment to exempt the CIA from its requirements.”²⁰⁸ Accordingly, after the law’s enactment, “the interrogations of high-level al Qaeda operatives were moved under the control of the CIA.”²⁰⁹ All the while, President Bush continued to maintain that his Administration was in strict compliance with international and domestic laws banning torture. “The United States does not torture,” he said in 2006, “[i]t’s against our laws and it’s against our values.”²¹⁰

It would take a changing of the guard to remove all remnants of torture from the government’s arsenal.²¹¹ On January 22, 2009, just two days after he assumed office, Barack Obama issued an executive order prohibiting the use of enhanced interrogation techniques.²¹² Himself an attorney, President Obama called OLC’s memos “legally flawed,”²¹³ and stated that they “undermine[d] our moral authority.”²¹⁴ Indicating that his national security strategy would be built on the principle that “[t]he United States is a nation of laws,” President Obama stated that his Administration would “always act . . . with an unshakeable commitment to our ideals.”²¹⁵

²⁰⁵ Ruth Wedgwood & R. James Woolsey, *Law and Torture*, WALL ST. J., June 28, 2004, at A10.

²⁰⁶ OFFICE OF PROF’L RESPONSIBILITY REPORT, *supra* note 7, at 28.

²⁰⁷ Detainee Treatment Act of 2005, Pub. L. No. 109-148, 119 Stat. 2739 (2005).

²⁰⁸ Scharf, *supra* note 159, at 404 n.77.

²⁰⁹ *Id.* at 405.

²¹⁰ See Bob Woodward, *Detainee Tortured, Says U.S. Official*, WASH. POST, Jan. 14, 2009, at A1 (quoting a September 6, 2006 speech given by President Bush).

²¹¹ Scharf, *supra* note 159, at 407–08.

²¹² Exec. Order No. 13,491, *supra* note 9.

²¹³ Press Release, The White House, News Conference by the President (Apr. 29, 2009), *available at* <http://www.whitehouse.gov/the-press-office/news-conference-president-4292009>.

²¹⁴ Press Release, The White House, Statement of President Barack Obama on Release of OLC Memos (Apr. 16, 2009), *available at* http://www.whitehouse.gov/the_press_office/Statement-of-President-Barack-Obama-on-Release-of-OLC-Memos/.

²¹⁵ *Id.*

IV. COMPLEX ADAPTIVE SYSTEMS THEORY AND THE RISE OF THE DRONE

The foregoing discussion makes clear that it would be impossible to *prove* that the changes made to the complex adaptive systems of law and war *caused* an increase in the number of targeted killings. But, as one legal scholar has suggested, proof “is not the test to which the usefulness of complex adaptive systems theory should be put. Rather, it should suffice to show . . . that if we think of the law as a complex adaptive system, we are better at designing law as a system.”²¹⁶ This is especially true in the field of national security law, where “system design” is often a matter of life and death.

With that in mind, this Part seeks to demonstrate that targeted killing represents a form of self-organizing behavior that emerged as the complex adaptive systems of law and war adapted to the changes introduced into these systems as the government’s detention policies evolved. The purpose is not to express normative judgment about detention, interrogation, or even targeted killing, but rather to establish why it is important for policymakers, lawmakers, and judges to understand and consider the properties of the complex adaptive systems in which they operate, so that they may better appreciate the potential consequences of their decisions.

A. *Targeted Killing: A Primer*

As defined here, targeted killing is the “extra-judicial, premeditated killing by a state of a specifically identified person not in its custody.”²¹⁷ Though there are numerous mechanisms by which such operations might be carried out, the United States has largely pursued its recent targeted killing strategy with the use of armed drones.²¹⁸ To be sure, the United States has employed drones since the infancy of the war on terror; reports indicate, for instance, that on the very evening of the Afghanistan invasion, the United States used a Predator drone to reconnoiter Taliban leader Mullah Omar.²¹⁹ That said, commentators widely acknowledge that in recent years, the use of drones to carry out targeted killings has increased exponentially.²²⁰

²¹⁶ *Law’s Complexity*, *supra* note 16, at 901.

²¹⁷ Richard Murphy & Afsheen John Radsan, *Due Process and Targeted Killing of Terrorists*, 31 CARDOZO L. REV. 405, 406 (2009).

²¹⁸ See Rebecca Grant, *An Air War Like No Other*, AIR FORCE MAG., Nov. 2002, at 30, 34.

²¹⁹ See Seymour M. Hersh, *Seymour Hersh: King’s Ransom-How Vulnerable are the Saudi Royals?*, NEW YORKER, Oct. 22, 2001, at 35, 35.

²²⁰ See, e.g., Cooper & Landler, *supra* note 12, at A1; Bergen & Tiedemann, *supra*

Given this recent expansion, drone warfare largely has been associated with President Obama. Indeed, as one reporter explained, “no president has ever relied so extensively on the secret killing of individuals to advance the nation’s security goals.”²²¹ Yet, while it is certainly true that targeted killing via drones has increased significantly under the Obama Administration,²²² the escalation actually began in the summer of 2008 when—just *one month* after the *Boumediene* decision—President Bush issued an “order that dramatically expanded the scope of Predator drone strikes against militants”²²³ During the remainder of 2008, the number of drone attacks conducted in Pakistan alone “vastly exceed[ed] the number of strikes over the prior four years combined.”²²⁴

As noted, this escalation has continued under the Obama Administration. Reports indicate, for instance, that between 2009 and 2010, the number of drone strikes in Pakistan more than doubled—from 54 in 2009, to 122 in 2010.²²⁵ Although this number has since been in decline (73 such attacks took place in 2011, while 48 occurred in 2012), the current rate still significantly outpaces that

note 12 (“Obama, far from curtailing the drone program he inherited from President George W. Bush, has instead dramatically increased the number of U.S. Predator and Reaper drone strikes.”).

²²¹ Greg Miller, *Under Obama, an Emerging Global Apparatus for Drone Killing*, WASH. POST, Dec. 27, 2011, available at http://www.washingtonpost.com/national/national-security/under-obama-an-emerging-global-apparatus-for-drone-killing/2011/12/13/gIQANPdILP_story.html.

²²² See, e.g., Jane Mayer, *The Predator War: What Are the Risks of the C.I.A.’s Covert Drone Program?*, NEW YORKER, Oct. 26, 2009, at 36, 40.

²²³ Ken Dilanian, *Incoming House Intelligence Chairman Pushed for Drone Strikes*, L.A. TIMES, Dec. 20, 2010, available at <http://articles.latimes.com/2010/dec/20/nation/la-na-rogers-20101221>.

²²⁴ Robert Chesney, Examining the Evidence of a Detention-Drone Strike Tradeoff, LAWFARE (Oct. 17, 2011, 11:43 AM), <http://www.lawfareblog.com/2011/10/examining-the-evidence-of-a-detention-drone-strike-tradeoff/>. Chesney raises doubt in his post “that the number of drone strikes tells us much about a potential detention/targeting tradeoff” *Id.* His primary rationale is that “[m]ost if not all of the difference in drone strike rates can be accounted for by specific policy decisions relating to the quantity of drones available for these missions, [and] the locations in Pakistan where drones have been permitted to operate” *Id.* While this might explain the increased use of drones in Pakistan, it does not explain the expansion of the program in other geographic areas, nor does it explain the willingness of the President to target Americans. See *infra* notes 227–33. Chesney seems to acknowledge this, and suggests that areas outside Pakistan warrant greater scrutiny in terms of examining “killing versus capturing.” Chesney, *supra*.

²²⁵ *The Year of the Drone: An Analysis of U.S. Drone Strikes in Pakistan, 2004–2013*, NEW AMERICA FOUNDATION, <http://counterterrorism.newamerica.net/drones> (last visited Mar. 20, 2013).

seen pre-*Boumediene*.²²⁶ Beyond this quantitative increase in drone use during President Obama's tenure, there has also been an equally important qualitative expansion. In 2011, the *Wall Street Journal* reported that "[t]he U.S. military is deploying a new force of armed drones to eastern Africa in an escalation of its campaign to strike militant targets in the region and expand intelligence on extremists."²²⁷ This new arsenal is expected to support the recent trend of expanding the geographic scope of drone warfare farther away from America's ground wars.²²⁸ More strikingly, in September of 2011, government officials confirmed that a Hellfire missile launched from a CIA drone killed Anwar al-Awlaki in Yemen.²²⁹ While news of a targeted killing carried out in Yemen might have been noteworthy in itself,²³⁰ even more remarkable was the fact that al-Awlaki was a U.S. citizen.²³¹ The strike was thus evidence of another expansion in drone warfare, permitting attacks even against Americans who, though alleged to have been involved in terrorists operations, had not been afforded traditional due process protections.²³²

To be sure, there are a number of possible explanations for this expanded use of drones to carry out targeted killings. First, in recent years, drones undoubtedly have become more sophisticated in terms of their capabilities. This is especially true as pertaining to their payload capacity and target recognition features.²³³ The burgeoning

²²⁶ See *id.*

²²⁷ Julian E. Barnes, *U.S. Expands Drone Flights to Take Aim at East Africa*, WALL ST. J., Sept. 21, 2011, available at <http://online.wsj.com/article/SB10001424053111904106704576583012923076634.html>.

²²⁸ See, e.g., Mark Mazzetti & Eric Schmitt, *U.S. Expands Its Drone War Into Somalia*, N.Y. TIMES, July 2, 2011, at A1 (reporting the increased use of drones not only in Somalia, but also in Yemen).

²²⁹ See Mark Mazzetti et al., *C.I.A. Strike Kills U.S.-Born Militant in a Car in Yemen*, N.Y. TIMES, Oct. 1, 2011, at A1.

²³⁰ But see James Risen, *Man Believed Slain in Yemen Tied by U.S. to Buffalo Cell*, N.Y. TIMES, Nov. 9, 2002, at A17 (noting the first publicly-disclosed drone attack in Yemen, which occurred in 2002).

²³¹ See Scott Shane, *Born in U.S., a Radical Cleric Inspires Terror*, N.Y. TIMES, Nov. 19, 2009, at A1.

²³² See Charlie Savage, *Secret U.S. Memo Made Legal Case to Kill a Citizen*, N.Y. TIMES, Oct. 9, 2011, at A1. The government has argued that al-Awlaki's killing complied "with domestic and international law" because he was "engaged in terrorist activity outside this country." John B. Bellinger, III, *Will Drone Strikes Become Obama's Guantanamo?*, WASH. POST, Oct. 2, 2011, available at http://www.washingtonpost.com/opinions/will-drone-strikes-become-obamas-guantanamo/2011/09/30/gIQA0ReIGL_story.html. Nevertheless, "[s]ome human rights groups have asserted that due process requires prior judicial review before killing an American . . ."). *Id.*

²³³ See Andrew Callum, *Drone Wars: Armed Unmanned Aerial Vehicles*, INT'L AFF. REV., Feb. 21, 2010, available at <http://www.iar-gwu.org/node/144> (discussing advances in

use of drones also may have been triggered by the withdrawal of ground troops from areas where targeted killing has more recently been pursued.²³⁴ In that vein, some have intimated that the rise in drone use is a factor of the growing hesitancy to place American troops in harm's way on a battlefield.²³⁵ Finally, some have suggested that drone use is more prevalent now because, as a tactical strategy, targeted killing is simply more effective in the asymmetrical, global war on terror.²³⁶

While these explanations are certainly plausible, even granting that these factors have contributed to the rise in drone use does not exclude the possibility that the strategy actually constitutes a form of self-organization emerging from the complex properties inherent within the systems of law and war. Indeed, while not using this language, many commentators are beginning to acknowledge the correlation between the expanded use of drones and the fact that the executive no longer has a comprehensive detention strategy.²³⁷ As one senior military official has stated, “[w]hen you don’t have a detention policy,” operational tactics have to change.²³⁸ Indeed, the fact is that since the Supreme Court decided *Boumediene* in 2008, there have been few reports of the United States capturing high-value targets.²³⁹ This reality may well indicate that efforts to grant detainees more rights have instead instigated an unforeseen and unintended shift away from capture and toward targeted killing.

the armaments and optics of drones).

²³⁴ See Mayer, *supra* note 222, at 38. This argument is belied, though, by the fact that many drone attacks take place in Pakistan, a place not known to have U.S. ground troops. See Bergen & Tiedemann, *supra* note 12. *But see* Chesney, *supra* note 224.

²³⁵ See KENNETH M. KNISKERN, MAJOR, U.S. AIR FORCE, AIR COMMAND AND STAFF COLLEGE, THE NEED FOR A USAF UAV CENTER OF EXCELLENCE 3 (2006), available at <https://research.au.af.mil/papers/ay2006/acsc/kniskern.pdf>.

²³⁶ See Chesney, *supra* note 224. Chesney argues, for instance, that drone use in Pakistan is necessitated by the fact that American troops cannot be placed on the ground there.

²³⁷ DeYoung & Warrick, *supra* note 13, at A01.

²³⁸ *Id.*; see also David S. Cloud & Julian E. Barnes, *U.S. May Expand Use of Its Prison in Afghanistan*, L.A. TIMES, Mar. 21, 2010, available at <http://articles.latimes.com/2010/mar/21/world/la-fg-afghan-prison21-2010mar21> (“In one case last year, U.S. special operations forces killed an Al Qaeda-linked suspect . . . in southern Somalia rather than trying to capture him, a U.S. official said. Officials had debated trying to take him alive but decided against doing so in part because of uncertainty over where to hold him, the official added.”).

²³⁹ See DeYoung & Warrick, *supra* note 13, at A01.

*B. Complexity, Adaptability, Self-Organization, and Unpredictability:
Like Squeezing Jell-O*

In 2009, former OLC director Jack Goldsmith discussed the growing “shell game” taking place regarding war on terror detentions and explained that, when one military tactic becomes unavailable, other strategies emerge to take its place²⁴⁰:

Demands to raise legal standards for terrorist suspects in one arena often lead to compensating tactics in another arena that leave suspects (and, sometimes, innocent civilians) worse off. . . . [C]losing Guantanamo or bringing American justice there does not end the problem of terrorist detention. It simply causes the government to address the problem in different ways. A little-noticed consequence of elevating standards at Guantanamo is that the government has sent very few terrorist suspects there in recent years. . . . [T]he Bush and Obama administrations have relied more on other tactics. . . . [T]hey have increasingly employed targeted killings, a tactic that eliminates the need to interrogate or incarcerate terrorists but at the cost of killing or maiming suspected terrorists and innocent civilians alike without notice or due process.²⁴¹

Using language strikingly reminiscent of terminology employed by complex adaptive systems theorists, one legal scholar, Kenneth Anderson, said of Goldsmith’s commentary that “[o]ne way you might look at this is that there is a sort-of national security constant that remains in equilibrium over time, using one tactic or another, gradually evolving but representing over time a reversion to the national security mean.”²⁴² More colloquially, Anderson suggested “that national security, seen over time, looks like squeezing [Jell-O]—if squeezed one place it pops out another.”²⁴³ Complex adaptive systems theory provides a model for explaining how and why this process occurs.

²⁴⁰ Jack Goldsmith, *The Shell Game on Detainees and Interrogations*, WASH. POST, May 31, 2009, available at <http://www.washingtonpost.com/wp-dyn/content/article/2009/05/29/AR2009052902989.html?hpid=opinionsbox1>.

²⁴¹ *Id.*; see also Michael B. Mukasey, *Jose Padilla Makes Bad Law*, WALL ST. J., Aug. 22, 2007, at A15 (“[O]ne unintended outcome of a Supreme Court ruling exercising jurisdiction over Guantanamo detainees may be that, in the future, capture of terrorism suspects will be foregone in favor of killing them.”).

²⁴² Kenneth Anderson, *Security Issues Like Squeezing Jello? Reversion to the Mean? Jack Goldsmith on the Effects of Security Alternatives*, OPINIO JURIS (May 31, 2009), <http://opiniojuris.org/2009/05/31/security-issues-like-squeezing-jello-reversion-to-the-mean-jack-goldsmith-on-the-effects-of-security-alternatives/>.

²⁴³ *Id.*

Throughout the war on terror, national security law has exhibited many properties of a complex adaptive system. For example, as outlined above, the various interdependent agents that were involved in shaping the government's detention policies—namely, the Executive Branch, Congress, and the Supreme Court—created part of the complexity inherent within the system. Not only did these agents constitute dynamic systems themselves, as significantly, they each had important nested subsystems, such as OLC, individual pieces of legislation, and the ideological positions of each particular Supreme Court justice. As U.S. detention policy developed, these components of the legal system interacted not only with each other, but also with interdependent external systems like the American public and the military troops who were actually prosecuting the war.

As this interaction took place, and as the war effort progressed, the legal system's internal agents each learned from one another, as well as from the events occurring around them. This led to a process whereby the legal system as a whole evolved, but also whereby each agent within the system was forced to “react to what law [was] doing *to them*.”²⁴⁴ Moreover, as alluded to above, because the components of the legal system are humans, and therefore possess the ability to “steer” the system, they were able during the war on terror to “devise ways to influence [other] actors in the legal system.”²⁴⁵

The complex and adaptive properties inherent within the systems of war and law were perhaps most starkly evident in the behavior these systems exhibited as the Supreme Court adjudicated the habeas cases. With its *Hamdi* decision, for example, the Court signaled to the executive that it would be required to take a more deliberative approach to detainee issues than it had theretofore pursued.²⁴⁶ In particular, *Hamdi* explained that “although Congress authorized the detention of combatants . . . due process demands that a citizen . . . held as an enemy combatant be given a meaningful opportunity to contest the factual basis for that detention.”²⁴⁷ Though many observers viewed the Court's “input” as significant,²⁴⁸

²⁴⁴ J.B. Ruhl, *Is the Law a Complex Adaptive System?: The Simply Complex Law*, JURISDYNAMICS (July 25, 2006), <http://jurisdynamics.blogspot.com/2006/07/is-law-complex-adaptive-system.html> (emphasis added).

²⁴⁵ *Id.*

²⁴⁶ *Hamdi v. Rumsfeld*, 542 U.S. 507 (2004). Indeed, the Court had explicitly stated that “a state of war is not a blank check.” *Id.* at 536.

²⁴⁷ *Id.* at 509.

²⁴⁸ See, e.g., Erwin Chemerinsky, *Enemy Combatants and Separation of Powers*, 1 J. NAT'L SECURITY L. & POL'Y 73, 73 (2005) (explaining that, in *Hamdi* and *Rasul*, “the

and therefore expected a linearly momentous effect, the Court's opinion actually caused only a small change in "outcome." More specifically, the executive adapted to the Court's input by issuing a directive establishing the Combatant Status Review Tribunals (CSRTs), which provided only minimal additional protections to detainees.²⁴⁹

Likewise, "[a]t the urging of President Bush, Congress responded to the Court's *Rasul* decision by passing the . . . DTA, which repealed the habeas statute for Guantanamo detainees and stripped federal courts of jurisdiction to hear habeas cases."²⁵⁰ This activity on the part of the government's political branches represented not only an adaptation to the *Rasul* opinion, but also an effort by those agents to cause the Court, in turn, to adapt. Again, while the executive and legislature might have thought this would have the significant effect of keeping the Court out of further detention-related issues, the Court instead responded unexpectedly. In particular, in *Hamdan*, the Supreme Court held that the DTA did not apply to cases like the one before it, which had been pending when the law was enacted.²⁵¹ The Court injected further dynamism into the system by holding that the military commissions created under President Bush's direction did not provide adequate process to those being tried for war crimes.²⁵²

Again, the political branches adapted by enacting legislation, this time in the form of the Military Commissions Act (MCA). The MCA, which purported to authorize the tribunals established by President Bush, "was a direct response to *Hamdan's* holding."²⁵³ Unlike the DTA, however, the enactment of the MCA seemed especially sound, given feedback provided in *Hamdan* that "[n]othing prevent[ed] the President from returning to Congress to seek the authority he believes necessary."²⁵⁴ Though President Bush had done just that in requesting enactment of the DTA, the *Boumediene* Court

Supreme Court emphatically upheld the rule of law and the right of those being detained as part of the war on terrorism to have access to the courts"); Fred Barbash, *Supreme Court Backs Civil Liberties in Terror Cases*, WASH. POST, June 28, 2004, available at <http://www.washingtonpost.com/wp-dyn/articles/A11657-2004Jun28.html>.

²⁴⁹ See *supra* note 181.

²⁵⁰ ALLIANCE FOR JUSTICE, "RESTORING HABEAS CORPUS: AN ANALYSIS OF *BOUMEDIENE V. BUSH*," available at <http://www.afj.org/assets/resources/cases/boumediene-analysis.pdf> (emphasis removed).

²⁵¹ *Hamdan v. Rumsfeld*, 548 U.S. 557, 583–84 (2006).

²⁵² *Id.* at 634.

²⁵³ See *Boumediene v. Bush*, 553 U.S. 723, 738 (2008).

²⁵⁴ *Hamdan*, 548 U.S. at 636 (Breyer, J., concurring).

nevertheless would once again reject executive and congressional attempts to deal with detainee issues.

The *Boumediene* decision arguably provides the starkest evidence that detainee policies were being created within a complex adaptive system. This is seen most prominently in the Court's explicit recognition of the feedback loops and evolution taking place within the system. It acknowledged, for instance, "the litigation history that prompted Congress to enact the MCA."²⁵⁵ *Boumediene* recognized, in other words, that enactment of the MCA had been an adaptive behavior on Congress's part to the system input previously provided in *Hamdan*. Moreover, *Boumediene* also highlighted the Court's view that there were benefits to be had in "facilitat[ing] a dialogue between Congress and the Court," and it stressed that "ongoing dialogue between and among the branches of Government is to be respected."²⁵⁶ For all these indications that the process was to be collaborative, however, the *Boumediene* opinion represented yet another defeat for the political branches in their effort to establish policies to govern war on terror detentions.

In light of the perception that the Supreme Court continually "threw up barriers to . . . detention policies,"²⁵⁷ the shift in strategy to targeted killing may be seen as a form of self-organizing behavior within the complex adaptive system of national security law. This assertion is supported by the fact, as other scholars have noted, that the agents within the systems likely realized that the Court evidently was willing to operate only "at the margins of the United States's War on Terror policy."²⁵⁸ In other words, despite the legal issues implicated by other war on terror practices—particularly the government's interrogation techniques—the Supreme Court limited its intervention "to cases arising from physical detention of terrorist suspects in the absence of judicial trial."²⁵⁹ Because this signaled to the executive that the Court was unlikely to assert authority to hear cases seeking to "redress the deprivations of liberty and property" occurring in areas in close proximity to actual battlefields,²⁶⁰ the system arguably moved toward the order implicitly associated with engaging in targeted killing. Or, "[t]o put the point more vividly, the government [learned that it] could have shot, bombed, or killed any

²⁵⁵ *Boumediene*, 553 U.S. at 738.

²⁵⁶ *Id.*

²⁵⁷ Sherman, *supra* note 126, at 208.

²⁵⁸ Fallon, *supra* note 171, at 367.

²⁵⁹ *Id.*

²⁶⁰ *Id.* at 368.

or all of the Guantanamo detainees whose cases appeared to present the most urgent justiciable issues arising from the War on Terror without confronting any judicially enforceable restraints.”²⁶¹

Similarly, targeted killing also may have emerged as a means of self-organization in conjunction with the rejection of enhanced interrogation techniques. Though, as noted above, most observers would classify the tactics pursued under President Bush as torture, some argue that the Obama Administration has gone to the other extreme—instating interrogation policies that have totally neutered the process of any effectiveness.²⁶² Under President Obama, personnel within the Justice Department have reported, for example, that interrogators have “pulled in [their] claws” because they are “not going to defend [themselves] in terms of using interrogation techniques to acquire intelligence information that goes beyond [what President Obama has authorized], even though the law would permit it.”²⁶³ Although “dead terrorists tell no tales,”²⁶⁴ some argue that the rise in targeted killing has emerged in the midst of an already declining utility in interrogation.²⁶⁵ Further, the debacle surrounding the government’s use of enhanced interrogation techniques has created a situation whereby

the disincentive to capture and instead kill by standoff missile strike . . . [is] reinforced by the strong desire—not just at the national policy level but also by midlevel people intensely concerned for down-the-road, backward-looking changes in the rules on . . . interrogation . . . that might burn them later on—not to hold anyone if at all possible.²⁶⁶

In other words, based on the view that it is better to kill than torture, the system’s agents perhaps have maladapted toward a preference for targeted killing.

Though in discussing these issues commentators have not described the increase in targeted killings as a form of self-organizing behavior per se, they at least conceptually have recognized that the practice has emerged as a means of achieving order within the complex system of national security law. One scholar has suggested,

²⁶¹ *Id.*

²⁶² See, e.g., MARC A. THIESSEN, *COURTING DISASTER: HOW THE CIA KEPT AMERICA SAFE AND HOW BARACK OBAMA IS INVITING THE NEXT ATTACK* 209 (2010).

²⁶³ *Id.*

²⁶⁴ Marc A. Thiessen, *Dead Terrorists Tell No Tales*, FOR. POL’Y, Feb. 8, 2010, available at http://www.foreignpolicy.com/articles/2010/02/08/dead_terrorists_tell_no_tales?page=0,0.

²⁶⁵ *Id.*

²⁶⁶ Anderson, *supra* note 242.

for example, that the Obama “[A]dministration’s opposition to Guantánamo and to enhanced interrogation has led it to see even more clearly the convenience of taking the fight to the enemies’ homes and hideouts and killing them before they come within the purview of the U.S. justice system.”²⁶⁷ In this way, the expansion of the drone program has resulted from what has been called a “‘balloon effect’ in national security law,” which is to say that it has emerged “as the result of squeezing out what many experts . . . regard as effective wartime domestic policies, such as those permitting detention at Guantánamo and enhanced interrogation techniques.”²⁶⁸

Whether this behavior is described with the imagery of squeezing a balloon or squeezing Jell-O, the reality may be that these adaptations toward equilibrium within the realm of national security are representative of the property of self-organization that is inherent in all complex adaptive systems. To the extent this is true, as Professor Anderson alluded to, targeted killing may simply have “popped out” as a result of the “squeeze” being placed on the government’s detention policies.²⁶⁹ Stated differently, the increase in targeted killing via drones arguably has emerged as an unintended consequence of efforts to grant detainees greater rights.

Of course while this might suggest that humans have no control over system behaviors, it is worth repeating that humans *can* influence system outcomes. This, however, evidently is not what has happened with targeted killing, as “senior administration officials say that no policy determination has been made to emphasize kills over captures.”²⁷⁰ Rather, the expanded use of drones seems to have occurred without the deliberative decision-making process one would hope to see as the United States engages in such practices. In other words, the rise of the drone, and the government’s emphasis on targeted killing, perhaps is simply an archetypical example of the law of unintended consequences wreaking havoc on the co-evolving complex adaptive systems of war and law.

C. *The Implications of Thinking of War & Law as Co-Evolving Complex Adaptive Systems*

One of the primary objections to importing complex adaptive systems theory into legal studies seems to be that, because the theory accepts that the legal system is chaotic and unpredictable, its

²⁶⁷ Ofek, *supra* note 13, at 37.

²⁶⁸ *Id.* at 44.

²⁶⁹ See *supra* note 243 and accompanying text.

²⁷⁰ DeYoung & Warrick, *supra* note 13, at A01.

application necessarily fails to explain how to prevent unintended consequences like the rise in targeted killing.²⁷¹ This critique is certainly not without merit, as acknowledging that the law is a complex adaptive system does indeed require coming to terms with the fact that it is plagued with relentless uncertainty. However, “in social systems, change very often is the specific intent of human intervention, in which case knowing how the system responds to change should be an important factor in the design of the instrument of change.”²⁷²

As the foregoing discussion makes clear, the changes made to the government’s detention policies plainly were the result of human intervention. The failure to consider how the complex systems of war and law operate, however, perhaps led to results antithetical to the desired outcome of providing greater protections to alleged terrorists detained by the U.S. government. This is not meant to suggest that future intervention should consequently be avoided, but rather to demonstrate that “[t]he great lesson of [complex] systems theory for law reform . . . is that it is the *system* that counts as much as the *rules*, and that we cannot effectively change only one variable of that equation and expect the others to remain static.”²⁷³

This reality has found particular salience in the context of environmental law, where efforts at legal reform in the 1970s “produced puzzling outcomes.”²⁷⁴ In particular, though the Clean Water Act (CWA) and Clean Air Act (CAA) reduced “end-of-pipe” pollutants, regulators later learned “that what was no longer coming out the pipes was going into the ground instead.”²⁷⁵ The problem was that while “[t]he CWA and CAA made sense for the discrete issues they were designed to solve, . . . their rigid, single focus approach did not anticipate the emergence of lax land disposal practices in response.”²⁷⁶

Similarly, those who have sought to provide greater protections to alleged terrorists have typically focused their efforts on discrete issues such as closing Guantánamo Bay, pressing for detainee access to Article III courts, and ending the practice of enhanced interrogation techniques. Complex adaptive systems theory suggests,

²⁷¹ See *Thinking of Environmental Law as a Complex Adaptive System*, *supra* note 47, at 1001.

²⁷² *Law’s Complexity*, *supra* note 16, at 901.

²⁷³ *Complexity Theory as a Paradigm*, *supra* note 14, at 916.

²⁷⁴ *Id.* at 882.

²⁷⁵ *Id.* at 882–83.

²⁷⁶ *Id.* at 883.

however, that if the ultimate goal is to protect the civil liberties of alleged terrorists, these strategies are likely to fail, insofar as they are executed with the expectation that other system variables will remain static. While accurately predicting and responding to potential consequences that may flow from these changes is not entirely possible given the complex properties of the systems that are involved, the mere recognition that such a process is necessary makes it far more likely that desired outcomes will be reached.

V. CONCLUSION

While the U.S. government was cleansing the “embarrassing stain” created by its detention policies,²⁷⁷ few took note that U.S. drone strikes were simultaneously killing “twice as many suspected al-Qaeda and Taliban members [as] were ever imprisoned in Guantanamo Bay.”²⁷⁸ Among those who have noticed this trend, there is growing sentiment that targeted killing is even more pernicious than torture, and that it has become “Obama’s Guantanamo.”²⁷⁹ Though these arguments are worthy of further debate, this Article demonstrates the importance to that debate of properly understanding the environment from which national security policy emerges.

Targeted killing did not simply emerge *ex nihilo* as a preferred strategy by which to prosecute the war on terror. Rather, when law and war are analyzed through the lens of complex adaptive systems theory, an argument emerges that the government’s drone program is instead a form of unanticipated self-organization arrived at as a result of continuous adaptation to various inputs injected into these systems. Stated differently, it may well be that the government’s expanded use of drones arose as an unexpected and unintended consequence of prior efforts to grant detainees greater civil liberties.

To the degree that complex adaptive systems theory does in fact

²⁷⁷ Not everyone agrees that the “stain” has or should be cleansed. See Charlie Savage & Matthew Rosenberg, *Republican Report Criticizes Transfers from Guantánamo*, N.Y. TIMES, Feb. 9, 2012, at A10 (reporting criticism of President Obama’s efforts to transfer detainees from Guantánamo, based on the argument many have returned to fight against the United States). See also Mark Denbeaux et al., *National Security Deserves Better: “Odd” Recidivism Numbers Undermine the Guantánamo Policy Debate*, 43 SETON HALL L. REV. 643 (2013) (reporting on Guantánamo recidivists and their influence on the underlying policy debate).

²⁷⁸ Bellinger, III, *supra* note 232.

²⁷⁹ See, e.g., *id.*; Mary Ellen O’Connell, *Why Obama’s ‘Targeted Killing’ is Worse than Bush’s Torture*, THE GUARDIAN, Jan. 20, 2012, available at <http://www.guardian.co.uk/commentisfree/cifamerica/2012/jan/20/why-obama-targeted-killing-is-like-bush-torture>.

help to explain the rise of the government's drone program, the theory serves as more than a retrospective analytical tool. More importantly, though it will always be impossible to accurately predict with complete precision the result of intervention into a complex system, the mere recognition that the systems in which they operate *are* complex will undoubtedly aid policymakers, lawmakers and judges in appreciating the potential consequences of their decision-making processes.