

More Than a Game: How Computer Gaming Results Can Improve Interagency Cooperation

A Monograph

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Abstract

More Than a Game: How Computer Gaming Results Can Improve Interagency Cooperation, by Mr. Calvin W. Lockhart II, 41 pages.

Since the inception of the National Security Council in 1947, the United States has struggled with consistently integrating the diplomatic, informational, military, and economic instruments of national power in planning and executing a whole-of-government approach to military challenges. As the world continues to be more complex, dynamic, and competitive, the United States military recognizes the necessity of integrating global operational and contingency planning across the combatant commands, the joint force, and interagency partners. Interagency cooperation will be fundamental for successful global campaign planning and execution. This monograph hypothesizes that interagency cooperation can be improved at the agent-based (individual) level by applying the winning concepts from the Prisoner's Dilemma and the Game of Chicken constructs. These concepts derive from Robert Axelrod's and Thomas Schelling's findings scoped down to four basic facets of cooperation: conditional benevolence, proportionate reprisal, empathetic leniency, and deliberate transparency. The case studies in this monograph will explore the winning phenomena further and demonstrate their interactions and application between belligerents in real-world occurrences. The first case study will explore the Prisoner's Dilemma construct seen during trench warfare in World War I through the cooperation phenomenon of "live and let live." The second case study examines the Cuban Missile Crisis through the Game of Chicken between two national leaders—United States President John F. Kennedy and the Soviet Premiere Nikita Khrushchev. The monograph concludes with recommendations for interagency cooperation at the individual level aligned with the four winning cooperation principles of conditional benevolence, proportionate reprisal, empathetic leniency, and deliberate transparency.

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Abbreviations

ADP	Army Doctrine Publication
CJCS	Chairman of the Joint Chiefs of Staff
CPA	Coalition Provisional Authority
CSIS	Center for Strategic and International Studies
DIA	Defense Intelligence Agency
DOD	Department of Defense
GNA	Goldwater-Nichols Act
JCIC	Joint Concept for Integrated Campaigning
JJIM	Joint, Interagency, Intergovernmental, and Multinational
JP	Joint Publication
NATO	North Atlantic Treaty Organization
NSAA	National Security Act Amendment
NSC	National Security Council
POTUS	President of the United States of America
US	United States
USSR	Union of Soviet Socialist Republics
VCJCS	Vice Chairman of the Joint Chiefs of Staff

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Introduction

The [Joint Concept for Integrated Campaigning] was developed in coordination with the joint staff, services, combatant commands, and multinational and interagency partners. Active participation of each of these stakeholders will be essential to the success of future campaigns.

— General Paul Selva, 10th Vice Chairman of the Joint Chiefs of Staff

Since the inception of the National Security Council in 1947, the United States has struggled with consistently integrating the instruments of national power in planning and executing a whole-of-government approach to military challenges. As the world has become more complex, dynamic, and competitive, the United States military recognizes the need to integrate global operational and contingency planning across the combatant commands, the joint force, and interagency partners.

In March 2018, General Paul Selva, then Vice Chairman of the Joint Chiefs of Staff (VCJCS), issued the *Joint Concept for Integrated Campaigning* (JCIC). Early in the concept document, the vice chairman emphasizes the importance of interagency cooperation. Vice Chairman Selva stated, “The JCIC advocates better alignment of military and non-military activities. Accordingly, it was developed in coordination with the joint staff, services, combatant commands, and multinational and interagency partners. The active participation of each of these stakeholders will be essential to the success of future campaigns.”¹ While the concept of interagency cooperation is not new, the vice chairman’s statement echoes its contemporary relevance and intimates at an underlying frustration and difficulty in achieving consistent and mutually advantageous interagency cooperation.

The aim of this paper is to explore how interagency cooperation can be promoted and thrive in a complex, competitive, and bureaucratic environment with the purpose of executing US grand strategy across the whole of government. This monograph proposes that altruistic parity at

¹ US Department of Defense, Joint Chiefs of Staff, *Joint Concept for Integrated Campaigning* (Washington, DC: Government Printing Office, 2018), iii.

the agent-based (individual) level will improve interagency cooperation in support of the JCIC. The more commonly known biological reciprocal altruism exists where “behavior that benefits another organism...[is] detrimental to the organism performing the behavior.”² Robert Axelrod, a leading expert in game theory, states that a combination of altruism and beneficial reciprocity “...actually helps not only oneself, but others as well.”³ Aligned with Axelrod, altruistic parity in this paper is a mutually beneficial balance in a relationship between two actors engaged in an iterative exchange for a greater good to themselves but also to a larger organization and purpose. An established altruistic relationship also resists manipulation from non-cooperative actors. Axelrod goes on to write, “[Beneficial reciprocity] helps others by making it hard for exploitative strategies to survive.”⁴

John Gaddis postulates that people who aspire to contemplate and more deeply comprehend a phenomenon “...all depend on metaphor, on the recognition of patterns, on the realization that something is ‘like’ something else.”⁵ This monograph pursues an existing phenomenon in an alternate discipline to apply “like” concepts in developing a conceptual framework for interagency cooperation. The Prisoner’s Dilemma and the Game of Chicken, two classic game theory constructs, will provide the foundation for demonstrating cooperation between two agent-based actors. The monograph will synthesize Axelrod’s winning concepts derived from computer tournaments and Schelling’s findings of conflict deterrence and mitigation in two case studies to provide normative analysis for interactions of agent-based individuals in a complex, competitive, and bureaucratic system.

² Robert Trivers, “The Evolution of Reciprocal Altruism,” *The Quarterly Review of Biology* 46, no. 1 (March, 1971): 35.

³ Robert Axelrod, *The Evolution of Cooperation* (New York: Basic Books, 2006), 137.

⁴ Ibid.

⁵ John Gaddis, *Landscape of History: How Historians Map the Past* (New York, NY: Oxford University Press, 2004), 2.

The Foundations of Agent-based Actors and Cooperation

In 1971, Thomas Schelling discussed agent-based model concepts in his paper *Dynamic Models of Segregation*. While not explicitly termed, Schelling explored the phenomenon of segregation by agent-based actors. Schelling used linear and two-dimensional models to demonstrate interactions and choices by individuals that resulted in emergent patterns.⁶ This monograph adopts Schelling's construct and defines an agent-based actor as an individual interacting in a complex and competitive system where patterns of cooperation and defection occur.

In his book, *The Evolution of Cooperation*, Robert Axelrod proposes a theory that unforced agent-based cooperation is possible.⁷ He tested his theory by conducting computer tournaments to determine the best strategy in responding to the classic Prisoner's Dilemma (a decision paradox conducted between two individuals generally with self-seeking results). Axelrod's cooperation theories have expanded into other disciplines, including computer science, evolutionary biology, and political science. Axelrod's game theory concluded that the winning strategy "tit-for-tat" was successful because it was nice, retaliatory, forgiving, and clear.⁸ Thomas Schelling, author of *Arms and Influence*, explores the phenomenon of diplomacy and force, primarily the "relation between adversaries—in the interplay of motives and the role of communication, understandings, compromise, and restraint" play in diplomacy, deterrence, and compellence.⁹ Analysis of Schelling's findings reveal that participants in the Game of Chicken display a mutual intentionality to play, an empathetic basis of engagement, and an anticipation of future actions both in the end, and deep down, seeking cooperation over deadly conflict.¹⁰

⁶ Thomas Schelling, "Dynamic Models of Segregation," *Journal of Mathematical Sociology* 1 (1971): 143.

⁷ Axelrod, *The Evolution of Cooperation*, 6.

⁸ *Ibid.*, 54.

⁹ Thomas Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 2008), 1.

¹⁰ *Ibid.*, 118-119.

This monograph scopes Axelrod's and Schelling's findings into four basic aspects of cooperation: conditional benevolence, proportionate reprisal, empathetic leniency, and deliberate transparency. The case studies in this monograph will explore these concepts further and demonstrate their interactions and application in real-world occurrences.

Conditional benevolence seeks to demonstrate a strategy of not being the first to execute a negative action against another actor. It seeks the general goodwill of the opposing actor for the betterment of itself and the larger system. Conditional benevolence does not mean reckless abandon to grievances from another agent-based actor—it has a limit to its niceness.

Proportionate reprisal is the prescribed response in kind to such a negative action. The reprisal seeks to provide a *lex talionis* (an eye for an eye or tooth for a tooth) reply to correct a wrong and deter future defections. Empathetic leniency allows for an offense understanding that errors in judgment or actions occur because an agent-based actor is imperfect and itself makes mistakes so is shrewdly tolerant of others—again, to a degree. The actor empathizes with the other actor because it is experiencing or has experienced the same emotions, understandings, and conflict. An actor will need to balance these three based on the context of the situation, which also requires clear communication. Deliberate transparency seeks to communicate effectively through words and deeds. An agent-based actor is cognizant that simple, clear rules and expectations are required for productive interactions with other actors.

This monograph will evaluate these concepts in two case studies. The first case study will examine trench warfare during World War I by exploring the phenomenon of live and let live. The second case study will examine the Cuban Missile Crisis with iterative engagements of cooperation and the interaction between US President John F. Kennedy and Soviet Union Premiere Nikita Khrushchev.

A History of the National Security Council and Interagency Cooperation

The mechanics, authorities, funding, and enforcing mechanisms, or lack thereof, for interagency cooperation are beyond the scope of this monograph. Authors, think tanks, and policymakers have written a plethora of books, journal articles, forums, and held conferences on the foundations for those aspects of interagency cooperation. This section of the monograph will cover the joint key terms and concepts, a basic history and details of the National Security Council (NSC), and writings on aspects of personality-driven interagency cooperation.

Joint Publication (JP) 3-08 *Interorganizational Cooperation* is a key document establishing joint doctrine and guidance for interorganizational cooperation, highlighting roles and relationships of relevant organizations, and explaining authorities and appropriations in support of interagency cooperation. This monograph will use the concepts of “interagency” and “interorganizational” interchangeably; however, there is a distinction between cooperation and coordination. Coordination is the means of synchronizing efforts of a larger, complex enterprise involving more formal parameters and processes, potentially including authorities and agreements. JP 3-08 defines coordination as, “the process of organizing a complex enterprise in which numerous organizations are involved, and bringing their contributions together to form a coherent or efficient whole.”¹¹ Cooperation, on the other hand, is more illustrative of direct interactions between individuals and organizations to fulfill a common identified purpose and benefit. JP 3-08 defines cooperation as:

The process of acting together for a common purpose or mutual benefit. It involves working in harmony, side by side and implies an association between organizations. It is the alternative to working separately in competition. Cooperation with other departments and agencies does not require giving up authority, autonomy, or becoming subordinated to the direction of others.¹²

¹¹ US Department of Defense, Joint Staff, Joint Publication (JP) 3-08, *Interorganizational Cooperation* (Washington, DC: Government Printing Office, 2016), I-11.

¹² *Ibid.*

Consequently, cooperation is less restrictive and more conducive to iterative engagements at the agent-based actor level. This monograph will use the concept of cooperation because it lends significantly to complexity science game theory constructs with agent-to-agent interaction and aligns with implications for the Prisoner's Dilemma and Game of Chicken methodologies.

JP 3-08 also iterates the importance of interpersonal relationships. It states, "successful interagency cooperation depends on the ability of [Joint Force Commanders], the [Chief of Mission] or the ambassador, the [Chairman of the Joint Chiefs of Staff], and the secretaries or directors of [US Government] departments and agencies to personally work together."¹³ Agent-based actors, at all levels within interagency organizations, must develop and sustain these connections for interagency cooperation to be successful. The NSC is meant to be the exemplar for interagency cooperation in support of the President's national security and foreign policy agenda.

According to the White House NSC website, the NSC is the "principal forum for considering national security and foreign policy matters with [the President's] senior national security advisors and cabinet officials...advising and assisting the President on national security and foreign policies...coordinating these policies among various government agencies."¹⁴ Robert Worley, author of *Orchestrating the Instruments of National Power* details the creation, history, and evolution of the NSC. He expounds on the role and scope of the NSC when he says the NSC system is "principally involved in policy formulation" and is best characterized as a "decision support system for presidential decision making."¹⁵ While the current NSC primarily plays an

¹³ US Joint Staff, JP 3-08, (2016), I-12.

¹⁴ The White House, "The National Security Council," accessed November 3, 2019, <https://www.whitehouse.gov/nsc/>.

¹⁵ Robert Worley, *Orchestrating the Instruments of National Power: A Critical Examination of the U.S. National Security System* (Lincoln, NE: University of Nebraska Press, 2015), 298.

advisory role to the President of the United States (POTUS), each POTUS and Congress has developed and evolved the role and scope over the years.

From its inception in 1947 through 1986, the NSC has gone through several reforms. In 1949, the National Security Act Amendment (NSAA) renamed the central military component to the Department of Defense (DoD) and authorized a chairman for the Joint Chiefs of Staff (JCS).¹⁶ The 1953 reform transferred responsibilities of the independent joint boards to the DoD. The DoD Reorganization Act of 1958 replaced the temporary staff with a full-time, permanent staff. The pinnacle of NSC reform came through the Goldwater-Nichols Act (GNA) of 1986. The GNA sought to force cooperation across military services. The GNA designated the CJCS as the principal military advisor to the POTUS and implemented joint service requirements for general and flag officers.¹⁷ While these reforms did further the role and function of the DoD, they did not inherently improve sustained and comprehensive interagency cooperation or create authorities and enforcing mechanisms for promoting broader interagency cooperation in support of the military instrument of national power.

The NSC is not a perfect system. Like any government agency consisting of competing ideologies, agendas, and divisions of labor, the NSC has room to improve and must evolve in a complex, dynamic, and competitive world. Worley and others elude to a need for a Goldwater-Nichols for the interagency.¹⁸ Over the years, politicians, think tanks, scholars, and consultants have all proposed solutions for reforming, reorganizing, or restructuring the NSC. Worley proposed various reforms, including the creation of a superagency giving “the NSC directive

¹⁶ Worley, *Orchestrating the Instruments of National Power*, 302.

¹⁷ Mark Cancian, “Goldwater-Nichols 2.0” *Center for Strategic and International Studies*, accessed November 21, 2019, <https://www.csis.org/analysis/goldwater-nichols-20>; Clark Murdock and Richard Weitz, “Beyond Goldwater-Nichols: New Proposals for Defense Reform,” *Joint Forces Quarterly* 38, no. 3 (April 2005): 34-41, accessed November 21, 2019, <https://pdfs.semanticscholar.org/d580/d98e54123425c5b5d663b3bc2aae3661251f.pdf>.

¹⁸ Worley, *Orchestrating the Instruments of National Power*, 303; Sean Roche, “Is it Time for an Interagency Goldwater-Nichols Act?” *InterAgency Journal* 4, no. 1 (March 2013): 12-19.

authority over the subordinated departments, and agencies.”¹⁹ The International Security Program at the Center for Strategic and International Studies (CSIS) formed the Beyond Goldwater-Nichols team in 2005 to compile findings from congressional testimonies and present recommendations. In a 2016 Congressional Research Service report, Kathleen McInnis observed that think tanks and policymakers agree a review of the GNA and “a reform of the broader interagency system on national security matters” is needed.²⁰ Nonetheless, until such reform or authorizations exist, and even if they did, it likely could not guarantee the success of interagency cooperation without addressing agent-based cooperation across the interagencies. Worley admits, “Personalities, not surprisingly, are stronger determinants of NSC performance than [the] organization.”²¹ At its core, interagency cooperation requires individuals to interact at some level whether its person-to-person or individuals within organizations representing organizations.

The Importance of Personalities and Relationships

Personalities and relationships play a fundamental role in initiating and sustaining interagency cooperation. Interconnections at the agent-based level are the primary focus of this monograph. In an *InterAgency Journal* article, “Building a Foundational Understanding of Interagency Coordination,” Patrick Naughton identifies five core distinctions in how strategic-level agencies and the military conduct interagency coordination.²² The fourth difference, which should be the first, is that relationships matter most—both for federal agencies and the military services. Naughton writes, “Within an interagency context, personal relationships can often be just as, if not more, important than official directives, policy, or guidance.”²³ The body of

¹⁹ Worley, *Orchestrating the Instruments of National Power*, 319.

²⁰ Kathleen McInnis, *Goldwater Nichols at 30: Defense Reform and Issues for Congress* (Washington, DC: Congressional Research Service, 2016), accessed November 21, 2019, <https://fas.org/sgp/crs/natsec/R44474.pdf>.

²¹ Worley, *Orchestrating the Instruments of National Power*, 320.

²² Patrick Naughton, “Building a Foundational Understanding of Interagency Coordination,” *InterAgency Journal* 9, no. 4 (December 2018): 41.

²³ *Ibid.*, 44.

proposed solutions for improving interagency cooperation, however, primarily revolve around implementing new authorities, restructuring existing organizations, and chartering new organizations to act as an interagency integrator.

Proposed solutions that only address reorganization or adding authorities are beyond the scope of this monograph and fail to identify the individual component of interagency cooperation. In his article, “An Integrative Approach to the Interagency Process,” Leonard Lira refutes these solutions as being less effective than working through the current governmental construct with its authorities and policies by focusing on the individuals in those organizations. Lira identifies common themes around interagency processes seen in Vietnam, El Salvador, Haiti, Bosnia, Kosovo, and Afghanistan. He categorizes the problem as operational and not structural. Lira writes, “Agreeing on the objective and providing the capacity to comply and collaborate among all the interagency players is the real problem.”²⁴ His solution is to “harmonize the executive agencies’ actions through ‘collaborative’ measures that work through the current structure, functions, and authorities of the government agencies, rather than attempt to restructure.”²⁵ Greater benefits come from interpersonal solutions than functional restructuring. Restructuring to reduce positive redundancies can be counterproductive and would likely reduce effectiveness in the long run.

A unified approach or model for interagency cooperation at the agency level also will not work and is likely impossible, according to Dr. William Davis. In “Why We Can’t All Just Get Along: Overcoming Personal Barriers to Inter-Organizational Effectiveness and Finding Your Personal Coupler for Success,” Dr. Davis shuns the ethnocentric approach of emulating the US Army’s Joint, Interagency, Intergovernmental, and Multinational (JIIM) model across the whole

²⁴ Leonard Lira, “An Integrative Approach to the Interagency Process,” *InterAgency Journal* 1, no. 1, (Fall 2010): 50.

²⁵ *Ibid.*, 47.

of government for interagency cooperation. Instead, he explores six principles of comprehension, consensus, cooperation, coordination, compromise, and communication.²⁶ These couplers allow people to retain their organizational cultures while cooperating with incongruent agencies and partners. Davis writes, “It will only be through a mutual understanding of how group identity affects thoughts and behaviors that those involved in inter-organizational efforts will be able to effectively operate as a team. It is not a matter of creating like organizations, but of developing couplers that maximize the unique capabilities of each organization.”²⁷ Individual efforts will lead to success. Nevertheless, not everyone espouses an individual-based solution.

US Army Majors Nicole Alexander and Chad Thibodeau identified a void of “personal and institutional trust,” an underdeveloped network among agencies, and an “atmosphere of competition for resources.”²⁸ In their article “Trust and Networks in the Interagency,” they admit individuals involved in interagency environments agree “the most successful interagency collaborations have been built on a foundation of personal relationships rather than institutional trust.”²⁹ In the remainder of the article, Alexander and Thibodeau contradict this consensus and postulate that individual trust is insufficient in solving complex and ambiguous problems. The authors state, “The complex and sometimes ambiguous problems of today cannot be solved by individuals; therefore, person-based trust must be replaced by institution-based trust and the belief that any individual, civilian, or military assigned to an interagency position is ‘plug and play’ or, essentially, another person that will get the job done.”³⁰ Both Majors have civil affairs experience and cite an article titled, “Trust in Small Military Teams” by Barbara Adams and

²⁶ William Davis, Jr., “Why We Can’t All Just Get Along: Overcoming Personal Barriers to Inter-Organizational Effectiveness and Finding Your Personal Coupler for Success,” *Interagency Journal* 9, no. 1 (October 2018): 90.

²⁷ Davis, “Why We Can’t All Just Get Along,” 97.

²⁸ Nicole Alexander and Chad Thibodeau, “Trust and Networks in the Interagency,” *Interagency Journal* 7, no. 3 (Fall 2016): 86.

²⁹ *Ibid.*, 87.

³⁰ *Ibid.*, 86.

Robert Webb. This may account for a tactical- or operational-level solution in developing institutional trust over individual trust; however, such a theory is unlikely to work at strategic- and executive-level organizations because of inherent organizational bias and a history of competition.

Institutional trust, and more so distrust, is deeply ingrained in organizations requiring individuals to overcome and at times develop work arounds. John Fishel, former Professor of National Security Policy and Research Director at the Center for Hemispheric Defense Studies, argues the importance of personal relationships in driving interagency cooperation. Fishel writes,

Although mechanisms, often “work arounds,” have been developed to address issues of interagency concern, they still depend, far too much, on the personal chemistry of the principals. If it is good, as it was in the case of General David Petraeus and Ambassador Ryan Crocker in Iraq, it can be very, very good. If, on the other hand, it is bad, as it was in the case of Lieutenant General Ricardo Sanchez and Coalition Provisional Authority (CPA) Administrator, Ambassador L. Paul “Jerry” Bremer, also in Iraq, then it is horrid!³¹

Fishel’s assessment illustrates a greater problem in interagency cooperation. If done only at the upper levels, it relies on limited positive interactions between two senior actors, which is unlikely to endure or spread far within or across organizations. By facilitating agent-based cooperation across all levels and allowing cooperative individuals to grow into groups of cooperating individuals, individual trust blossoms into greater institutional trust. Consequently, the individual is key to interagency success.

This monograph focuses on cooperation at the agent-based level—the individual interagency employee from the entry-level to senior executive service employee. Articles and publications discovered during the literature review addressed cooperation of personalities and relationships at the key leader or organizational level. While those relationships are important and can help drive cooperation within organizations and create mechanisms to promote and enforce

³¹ Kendall Gott and Michael Brooks, *The US Army and the Interagency Process: Historical Perspectives. The Proceedings of the Combat Studies Institute 2008 Military History Symposium* (Fort Leavenworth, KS: Combat Studies Institute, 2008), 75.

interactions, they are still limited. Consequently, this monograph builds on the individual foundation to demonstrate how cooperation can occur at all levels of an organization to achieve lasting and sustained interagency cooperation. The Prisoner's Dilemma and the Game of Chicken illustrate how autonomous individuals interacting in a complex system can result in cooperation despite organizational and bureaucratic mistrust or restrictions.

Origins and Construct of the Prisoner's Dilemma and Game of Chicken

The Prisoner's Dilemma phenomenon is an age-old conundrum of conflict between two individuals with the possibility of cooperation or defection and gain or loss, respectively. In his book, *Prisoner's Dilemma*, William Poundstone discusses the origins of the Prisoner's Dilemma as a conflict of interaction between humans dating earlier than the New Testament writings, Socratic debates, and Confucius musings.³² In 1950, Merrill Flood and Melvin Dresher conceived of the contemporary Prisoner's Dilemma construct. Flood and Dresher were both RAND scientists working in strategic studies and its application to nuclear war. While lecturing on game theory to psychologists in 1950, Albert Tucker, a distinguished Princeton mathematician and fellow RAND consultant, framed his coworkers' construct in familiar terms around the prisoner story.³³

Tucker brought context and relevancy to the ancient question. His original rendition presented two accomplices accused of a crime. The police present the separated individuals the option of confessing. The accused who confesses would receive a reward, but the one who does not would be fined. Subsequently, if both confess, both would be fined. The implication—if neither confesses—is they both could go free. This is the classic Prisoner's Dilemma.

The evolution of the story now generally involves prison terms to add weight and complexity to each decision. For example, in the newer rendition, the police do not have enough

³² William Poundstone, *Prisoner's Dilemma* (New York, NY: Anchor Books, 1993), 123-124.

³³ *Ibid.*, 117.

evidence to convict the criminals on the more serious charge, so the police threaten to convict both on a lesser charge with a one-year sentence. The accused prisoner who testifies against his accomplice will still go free, while the convicted prisoner will now be sentenced to three years. Conversely, if both prisoners testify against each other, or if both prisoners refuse to testify against each, both will be sentenced to two years or one year, respectively. The core dilemma for each player is to make the optimal decision for a lesser punishment to improve their position either by self-preservation or by cooperating—this decision heuristic forms the basis for Axelrod’s tournament. Axelrod writes, “The Prisoner’s Dilemma is simply an abstract formulation of some very common and very interesting situations in which what is best for each person individually leads to mutual defection, whereas everyone would have been better off with mutual cooperation.”³⁴ The Game of Chicken presents similar yet distinct interactive behaviors.

The Game of Chicken, or a head-on confrontation, is also an age-old challenge in bravery and acquiescence that involves two agent-based actors. In the Greek epic *Iliad*, Antilochus and Menelaus the great Spartan king, struggle for position in a grand chariot race. As the racers approach a narrow pass, Menelaus cries out to Antilochus, “Antilochus, you’re driving reckless! Rein in! You can pass up ahead where the road gets wider. You’ll wreck us both if you graze my car.”³⁵ Menelaus, the elder of the two, gives way and loses the challenge and ultimately the race. Thomas Schelling advocates the contemporary concept of “adversarial engagement” around the Game of Chicken and proposes that it happens every day when drivers hog the road, teenagers rebel against their parents, and nations challenge each other.³⁶ Schelling characterizes the game

³⁴ Axelrod, *The Evolution of Cooperation*, 9.

³⁵ Homer, *Iliad*, trans. Stanley Lambardo (Indianapolis, IN: Hackett Publishing Company, Inc., 1997), 452.

³⁶ Schelling, *Arms and Influence*, 116.

as requiring mutual agreement to participate, future expectation of action, and collaboration in avoiding a catastrophic collision.³⁷

The Computer Tournament

This monograph primarily builds on the concept and results of the two-person iterated Prisoner's Dilemma construct espoused in Axelrod's phenomenon of cooperation. Axelrod is world-renowned for his innovative concepts in game and complexity theory, which laid the groundwork for understanding how agent-based individuals cooperate or not. In 1980, Axelrod proposed a theory that unforced agent-based cooperation was possible. His cooperation theory is "based upon an investigation of individuals who pursue their own self-interests without the aid of a central authority" forcing them to cooperate.³⁸ Axelrod tested his theory by conducting two computer tournaments to determine the best strategy in responding to the classic Prisoner's Dilemma. The two-person iterated Prisoner's Dilemma is an ideal construct because it is simple and presupposes future interactions between individuals. The iterated aspect is critical because ephemeral interactions do not yield the same decisions if the actors do not expect future interactions and feel obligated to cooperate.

In *Evolution of Cooperation*, Axelrod describes how he conducted two computer tournaments to test his theory. Axelrod scored the tournaments similarly to the evolved Prisoner's Dilemma with the accused prisoners who could confess to the crime, testify against their accomplice, or remain silent. In Axelrod's computer tournament, two players interact for each move with the option of simply cooperating or defecting, see figure 1.³⁹ Mutual cooperation (R) resulted in three points for each player. Mutual defection (P) resulted in one point for each player. A one-for-one cooperation and defection gave five points to the defecting player (T) and zero

³⁷ Ibid., 118-119.

³⁸ Axelrod, *The Evolution of Cooperation*, 6.

³⁹ Ibid., 8.

points for the cooperating player (S). To account for the T and S naming convention, Axelrod says, “If one player cooperates but the other defects, the defecting player gets the temptation to defect [T], while the cooperating player gets the sucker’s payoff [S].”⁴⁰

		Column Player	
		Cooperate	Defect
Row Player	Cooperate	R=3, R=3 Reward for mutual cooperation	S=0, T=5 Sucker’s payoff, and temptation to defect
	Defect	T=5, S=0 Temptation to defect and sucker’s payoff	P=1, P=1 Punishment for mutual defection

Figure 1. The Prisoner's Dilemma
Robert Axelrod, *The Evolution of Cooperation* (New York, NY: Basic Books, 2006), figure 1.

The first tournament consisted of fourteen entries from game theorists in fields such as political science, economics, and sociology. The round robin event included fourteen strategies and a random rule selected by the designers to interact with the tournament submissions. The winner of the first tournament was a rule named tit-for-tat. In short, this strategy cooperated on the first move and then reciprocated the response of the opposing player for the duration of the game. It is considered a “nice” rule in that it is not the first to defect.

Axelrod conducted a second tournament to validate the robustness of tit-for-tat and to test new theories and concepts. The second tournament, more widely advertised, consisted of sixty-two entries from six countries and randomized the number of moves thereby eliminating anticipatory “end-game effects.”⁴¹ End game effects allowed players to anticipate the last move, which potentially altered their motivation for cooperating or defecting towards the end of the game. By removing that expectation, Axelrod forced the actors to make a decision with the expectation of future interactions. The winner of the second tournament was again tit-for-tat

⁴⁰ Axelrod, *The Evolution of Cooperation*, 8.

⁴¹ *Ibid.*, 43.

despite new submissions that sought to manipulate and take advantage of “nice” rules like tit-for-tat.

From the two tournaments, Axelrod determined the general success of a rule was: “avoidance of unnecessary conflict by cooperating as long as the other player does, provacability in the face of an uncalled for defection by the other, forgiveness after responding to a provocation, and clarity of behavior so that the other player can adapt to your pattern of action.”⁴² This monograph builds on these four basic winning concepts along with Schelling’s influence and interaction findings to create a tailored phenomenon of cooperation applicable to interagency cooperation.

Case Studies

Case study selection focused on scenarios containing four criteria: two primary actors existed (or two groups of actors acting as a whole); actors expected future iterated interactions; cooperation and defection occurred; and direct or tacit understanding developed from those interactions. The two case studies cover trench warfare in World War I (July 28, 1914 to November 11, 1918) and the Cuban Missile Crisis (October 14-28, 1962). The case studies are the most extreme exemplars of cooperation occurring between hostile belligerents and opposing ideologies, respectively. The examples progress from more tactical interactions of individuals in small groups to national-level leaders representing their respective countries. Drawing from these dynamic and diverse interactions of agent-based actors provides a broader assessment and demonstrates the universal potential of the cooperation phenomenon between two individuals.

World War I Trench Warfare

Trench warfare in World War I provides unique insights and is an ideal scenario on spontaneous cooperation at the agent-based level through iterative interactions of adversarial forces contrary to central authority directives. The inherent nature of trench warfare, perpetuated

⁴² Axelrod, *The Evolution of Cooperation*, 20.

by a war of attrition, provided opportunities for mass carnage, yet created conditions allowing for local cooperation that spread to more considerable portions across the front lines. Tony Ashworth, in *Trench Warfare 1914-1918, The Live and Let Live System*, identifies two distinct aspects of static trench warfare. The first is “intermittent, large-scale battles, where one side attacked the other, striving to kill the enemy, capture his trenches, and break through them into the open ground behind.”⁴³ This aspect is most prominent in military history and official war records because it took the front stage in places like Somme, Verdun, and Paschendaele, and displayed long-held traditions of bravery and brutality in war. The second aspect is the “continuous but small-scale attacks where each side aggressed the other in a multitude of ways, while remaining mostly in their respective trenches.”⁴⁴ Ashworth postulates the latter aspect was just as prevalent, if not more so, during the major battles but also in the interim.

This case study focuses on the second aspect Ashworth cites and draws on sources primarily from his book on trench warfare. The first-hand sources in Ashworth’s book include accounts from 95 percent of the fifty-six divisions from the British Expeditionary Force, with an average of three trench fighters’ accounts per division.⁴⁵ The primary sources convey the basis and intention of agent-based cooperation. The trench warfare case study contains the four criteria used to evaluate the cooperation phenomenon. Aligned with the game theory construct, there are always two actors. In this case study, the two actors are British soldiers (Allied Powers) and German soldiers (Central Powers). To align with the computer tournament, the case study possesses an expectation of iterative encounters with the opposing units. The two actions the soldiers can take are cooperation, defined as not purposefully engaging the opposing side, and defection, engaging in an action deliberately meant to cause death or injury. Finally, this case

⁴³ Tony Ashworth, *Trench Warfare, 1914-1918: The Live and Let Live System* (London, UK: Pan Books, 2000), 2.

⁴⁴ Ibid.

⁴⁵ Ibid., 10.

study will assess how the winning concepts further scoped in this monograph played out in trench warfare. The naming convention and mathematical calculations, see figure 2, defined in Axelrod’s gaming construct are less relevant than the observations of the actions and mutual cooperation phenomenon between the two actors in trench warfare.

		<i>Allied Powers</i>	
		Does Not Attack (Truce)	Attacks
<i>Central Powers</i>	Does Not Attack (Truce)	All quiet on both sides	Allied powers victory, Central defeat
	Attacks	Central powers victory, Allied defeat	Mutual attacks, trench warfare

Figure 2. The Prisoner’s Dilemma in World War I Trench Warfare
Adapted from Robert Axelrod, *The Evolution of Cooperation* (New York: Basic Books, 2006), figure 1.

A Nice Strategy in Trench Warfare Does Not Attack First

The basic characteristic of a “nice” strategy is not being the first to defect. In trench warfare, this means not firing the first effective shot or launching a deadly artillery barrage. The concept came to be known as “live and let live.” Ian Hays, a British infantry soldier, coined the term in correspondence during the World War.⁴⁶ The concept consisted of a “truce where enemies stopped fighting by agreement for a period of time: the British let the Germans live provided the Germans let them live in return...[it] denotes a process of reciprocal exchange among antagonists...but only on the condition that the other requited the restraint.”⁴⁷ Through these truces, direct or indirect, trench warfare soldiers established the pattern of a “nice” strategy. At its foundation, a truce occurred between two individuals cooperating “perhaps, after a chance meeting in no-man’s-land.”⁴⁸ The cooperation paradigm could also spread along the front lines.

⁴⁶ Ian Hays, *The First Hundred Thousand* (London, UK: William Blackwood, 1916), 224.

⁴⁷ Ashworth, *Trench Warfare*, 19.

⁴⁸ Ibid.

Further supporting Axelrod's premise that "nice" strategies coalesce and push out "mean" strategies in the long run, a truce could "implicate hundreds of soldiers: infantrymen, gunners, trench-mortar crews...and extend along several thousand yards of the front line."⁴⁹ Truces also varied in duration of time from "a few minutes, as with small groups [fraternizing] trench fighters, to several days, weeks or even months in rare cases where large numbers and areas were involved."⁵⁰ Such events occurred up and down the front lines.

The most renowned truce of the Great War was during Christmas of 1914 when soldiers from both sides joined to sing carols, exchange gifts, and play football.⁵¹ Such events were the germination for more widespread and lasting truces. The live and let live phenomenon manifested itself around the self-interest of daily comforts and a will to survive.

Initial truces began occurring around mealtimes. Ian Hays wrote, "It would be child's play to shell the road behind the enemy's trenches...[because] if you prevent your enemy from drawing his rations, his remedy is simple: he will prevent you from drawing yours."⁵² Liddell Hart, a 20th century British historian and former trench fighter also observed "unforgettable...is the homely smell of breakfast bacon that gained its conquest over the war reek of chloride[,] of lime, and in so doing not only brought a tacit truce to the battle front, but helped in preserving sanity."⁵³

The live and let live construct did not always result in enduring truces. Senior leadership on both sides sought to quell agent-based truces through targeted and deliberate raids. A medical officer from the British's Twenty-Third Division noted that raids "help to check the growing

⁴⁹ Ashworth, *Trench Warfare*, 20.

⁵⁰ Ashworth, *Trench Warfare*, 20.

⁵¹ Holger Herwig, *The First World War: Germany and Austria-Hungary 1914-1918*, 2nd ed. (New York, NY: Bloomsbury Publishing, 2014), 116.

⁵² Ashworth, *Trench Warfare*, 26.

⁵³ Liddell Hart, *The Memoirs of Captain Liddell Hart*, vol. 1 (London, UK: Cassell Publishing, 1965), 21.

tendency to [fraternize], a manifestation of goodwill and war weariness which had appeared in that part of the line, and which alarmed and horrified the powers which directed battles from the base.”⁵⁴ In addition to raids reducing cooperation among trench fighters, the opposing side was not always responsive to “nice” strategies either preventing or ending truces. In the end, being nice at all times in all ways can result in abuse or manipulation by “mean” actors or strategies. In this case, as seen in the computer tournament, a retaliatory defect can communicate to other actors that being the first to defect has consequences and continued defections can have escalating costs.

Proportionate Reprisal Resulted from Deliberate Attacks

The Judeo-Christian concept of *lex talionis* originated in the Old Testament book of Exodus. Retribution requires payment in kind (e.g. an eye for an eye or a tooth for a tooth). The basic principle stressed the proportionality of punishment and restitution to fit the crime, not as literal mutilation. Similarly, just war theory holds proportionality as one of its tenets. Brian Orend traces the proportionality phenomenon back through Aristotle and Thomas Aquinas when he states, “[Aquinas’ use of proportionality] was good Aristotelian sense: war should be a proportionate, or balanced, response to the grievance...and the quantum of force deployed should be appropriate to the objective at hand on the battlefield.”⁵⁵ While Orend submits that just war theory fell into disuse following World War I, the concept of live and let live during the war did possess proportionality. Varying aspects of agent-based motivation and intent to do harm further determined the extent of punishment or reprisal, but not to exceed in making the victim whole or returning payment in kind. It is primarily a deterrent and a restorative mechanism but also identifies the value and purpose of cooperation in establishing moral norms. In defining retributive actions, Orend says, “Punishing past aggression deters future aggression, or at least

⁵⁴ Ashworth, *Trench Warfare*, 191-92.

⁵⁵ Brian Orend, *The Morality of War*, 2nd ed. (Buffalo, NY: Broadview Press, 2013), 15.

does so more than if we had no punishment at all. No punishment seems a lax policy which actually invites future aggression.”⁵⁶ To this phenomenon, Ashworth also agrees “retaliation is not merely expedient, but ethical.”⁵⁷ Consequently, at times, retaliation or retributive justice is warranted and ethical.

In Axelrod’s computer tournament, tit-for-tat won primarily because it sought a nice strategy until the other actor defected and then tit-for-tat retaliated in response. The responsive reprisal conveyed that the tit-for-tat strategy would respond to aggression and would not be manipulated. In trench warfare, the concept of escalated aggression is the prime retaliatory mechanism in response to perceived deviances to the live and let live mantra. Trench fighters developed a tacit understanding of what was allowable in ritualized aggression; however, if “one side deviated[,] the other meted out punishment by returning to officially prescribed levels of aggression.”⁵⁸ A member of the Forty-Second Division captured the response to violations of live and let live in that “...when the enemy shell fire exceeded what was considered the limit of normal harassing, prompt and effective retribution was dealt out to him by guns of all [calibers].”⁵⁹ In most cases, counter-aggression was meant to send a message, but at other times it possessed vengeance and retributive purpose. In one incident where a British sniper killed a German, “his comrades lay in wait a long while behind a parapet to take vengeance.”⁶⁰ In the end, the grieved sought restitution, if only emotionally, for the loss of a comrade.

The phenomenon of proportionate reprisal is clearly demonstrated in these actions, but also appears antithetical to the concept of cooperation. Ashworth writes, “Briefly then, in each case the motive for escalated aggression is not so much to sustain or prime violence, as to

⁵⁶ Ibid., 202.

⁵⁷ Ashworth, *Trench Warfare*, 151.

⁵⁸ Ibid., 148.

⁵⁹ Ibid., 149.

⁶⁰ Ibid., 208.

diminish or contain it by making deviance from live and let live a painful choice of action for the enemy.”⁶¹ While reciprocal reprisal was painful for the opposing actors, it was meant to deescalate violence and demonstrative of an underlying motive toward a balance in cooperation through empathetic forgiveness.

Empathetic Leniency Is Understanding and Lenient of Limited Enemy Actions

Axelrod’s study of the two tournaments concluded a longer-suffering strategy like a “tit-for-two tats” may be more ideal because it allowed for forgiveness following a defection to account for misjudgments or unintentional defections. Axelrod says, “The implications of this finding is striking, since it suggests that even expert strategies do not give sufficient weight to the importance of forgiveness.”⁶² If the other actor countered the move by cooperating, the tit-for-two tats would return to reciprocal responses. Even after retaliating in response to a defection, a nice strategy always seeks to regain an equilibrium of cooperation.

In trench warfare, if an actor defected first the recipients were sometimes lenient in response to avoid escalating the defection. Empathetic leniency was a means of self-preservation empathizing with the adversary’s predicament. Ashworth writes, “...one restricted aggression and gave the foe greater survival chances merely because the reciprocal act increased one’s own survival chances.”⁶³ At times, the defector ensured the recipient understood the defection was unintentional. This empathy is demonstrated in an interaction following an unintentional German artillery salvo. A defecting actor called out “we are very sorry about that; we hope no one was hurt. It is not our fault, it is that damned Prussian artillery.”⁶⁴ The trench fighters on both sides established a tacit understanding when fires were not an actual defection but was cooperation through purposeful targeting of benign areas of the battlefield. These tactics were meant to

⁶¹ Ashworth, *Trench Warfare*, 149.

⁶² Axelrod, *The Evolution of Cooperation*, 43.

⁶³ Ashworth, 132.

⁶⁴ *Ibid.*, 146.

appease the higher headquarters but also not escalate the interaction between local belligerents in the trenches.

At some points, belligerents from both sides demonstrated an understanding that registered artillery spots could be hit, but only if the other side initiated a defection. Lord Reith, a soldier from the British Royal Engineers of the Seventh Division indicates soldiers understood and “the message was clear: the Germans would continue ‘just missing’ the trench only for so long as the British behaved themselves.”⁶⁵ Soldiers on both sides established this mutual understanding through words and deeds in establishing simple and transparent rules.

Trench Warfare Soldiers Communicated Through Direct and Indirect Methods

As in the old shave and a haircut seven-note musical call and response, trench fighters developed an unspoken and rudimentary back and forth understanding. Ashworth identifies this by comparing active and quiet fronts. He writes, “On active fronts, the response to aggression was escalated counter aggression...three for one...whereas on quiet fronts each side received from the other an amount of ritualized aggression varying within predictable limits and merely responded in kind.”⁶⁶ As demonstrated above, agent-based actors went to great lengths to convey intent and develop a tacit understanding of the live and let live principle. Further examples demonstrate this phenomenon.

Communication was both indirect and direct. Indirect communication was seen in inertia and ritualization. Soldiers had the choice of conveying inertia through either perfunctory aggression or non-aggression. Non-aggression, when aggression was possible and ideal, conveyed a live and let live intent. Ashworth writes, “In the situation where each antagonist has this choice, the non-aggression of one was neither negative nor meaningless to the other; on the

⁶⁵ Ashworth, *Trench Warfare*, 121.

⁶⁶ *Ibid.*, 148.

contrary, it was as positive and meaningful as the alternative act of aggression.”⁶⁷ The intent was to convey that a sniper could shoot the wings off a fly but purposefully failed to kill an enemy. The implication derived from such an event conveyed a ritualization of non-aggression. Soldiers conveyed ritualization through purposeful ineffective aggression and perfunctory barrages. The concept came in the form of patrols, small arms, and artillery and mortars. Lord Reith went on to say, “Enemy throws some shells at our trench: ‘We’ve got your range accurately, you see. No monkey tricks.’ Home Battery replies: ‘we’ve got yours—trench line and battery both. So no more nonsense. Live and Let Live.’”⁶⁸ As one can see the ritualistic “wave” at a sporting event and can predict its movement, machine gunners would fire in a pattern across the front line deliberately missing enemy targets. Such actions conveyed an intent to do no harm.

Direct communication also existed in verbal and written form. Ashworth writes, “Overt truces were arranged in either face-to-face situations by word of mouth...[or] fighters shouted across no-man’s-land.”⁶⁹ Soldiers also sent written messages on large boards or in some cases attached to defused rifle grenades. One such message to British Twelfth division soldiers read, “To the opposition. We have sent by rifle grenades some newspapers. When you get it, stick up a white flag and we don’t shoot. Wait a minute and newspapers [will] come by non-exploding grenades. Is peace in sight? Please answer.”⁷⁰ Both direct and indirect communication conveyed the enemy’s intent for cooperation. Soldiers inherently perceived the dynamics of direct and indirect communication in the complex system of trench warfare, and assessed the intent for non-aggression and reciprocated actions accordingly, further communicating clear and simple rules. Agent-based actors on both sides sought an end to the war and demonstrated a widespread use of cooperation to propagate a live and let live phenomenon even in a bloody war of attrition.

⁶⁷ Ashworth, *Trench Warfare*, 40.

⁶⁸ Ashworth, *Trench Warfare*, 40.

⁶⁹ *Ibid.*, 34.

⁷⁰ *Ibid.*, 35.

Whether the Great War was inevitable is up for debate; however, one must ask if the national leaders applied the winning concepts of cooperation consistently and judiciously as did the cooperative trench fighters, the war might have been shorter or avoided altogether. The next case study will explore the cooperation phenomenon seen during the Cuban Missile Crisis, specifically the actions between the leaders of the United States and the Soviet Union.

The Cuban Missile Crisis

In early October 1962, Defense Intelligence Agency (DIA) analysts assessed the Soviet Union had placed nuclear-capable missile systems in Cuba. In response, the founding director of DIA, Joseph Carroll stood up a watch center and coordinated U-2 surveillance to identify and assess missile sites.⁷¹ On October 16, 1962, DIA briefed Secretary of Defense Robert S. McNamara on the location and composition of the Soviet nuclear missile systems in Cuba. On the same day, President John F. Kennedy received a briefing revealing photographs of nuclear missile launching installations under construction in Cuba—and so began the Cuban Missile Crisis.⁷²

This case study draws from first-hand sources from the two key actors in the Cuban Missile Crisis—US President John F. Kennedy and Soviet Union Premiere Nikita Khrushchev. In his book *Reflections on the Cuban Missile Crisis*, Raymond Garthoff covers the details and interactions between the two actors during the crisis. The two primary texts analyzing the Cuban Missile Crisis with the Game of Chicken are William Poundstone's *Prisoner's Dilemma* and Thomas Schelling's *Arms and Influence*.

In the classic Prisoner's Dilemma, the ideal strategy for an individual player is to defect if the other does not, but the outcome is better for both players, if both cooperate. Similarly, in the

⁷¹ Office of Corporate Communications, Defense Intelligence Agency, *DIA's Role During the Cuban Missile Crisis*, accessed January 12, 2020, <https://www.dia.mil/News/Articles/Article-View/Article/567027/dias-role-during-the-cuban-missile-crisis/>.

⁷² Raymond Garthoff, *Reflections on the Cuban Missile Crisis* (Washington, DC: Brookings Institution, 1989), 43.

Game of Chicken—a derivation of the Prisoner’s Dilemma—it is better for both players to cooperate. In the game of highway chicken, two teenagers race their sports cars down a dark, narrow road toward each other in a challenge of male bravado and nerves of steel. In most games of highway chicken, one driver swerves before the two collide and die fiery deaths. William Poundstone writes, “There is a cooperative outcome in chicken. It’s not bad if both players swerve. Both come out alive, and no one can call the other a chicken.”⁷³ This case study is illustrative of the serious consequences involved in chicken, and in the case of the Cuban Missile Crisis could have resulted in a repetitive cycle of defections escalating into the ultimate collision—nuclear war. Poundstone further writes, “The Cuban missile crisis of October 1962 has become the classic instance of a political chicken dilemma. The United States and Soviet Union probably drew closer to the nuclear brink than they ever had.”⁷⁴ While both countries initially considered a broader range of options, the Cuban Missile Crisis case study will be examined using the four most common options for cooperation by the primary agents.

In *Superpower Games: Applying Game Theory to Superpower Conflict*, Steven Bram illustrates in a payoff table, see figure 3, that both countries had two basic options.⁷⁵ The “end” President Kennedy sought was the complete and immediate removal of nuclear missiles from Cuba. The “ways” to achieve that was via a naval blockade to prevent further buildup on island. The second option was an airstrike with a follow-on invasion into Cuba. Premiere Khrushchev also had two options.⁷⁶ The first was to maintain its nuclear capability in Cuba. The second was to withdraw the nuclear missiles.

⁷³ Poundstone, *Prisoner’s Dilemma*, 199.

⁷⁴ *Ibid.*, 205.

⁷⁵ Steven Bram, *Superpower Games: Applying Game Theory to Superpower Conflict* (New Haven, CT: Yale University Press, 1985), 49-50.

⁷⁶ *Ibid.*

Both players could have either cooperated or defected. In this case study, a defection for the United States entailed the airstrike and follow-on invasion. For the Union of Soviet Socialist Republics (USSR), a defection maintained a nuclear missile capability in Cuba. Conversely, cooperation for the United States entailed enforcing a naval blockade around Cuba and for the Soviets it meant withdrawing missiles from Cuba.

		<i>Soviet Union</i>	
		Withdrawal	Maintain
<i>United States</i>	Blockade	Compromise	Soviet victory, US defeat
	Airstrike	US victory, Soviet defeat	Nuclear Conflict

Figure 3. The Game of Chicken in the Cuban Missile Crisis
 Adapted from Steven Brams, *Superpower Games: Applying Game Theory to Superpower Conflict* (New Haven, CT: Yale University Press, 2006), figure 2.1.

In both cases, the country that cooperated while the other defected would be considered the winner, and by default the one who defected the loser. Cooperation by both actors is a win for both through a compromise short of a nuclear war. Consequently, defections by both actors could escalate into a nuclear conflict. For the sake of this monograph, the reader should understand that by a US airstrike and the USSR maintaining missiles in Cuba would not automatically result in nuclear war. Nonetheless, in analyzing the decision model and understanding the escalating nature, nuclear war was the worst outcome—and in late 1962, actions and rhetoric on both sides appeared to be escalating to that end.

During the tense week in late October 1962, the world hinged on the ancient conundrum of cooperate or defect; however, as in the street game of chicken, interactions between the two actors started well before the anticipated collision. While the tension between the Soviet Union and the United States increased following World War II, the contemporary challenge revolved around the USSR’s grip on Berlin and US Jupiter missile platforms in Turkey in April 1962. The NATO-led and endorsed action of placing nuclear capability in Turkey caused Premier Khrushchev to contemplate a reciprocal response against the United States. Premier Khrushchev

stated, “It was during my visit to Bulgaria [May 14-20, 1962] that I had the idea of installing missiles with nuclear warheads in Cuba without letting the United States find out they were there until it was too late to do anything about them...they would learn just what it feels like to have enemy missiles pointing at you.”⁷⁷

Until Kennedy’s October 22 address, the United States and USSR were akin to two high school teenagers vying back and forth with threats and taunts representative of a game of chicken. Nevertheless, when the United States discovered Soviet nuclear missile systems in Cuba on October 16 and President Kennedy delivered his address on October 22, both occupants were now in the cars staring down each other.

As in the trench warfare case study, the four criteria used to evaluate the cooperation phenomenon are conditional benevolence, proportionate reprisal, empathetic leniency, and deliberate transparency. Aligned with the Game of Chicken, there are always two actors racing headlong towards a collision with an expectation of iterative encounters and options to cooperate or “swerve,” but ends with a final, last-second opportunity to cooperate or “swerve” avoiding a collision. In the Cuban Missile Crisis case study, interactions occurred through the initial challenge and subsequent moves toward conflict; however, this case study will focus on the actions during the week of October 22-28, 1962. The case study will explore whether the winning concepts were used and to what effect.

A Nice Strategy Is Not Vindictive and Undermining

A nice strategy seeks conditional benevolence. Within the confines of the crisis in October, the USSR was the first to defect when it disrupted the status quo by placing nuclear missiles in Cuba. Premiere Khrushchev’s claims to a tit-for-tat response against the United States for missiles in Turkey has no merit. The NATO-led placement of missiles in Turkey was publicly

⁷⁷ Garthoff, *Reflections on the Cuban Missile Crisis*, 10.

negotiated and sponsored by a multi-national body. Soviet placement of missiles in Cuba, however, was clandestine and done in hopes of obtaining a *fait accompli*.⁷⁸

President Kennedy demonstrated conditional benevolence with the blockade by not immediately responding with an airstrike and follow-on invasion against Cuba. To take no action was still an action, and regarding nuclear weapons so close to the US homeland, President Kennedy could not risk their presence in Cuba becoming the status quo, politically or militarily. The president and his security council considered three primary responses. As General Maxwell Taylor, the Chairman of the Joint Chiefs of Staff put it, “We could ‘take them out’ by our own military action; ‘squeeze them out’ by pressure; or ‘buy them out’ by counter concessions.”⁷⁹ The blockade was the “nicest” US response option to the Soviet defection. The blockade and subsequent public statements and private communications between Kennedy and Khrushchev conveyed America’s conditions to its benevolence; however, it was not unconditional. Consequently, the United States was not the first to defect since it did not conduct an airstrike with a follow-on invasion against the USSR’s initial defection of placing nuclear weapon systems in Cuba. In executing a blockade around Cuba, the US strategy also demonstrated proportionate reprisal.

Proportionate Reprisal Resulted from Soviet Intrigue

A disproportionate US response to the discovery of Soviet nuclear missile systems in Cuba would have been an immediate full-scale nuclear strike against the USSR mainland. At the other end of the spectrum, America could also have done nothing. As Schelling says, “If you are publicly invited to play chicken and you say you would rather not, you have just played.”⁸⁰ The Soviets challenged the United States to a strategic-level Game of Chicken, and America accepted

⁷⁸ Ibid., 13.

⁷⁹ Garthoff, *Reflections on the Cuban Missile Crisis*, 44-45.

⁸⁰ Schelling, *Arms and Influence*, 118.

the challenge by responding in kind. On October 22, 1962, President Kennedy gave a public address detailing America's discovery and response to USSR nuclear ballistic missiles in Cuba. President Kennedy called the USSR's actions "a deliberately provocative and unjustified change in the status quo which cannot be accepted."⁸¹ The United States responded initially with a blockade to prevent further Soviet Union delivery and development of offensive weapons on Cuba. President Kennedy also laid down a firm warning when he declared, "It shall be the policy of this nation to regard any nuclear missile launched from Cuba against any nation in the Western Hemisphere as an attack by the Soviet Union on the United States, requiring a full retaliatory response upon the Soviet Union."⁸² This initial action also allowed for Premiere Khrushchev to take the off-ramp to a peaceful resolution and conveyed US resolve to continue proportionate reprisals.

The Soviet Union was also amenable to a proportionate military response and likely would have maintained its nuclear missile presence in Cuba if the United States opted for an airstrike and follow-on invasion. Reporting years after the crisis indicates the USSR had over 40,000 troops on island and were prepared to respond proportionately to an attack on Cuba.⁸³ The seven days in late October were filled with tense moments and opportunities to miscalculate, misinterpret, and misstep leading to a nuclear war. Providentially, both actors exercised empathetic leniency in response to Premiere Khrushchev's initial defection.

Empathetic Leniency Is Understanding and Forgiving of Other Actor's Predicaments

In a Game of Chicken, saving face is key to resolving the conflict before it becomes a collision, ideally before the two actors are in their hotrods. William Poundstone says, "When one side can find a good excuse to back down, the dilemma ceases to be a dilemma."⁸⁴ Consequently,

⁸¹ Garthoff, *Reflections on the Cuban Missile Crisis*, 58.

⁸² *Ibid.*

⁸³ *Ibid.*, 18.

⁸⁴ Poundstone, 209.

demonstrating empathetic leniency can present opportunities for an adversary to honorably take an off-ramp out of the conflict. Following the US blockade of Cuba, Premier Khrushchev was publicly obstinate, but privately, was ready to end the crisis while also saving face.

In *A Thousand Days: John F. Kennedy in the White House*, Arthur Schlesinger details a call he received from Averell Harriman, a foreign policy advisor, indicating Premier Khrushchev was looking for a way to save face. Schlesinger, a Kennedy advisor and historian, wrote, “[Harriman] said that Khrushchev was desperately signaling a desire to cooperate...the Soviet ships slowing down or changing course...was the behavior of a man begging for help to get him off the hook.”⁸⁵ Schlesinger went on to write, “At every stage [President Kennedy] gave his adversary time for reflection and reappraisal, taking care not to force him into ‘spasm’ reactions or to cut off his retreat.”⁸⁶ President Kennedy’s patience demonstrates empathy for his adversary and the gravity of the situation. However, on a day in late October that came to be called “Black Saturday,” both actors could have easily misjudged events and slipped into nuclear annihilation.⁸⁷

Two incidents on October 27, 1962, are illustrative of empathetic leniency seen by both actors. The first incident occurred when two Soviet air defense commanders in Cuba misinterpreted orders and shot down a U-2 reconnaissance plane flying over Cuba, killing the pilot.⁸⁸ At this moment, President Kennedy displayed the maturity of a statesman and poise derived from an empathetic understanding of the complex situation. President Kennedy likely tempered his response because serious negotiations with Premier Khrushchev were nearing finalization and Kennedy likely reasoned it was highly improbable Khrushchev ordered the attack. However, President Kennedy did establish an ultimatum in response. Daniel Ellsberg, a

⁸⁵ Arthur M. Schlesinger, Jr., *A Thousand Days: John F. Kennedy in the White House* (New York, NY: First Mariner Books, 1965), 821.

⁸⁶ *Ibid.*, 767.

⁸⁷ Garthoff, *Reflections on the Cuban Missile Crisis*, 89.

⁸⁸ *Ibid.*, 89.

RAND strategist and Executive Committee of the National Security Council consultant, recalls the dialogue response. President Kennedy had decided against his advisors to respond militarily, but Soviet leadership “should know that if another plane was shot at, we would shoot back...we wouldn’t just attack the site that had fired at it; we would take out all [Surface to Air Missiles] and antiaircraft and probably all the missiles...almost assuredly followed by an invasion.”⁸⁹

The second incident occurred later on the same day when an American U-2 reconnaissance pilot unintentionally strayed into Soviet airspace in northeastern Siberia. Further raising the risk calculus, the US Air Force scrambled fighter interceptors armed with air-to-air nuclear missiles.⁹⁰ The situation could have easily escalated into a global nuclear conflict. Premier Khrushchev, for his part, certainly reciprocated the same leniency President Kennedy displayed earlier in the day. Premier Khrushchev could have misinterpreted the pilot’s flight path as a pre-invasion action on America’s part. He also likely felt the weight of the decisions being made on October 27, 1962 and exercised a measured response of empathetic leniency. Both actors’ actions between the two nations during the crisis and their tacit understanding of the severity of escalation, supported both actors’ optimal cooperative actions.

Kennedy and Khrushchev Communicated Through Public Statements and Private Proxies

Approximately six weeks prior to President Kennedy’s October 22, 1962, address, the Soviet government laid out its intentions in clear terms on how it would respond to any military action against Cuba. The Soviet government said, “...if the aggressor makes an attack on one state or another and this state asks for assistance, the Soviet Union has the possibility from its own territory to render assistance....”⁹¹ It went on to say, “...one cannot now attack Cuba and

⁸⁹ Daniel Ellsberg, *The Doomsday Machine, Confessions of a Nuclear War Planner* (New York, NY: Bloomsbury Publishing, 2017), 206.

⁹⁰ Garthoff, *Reflections on the Cuban Missile Crisis*, 89.

⁹¹ Schelling, *Arms and Influence*, 63.

expect that the aggressor will be free from punishment for this attack. If this attack is made, this will be the beginning of the unleashing of war.”⁹² On October 22, 1962, this stance still held when President Kennedy gave his public address. His address made the rules clear. On October 22, President Kennedy’s firm admonishment and threat that any nuclear missile attack from Cuba in the Western Hemisphere would elicit a full retaliatory response was clear and had an effect on Premier Khrushchev. Schelling elaborates by writing that, “Displays can be effective, and when President Kennedy took his turn at it people were impressed, possibly even people in the Kremlin.”⁹³

Outside of public statements, communication between the United States and USSR was primarily between diplomatic proxies, the US Attorney General, Robert Kennedy, and the Soviet Ambassador to the United States, Anatoly Dobrynin. One such meeting on October 27, expressed President Kennedy’s resolve to end the crisis quickly and on terms with which both countries could live and still save face. In his book *Thirteen Days, A Memoir of the Cuban Missile Crisis*, Robert Kennedy conveys details of the US pledge of not invading Cuba if the Soviets committed to removing the missiles from the island within 24 hours, which he communicated to Ambassador Dobrynin. Robert Kennedy writes, “We had to have a commitment by tomorrow that those bases would be removed...I was not giving them an ultimatum...if [the Soviets] did not remove those bases, we would remove them.”⁹⁴ As seen in the trench warfare case study, a tacit understanding can develop through indirect actions or it can be through one-on-one interaction. In this case, America’s “overwhelming superiority at the strategic nuclear level” along with the 24-hour window conveyed a strong message to the Soviets that the United States had the means and the

⁹² Ibid., 64.

⁹³ Schelling, *Arms and Influence*, 40.

⁹⁴ Robert Kennedy, *Thirteen Days, A Memoir of the Cuban Missile Crisis* (New York, NY: W.W. Norton & Company, Inc., 1969), 108-109.

resolve to use nuclear weapons, if it resorted to that.⁹⁵ It was a clear message and for all intents and purposes, as in the Game of Chicken, this was the last-minute opportunity for Premiere Khrushchev to swerve.

The Cuban Missile Crisis is illustrative that once engaged in a game of chicken, a catastrophic collision is not inevitable. Like street racers, each driver is watching the other's body language, seeing how he controls the car, and judging past history in an attempt to assess resolve and identify indicators that he will swerve. It was during the blockade stand-off that the United States saw a slight hesitation in Soviet resolve. On 24 October, Secretary of Defense Dean Rusk is said to have whispered to McGeorge Bundy, the National Security Advisor, "We are eyeball to eyeball, and I think the other fellow just blinked."⁹⁶ This hesitation was the inception to the end of the Cuban Missile Crisis.

Conclusion: How Game Theory Results Can be Applied to Interagency Cooperation

The case studies covering trench warfare in World War I and the Cuban Missile Crisis possessed variables requiring iterative interactions over time, the chance for loss or gain, and an overarching bureaucratic system or competition that generally stifled cooperation. In both cases, examples of spontaneous cooperation occurred even among daily life and death struggles and in a scenario that threatened a nuclear war. This monograph proposes that if conditional benevolence, proportionate reprisal, empathetic leniency, and deliberate transparency can occur between hostile actors, individuals with a common national interest can replicate these principles resulting in whole-of-government interagency cooperation. This section will present recommendations for each aspect of cooperation presented in this monograph.

⁹⁵ Garthoff, "The Meaning of the Missiles," *The Washington Quarterly* 5, no. 4 (Autumn 1982): 76-82.

⁹⁶ E.R. May and Zelikow, *The Kennedy Tapes: Inside the White House during the Cuban Missile Crisis* (Cambridge, MA: Belknap Press, 1997), 358.

Conditional benevolence in interagency cooperation seeks to establish altruistic connections with other interagency partners. First, developing relationships across interagencies can be as simple as identifying and interfacing with an equivalent subject matter expert in a sister agency. It can take the form of thematic or functional working groups, conferences, and forums to address national- and operational-level problems. Second, agency bonus and appraisal systems can reward this type of self-initiative. Agencies can also identify and group individuals with a proclivity for cooperation. Axelrod's cooperation theory also discovered that "good" rules will coalesce and spread to drive out "bad" rules. Axelrod writes, "...cooperation can emerge from small clusters of discriminating individuals, as long as these individuals have even a small proportion of their interactions with each other."⁹⁷ Such actions address the incongruence between institutional and individual trust. Cooperative individuals and groups of cooperative individuals can drive out "mean" strategies, thereby increasing institutional trust through personal trust.

Proportionate reprisal in interagency cooperation does not require extreme retribution as seen in the two case studies. In most cases, reprisal will entail a separation and denial to cooperate with individual government employees in the future—not participating in working groups, speaking at forums, or contributing to collaborative publications. Aligned with Axelrod's concept of establishing cooperative meta-norms, reprisal can take the form of "punishing" non-cooperative actors. Axelrod states, "[There is a] willingness to punish not only those who violate [cooperative] norms, but also anyone else who fails to punish the violators."⁹⁸ Some consistently uncooperative individuals might be oblivious and apathetic to any "punishment," but in a system that promotes and rewards interagency cooperation, losing valuable interagency connections can be detrimental to an uncooperative individual. While on the surface this concept seems extreme,

⁹⁷ Axelrod, *The Evolution of Cooperation*, 68.

⁹⁸ Axelrod, *The Complexity of Cooperation* (Princeton, NJ: Princeton University Press, 1997), 41.

Axelrod's additional findings on the effects of norms and meta-norms (e.g. punish violators and those who fail to punish them) in cooperation present opportunities to explore advanced concepts for interagency cooperation not covered in this monograph. In the end, reprisal should be executed with empathetic leniency and deliberate transparency toward a spirit of cooperating with contrite individuals.

Similar to the Cuban Missile Crisis, agent-based actors can purposefully or inadvertently offend another actor. The ability to exercise empathetic leniency and seek to make amends can quickly heal an offense that, if left unmet, can fester into larger individual and organizational mistrust. Empathetic leniency understands that interagency partners have competing priorities, organizational constraints, and personal struggles. A seemingly uncooperative individual may be dealing with other issues that purposefully or inadvertently prevents them from cooperating at a given time. Consequently, uncooperative actions may not be what they first seem. Throughout the process, deliberate transparency becomes critically important.

Implementing deliberate transparency can also occur at the actor and organizational levels. Individuals must understand and embrace the norm that to excel and advance national interests, one needs to establish enduring relationships across agencies. Daniel Drezner confirms this when he addresses liberal international theories and the benefits of cooperation over sustained periods. He says, "If an actor expects to be around a while, then response strategies that punish noncooperation but play well with 'nice' actors—such as tit-for-tat—can sustain multilateral cooperation over the long run."⁹⁹ In a system that embraces and succeeds from cooperation, recalcitrant non-cooperative employees will eventually be unproductive and marginalized.

⁹⁹ Daniel Drezner, *Theories of International Politics and Zombies* (Princeton, NJ: Princeton University Press, 2011), 48.

Larger interagency organizational commitments may require memorandums of agreement or understanding to clarify expectations. Establishing clear intent and purpose for interagency interaction between actors will help facilitate enduring cooperation efforts and programs. Mutual expectations and identified benefits in driving efforts will help both actors understand what is expected of them, but also how they can support each other.

Returning to the Joint Concept for Integrated Campaigning (JCIC), interagency cooperation is a key component in providing whole-of-government answers to complex national and international challenges in support of the JCIC. The JCIC is a cognitive and adaptive framework to drive toward an ideal future environment. The JCIC identifies its aim is to “institutionalize the mindset and approach required to prevail in the future security environment that is likely to be significantly different than that experienced over the past several decades.”¹⁰⁰ Existing processes, authorities, and oversight have not successfully addressed consistent and comprehensive individual-level cooperation needed to establish and sustain an enduring interagency cooperation construct. Comprehensive and costly enforcing mechanisms are not likely to be effective in forcing agencies to cooperate; however, personal and in-house organizational paradigm shifts can create an environment where cooperation is realized and implemented as the most mutually beneficial option. Joshua Greene, author of *Moral Tribes* writes, “Most cooperation among humans is of the interesting kind, the kind in which self-interest and collective interest are partially aligned.”¹⁰¹ It is this amalgamated interest for which the interagency actor must strive. If cooperation can occur in the bloody, slaughter-laden trenches of World War I and between two great nuclear powers, agent-based actors in any situation can seek out other actors and form expanding groups of cooperation. The results expounded in this monograph beg the question of how much more can cooperation occur and spread among agents

¹⁰⁰ Joint Chiefs of Staff, *Joint Concept for Integrated Campaigning*, 10.

¹⁰¹ Joshua Greene, *Moral Tribes* (New York, NY: Penguin Books, 2013), 21.

with a common interest and purpose, and with a supporting central authority such as the NSC, interagency directors, and managers at all levels. In closing, Axelrod writes, “The most promising finding is that if the facts of Cooperation Theory are known by participants with foresight, the evolution of cooperation can be [sped] up.”¹⁰²

¹⁰² Axelrod, *The Evolution of Cooperation*, 24.

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