

Stanton Nuclear Security Fellows Seminar

PANEL 2: Nuclear Strategy

1. Daniel Altman, CISAC

Red Lines and Faits Accomplis in Interstate Coercion and Crisis

The traditional way to understand crises is to suppose that policymakers approach them by asking themselves the question, “What can we do to convince the other side that we are willing to fight in order to get them to back down?” Crises, from this standpoint, revolve around signaling resolve. In this dissertation, I approach crises as if statesmen ask themselves a different guiding question, “What can we get away with taking unilaterally without starting a war?” The result is a theory of coercive conflict which distinguishes strong and weak red lines, explaining how red lines with any of four weaknesses leave openings that adversaries can exploit with *faits accomplis*. This theory builds on many of the most neglected insights in Thomas Schelling’s classics *Arms and Influence* and *The Strategy of Conflict*.

Deterrence is not an all or nothing enterprise. States must deter outright invasion and conquest, but they also must deter more limited transgressions, which often take the form of *faits accomplis*. This poses a challenge to states, because credibly deterring *faits accomplis* is difficult when the issue in dispute is not worth a war. Without a solution to this pervasive problem, states would be vulnerable to a series of individually limited violations that could sum to something intolerable. How do states manage this problem, and avoid being picked apart piece by piece?

The best solution is often to rely on a strong red line to encompass many smaller pieces into a larger, clearly defined whole. In coercion, every threat contains a demand, and all demands set a red line dividing compliance from noncompliance. Strong red lines are those that make use of a focal point to aggregate smaller units into one larger unit that states can more credibly threaten to defend, and do so without leaving any of several types of openings for *faits accomplis*.

Weak red lines suffer from any of four vulnerabilities: arbitrariness, imprecision, unverifiability, and incompleteness. First, arbitrary red lines are those that are not set on focal points. These focal points are unique, conspicuous, and clearly different from nearby alternatives. Second, imprecise red lines leave gray areas in which it is ambiguous whether certain actions would or would not violate them. Third, unverifiable red lines are set such that it will not be immediately clear whether or not they have been violated. Fourth, incomplete red lines are those that can be bypassed, and the object they aim to secure taken without violating the red line meant to protect it. Where present, these vulnerabilities provide openings for the adversary to succeed with *faits accomplis*.

When the adversary calculates correctly, its *fait accompli* will often succeed in yielding a limited gain. When the adversary miscalculates the deterrer’s willingness to fight for whatever has been seized, the

result will often be war. Either way, vulnerable red lines tend to produce undesirable outcomes for the states that set them.

I test this theory of red lines and *faits accomplis* with a mixed methods research design that combines two case studies – the 1948-1949 Berlin Blockade Crisis and the 1962 Cuban Missile Crisis – with a quantitative analysis of crisis actors from 1918 to 2007.

The quantitative analysis evaluates three relationships: 1) the effect of red line characteristics on the incidence of *fait accomplis*, 2) the effect of red line characteristics on crisis outcomes, and 3) the effect of *faits accomplis* on crisis outcomes. To do so, I make use the International Crisis Behavior (ICB) dataset, which encompasses hundreds of crises and crisis actors over the period 1918-2007. To this I add original data on red lines characteristics and the incidence of *faits accomplis* coded from secondary sources. The most important product of this analysis will be the relationship between red line vulnerabilities and *faits accomplis*. The theory under evaluation predicts a strong positive correlation between these that is difficult to otherwise explain.

2. Paul Avey, MIT

Tempting Fate: Escalation, Red-lines, and Conflict in Nuclear Primacy

Description:

In this project I ask: Why do states without nuclear weapons challenge and resist opponents that possess nuclear weapons? In theory, nuclear weapons should provide the ultimate leverage in international politics. For their owners they promise peace of mind and influence over others. In practice, however, nations with superior nuclear capabilities find plenty of challengers. For instance, U.S. nuclear superiority did not stop the Soviet Union from initiating several major crises during the early Cold War. Elsewhere, the Chinese attacked the United States in 1950 and Syria and Egypt attacked Israel in 1973. It is easy to expand the list to include cases where the weak side resisted the strong side's demands and fought.

To date, not much scholarship has focused on asymmetric nuclear conflict. Matthew Kroenig, Erik Gartzke, and Robert Rauchhaus write: "Nearly all of the theoretical work on nuclear deterrence has assumed nuclear symmetry. In fact, the field lacks a coherent theory of the behavior of asymmetric nuclear dyads."¹ During the Cold War attention focused on U.S-Soviet mutual deterrence.² Post-Cold War scholarship generally extended earlier lessons without investigating the impact of asymmetric relationships.³ Recent statistical work does assess the impact of different balances but does not directly address my question: why does conflict occur in asymmetric situations?⁴ The major exception to this lack of attention comes from arguments that highlight norms that arose during the Cold War proscribing nuclear use.⁵ This explains why the weaker side fights in nuclear primacy: leaders think the weapons won't be used. Yet these analyses focus on self-deterrence. They have not demonstrated that leaders believe that the other side is self-deterred.

Drawing from deterrence and psychology literature I develop an argument that highlights how the changing risks for nuclear escalation influences conflict. In mutually assured destruction relationships leaders must worry that the other side will deliberately utilize nuclear weapons and that events might

¹ Matthew Kroenig, Erik Gartzke, and Robert Rauchhaus, "Introduction: The Causes and Consequences of Nuclear Proliferation," in Robert Rauchhaus, Matthew Kroenig, and Erik Gartzke, eds., *Causes and Consequences of Nuclear Proliferation*, (London: Routledge, 2011), pp. 9-10.

² Robert Jervis, *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon*, (Ithaca, NY: Cornell University Press, 1989); Robert Powell, *Nuclear Deterrence Theory: The Search for Credibility*, (New York: Cambridge University Press, 1990); and Thomas C. Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 1966).

³ Scott D. Sagan and Kenneth N. Waltz, *The Spread of Nuclear Weapons: A Debate Renewed*, (New York: W.W. Norton, 2003)

⁴ See the chapters in Kroenig et al., eds; Matthew Kroenig, "Nuclear Superiority and the Balance of Resolve: Explaining Nuclear Crisis Outcomes," *International Organization*, Vol. 67, No. 1 (January 2013), pp. 141-171; Todd S. Sechser and Matthew Fuhrmann, "Crisis Bargaining and Nuclear Blackmail," *International Organization*, Vol. 67, No. 1 (January 2013), pp. 173-195; Keir A. Lieber and Daryl G. Press, *Nuclear Weapons and International Politics*, (forthcoming).

⁵ Nina Tannenwald, *The Nuclear Taboo: The United States and the Non-Use of Nuclear Weapons Since 1945*, (Cambridge: Cambridge University Press, 2007); and T.V. Paul, *The Tradition of Non-Use of Nuclear Weapons*, (Stanford, CA: Stanford University Press, 2009).

spiral out of control. In the latter case, either side might use nuclear weapons inadvertently and lead to a major nuclear exchange both sought to avoid. In this environment, even carefully constrained strategies may end up in inadvertent destruction. As a result, leaders will behave much more cautiously and try to avoid major confrontations.

In nuclear asymmetry, though, nuclear escalation is a much simpler matter. To begin with, only one side can utilize nuclear force. More importantly, I show that the risks for inadvertent escalation decrease and in many cases disappear entirely in nuclear asymmetry. This presents an opportunity for states to pursue conflict. The non-nuclear state leadership can convince itself that they can create a clever strategy to minimize the risks of deliberate nuclear retaliation. In essence, they self-impose red-lines, choosing to act on issues they believe are more important to them and constraining the level of force they employ. If things do look bad they can back off. Note that this is not to say nuclear asymmetry causes conflict, merely that it allows states to pursue certain types of conflict to redress political grievances and closes off other types of conflict.

The argument makes several predictions. First, if the argument is correct we should see a shift in nuclear asymmetry to lower level types of conflict because the non-nuclear state will seek to operate short of its red-lines. In addition, it will avoid major assaults that threaten the nuclear state's control over its nuclear arsenal to avoid re-introducing the serious risk of inadvertent escalation. Second, we should see the non-nuclear state leadership consider the possibility of deliberate nuclear use against them during a confrontation. Third, the leadership should convince itself that nuclear weapons will be unlikely to be used because they are fighting over an issue that is more important to their interests and they will adhere to limited levels of force. In doing so, the non-nuclear state leadership will engage in what psychologists call 'bolstering,' a rationalization that a risky strategy will be unlikely to invoke nuclear retaliation.

To assess the argument I will draw upon two types of evidence. First, I will examine patterns of conflict from 1945-2007 to see if pairs of states shift to lower levels of violence once one state attains deliverable nuclear weapons. Second, I will examine the decision-making of the non-nuclear state leadership in four case studies: China-United States 1949-1958; Egypt-Israel 1967-1973; Iraq-United States 1990-1991; Soviet Union-United States 1945-1950. As I detail in the larger project, these cases present variation on key independent and dependent variables to help assess the impact of nuclear asymmetry.

The ultimate objective is the completion of a book manuscript. During the course of the fellowship year I have two more limited objectives. First, I plan to write an article that explicitly assesses the normative non-use arguments. Most of the work on the taboo or tradition for non-use focuses on why states do not utilize nuclear weapons. By contrast, I examine the normative claim from the perspective of the non-nuclear side. I outline the normative logic and generate testable predictions from the normative arguments and assess those predictions against the historical evidence. In particular, I look at patterns of conflict over time as well as decision-making in China, Egypt, and Iraq when deciding to challenge or resist a nuclear armed opponent. While norms play a role in non-nuclear state decision-making my research suggests that arguments relying exclusively on norms are theoretically and historically

incomplete. I will submit the final article to a peer-reviewed international relations journal. The research for this article coincides with that of my book project: research to date will inform the article and research conducted for the article will inform the larger project. Second, I plan to refine my data on state nuclear capabilities. My primary focus will be developing good estimates of when states possessed deliverable nuclear weapons. That will involve collecting additional data on warhead availability and delivery capability. Much of the literature uses proxies such as total warhead count or number of weapon platforms. I believe it is important to include the ability to deliver a nuclear weapon against a state when assessing the impact of nuclear weapons on patterns of conflict. I have quality data on land and sea-based missile forces but need to refine data on air delivery capabilities.

This research contributes to both the academic and policymaking communities. For the former, I resolve several theoretical and historical puzzles. For the latter, my project addresses a contemporary policy concern. The world is no longer dominated by two titans with massive nuclear arsenals. Rather, the United States and other countries face a variety of potential rivals in possession of a diverse array of nuclear arsenals or no arsenal at all. This generates important questions. What is the impact of different nuclear balances on conflict? How dangerous is proliferation that results in asymmetric balances? How beneficial are advancements in U.S. nuclear capabilities?⁶

The target audience for the article and data that I produce this year is academic political scientists. As noted, I plan to produce at least one article for a peer-reviewed journal and present the research at scholarly conferences. As the research progresses I intend to write a Foreign Affairs-style piece that presents the main findings for why non-nuclear states fight nuclear armed opponents in a concise, policy-relevant format.

⁶ On U.S. advancements see Keir A. Lieber and Daryl G. Press, "The End of MAD? The Nuclear Dimension of U.S. Primacy," *International Security*, Vol. 30, No. 4 (Spring 2006), pp. 7-44.

3. Christine Leah, MIT

Understanding the Legacy of Nuclear Weapons on Strategic Concepts

This project is an attempt to examine and explain how nuclear weapons have impacted on our understanding of core concepts of strategy and geopolitics (for example, deterrence, alliances, coercion). The findings will provide a foundation for thinking about how such concepts might be used in a world with much fewer, or even no nuclear weapons. The project explores the history of the development of these concepts in the pre-nuclear age and the extent to which the introduction of nuclear weapons have influenced how we understand and use them. Part of this exercise involves an attempt at delineating the history of nuclear weapons from the history of long-range missiles, since the two technologies emerged at roughly the same time.

Purpose of the Study

There is an assumption held by many political advocates that nuclear disarmament is a desirable goal in itself. This is not a view I agree with. My love and passion for this topic and broader questions of nuclear strategy and weapons proliferation lead me to believe that the role of nuclear weapons in international security must be understood within a broader context. It is not enough to say that the nuclear weapons states must reduce their nuclear arsenals and work towards the eventual goal of total elimination of nuclear weapons. Any ambition for the United States to reduce the size of its nuclear stockpile must be informed by a far stronger understanding of how different levels of nuclear capabilities could shape perceptions of strategic stability between the major players in Asia, including U.S. allies who rely on American extended nuclear deterrence.

Although total nuclear disarmament is not an imminent prospect, the idea of deeper nuclear reductions does raise the question of how America's alliances, formed at the dawn of the nuclear age, might endure. We do not have a history of missile strategy that has not been imbued with the nuclear aspect. Although we cannot know with exactitude all the ways in which nuclear weapons "work", we do know that they are the biggest "gravitational" instrument of force. To what extent might conventional ballistic missiles have the same strategic effect?

This project requires that I assemble a large amount of archival and documentary material, including official statements and reports, leaders' speeches and statements and declassified transcripts. A substantial portion of the material will come from my own exhaustive research (already completed) in the Australian National Archives, as well as material shared with a number of nuclear historians in, for example, India, Pakistan, Italy, France working in partnership with the Woodrow Wilson Nuclear Proliferation International History Project (of which I am a member).

The project also requires that I assemble a large amount of existing academic and historical literature on several core concepts of strategy, in order to establish the basic parameters of U.S. policy and orientation regarding its possible strategic policy and military doctrine without the use or threat of use of nuclear weapons.

The Strategic Concepts

The study will examine the history of some of the following concepts⁷, and how they might be understood and applied in a “post-nuclear” or “second conventional” age:

- Deterrence
- Pre-emption
- Strategic Stability
- The Balance of Power
- Extended Deterrence
- Alliances

Research Questions

This study addresses **three categories of questions**.

The **first category** addresses the history and strategic contexts that informed our present understandings of strategic concepts.

- 1) To what extent did concepts such as deterrence, strategic stability, crisis stability, escalation, evolve as a result of nuclear weapons, or long-range missiles? What is the relationship between the two?
- 2) To what extent are nuclear and conventional forces interchangeable?; To what extent is the real source of deterrence nuclear weapons themselves, or long-range precision strike weaponry? Might conventional long-range weaponry have the same “gravitational” effect as nuclear weapons, and by that virtue, have the same “effect” as intercontinental nuclear missiles in shaping and “managing” global order?
- 3) If non-nuclear missile deterrence is still useful, how do we adapt concepts of nuclear strategy that emerged thanks to long-range missiles, to a non-nuclear strategic context?
- 4) How will the move towards a more “conventionalized” deterrence world shape alliance expectations?; To what extent are U.S. alliances in the Asia-Pacific “nuclear” in nature?

The **second category** uses the findings to evaluate the implications for understanding and applying strategic concepts in a “post-nuclear” world. Those findings will inform the some of questions regarding U.S. strategic policy and the capabilities needed to achieve U.S. strategic goals. A series of historical case studies will be used to test some of the following questions (this list is not exhaustive):

- 1) How does the elimination of nuclear weapons increase the incentives for pre-emptive nuclear attack between states?
- 2) How would a “second conventional age” decrease strategic stability?
- 3) How would conventional missile arsenals affect crisis escalation, U.S. escalation dominance, escalation control, intra-war deterrence, and war termination in a given conflict?
- 4) How do deep reductions and the possible elimination of nuclear weapons make Washington’s security commitments to allies less credible?
- 5) How do we then think about conventional arms control? The problem then becomes about missile limitations. Do we still want to play the deterrence game (and its concepts) with conventional missiles? If so, have to adapt these concepts.

⁷ During my time at MIT I will focus on one or two concepts. Indeed, this is a large project that I am keenly interested in pursuing over several years at different institutions.

- 6) Does the absence of nuclear weapons make proliferation of ballistic missiles more acceptable?
- 7) How does the elimination of nuclear weapons increase the vulnerability of conventional forces?
Which types of conventional military instruments become even more valuable?
- 8) How do these combined elements shape U.S. allies perceptions of U.S. primacy and great power status in Asia?

This is a large research project I intend to pursue over the coming years, with a geographic focus on deterrence dynamics in the Asia-Pacific. During my time at MIT I will be conducting research in the Kennedy and Johnson Presidential archives, as well as the National Security Archive. This is a larger research project, and my time at MIT will be spent examining how nuclear weapons were “used” (both “directly”, and “indirectly”) by the Kennedy and Johnson administrations to shape various policy boundaries with different states.

This research is intended for to assist policymakers in the United States and across the Asia-Pacific to think much more carefully about the unique role that nuclear weapons play in international security; how to think strategically about nuclear reductions, and the strategic implications of the so-called ambition for “Global Zero”. I expect the research to reveal that nuclear weapons are an essential instrument in managing great power strategic relations and will continue to play a very important part in deterring great power conflict.

4. Zachary Zwald, MIT

The Feasibility of Tailored Nuclear Deterrence: An Examination of the Information Processing Challenge

Objectives:

Can the U.S. tailor a nuclear deterrent to numerous and diverse scenarios? The feasibility of tailoring such threats—a function of the degree to which uncertainty about potential adversaries can be reduced and accounted for—is central to determining the utility of nuclear weapons for U.S. national security in the 21st century. The necessary size of the U.S. nuclear arsenal, the value of the nuclear triad, and the prudence of going down a path to “nuclear zero” are all affected by degree to which a deterrent can be tailored. If it is feasible then there may be greater military utility from pursuing a flexible and resilient nuclear doctrine and force structure than there is from going to zero; however, if not, then a nuclear arsenal now has limited military utility and there may be good reason for the U.S. to proceed toward zero.

Thus far, the tailored deterrence debate has been between camps of policy practitioners: supporters typically contend that a range of military options is the necessary and sufficient condition for tailoring deterrent threats and critics usually counter that in-depth intelligence about adversaries is the necessary condition for tailoring such threats.⁸ Yet, the information processing challenge posed to US policymakers has received little attention in this debate. During my fellowship year, therefore, I will provide insight on the feasibility of tailored nuclear deterrence by examining U.S. policymakers’ ability to persistently employ competing belief sets about credible deterrence so that they can assess, and adjust to, information about potential adversaries’ capability and intent as it becomes available.

Argument:

The feasibility of tailored nuclear deterrence hinges on US policymakers’ ability to deal with a range of uncertainties. In immediate deterrence (i.e., the strategic interaction between states under crisis conditions), US policymakers face uncertainty about the adversary’s capability and intent, how that adversary perceives US actions, and how other states perceive actions taken by the US and its adversary.⁹ In general deterrence (i.e., the periods when conflict is possible but not imminent), policymakers confront uncertainty about how potential adversaries perceive, and will respond to, each doctrinal and force structure position the US pursues, enacts, or amends.¹⁰ Moreover, throughout immediate and general deterrence, US policymakers must persistently attempt to discern when the uncertainty at hand is objective, e.g. an adversary has yet to formulate its intention or perception, versus subjective, which results from limits in what is known about knowable phenomena.

⁸ For an example of each position, see Keith B. Payne, “Managing Flexible and Resilient Capabilities for Nuclear Deterrence,” *Strategic Studies Quarterly* (Summer 2011), pp. 13-29 and M. Elaine Bunn, “Can Deterrence Be Tailored?” (Washington, DC: Institute for National Strategic Studies, National Defense University, 2007).

⁹ The first two matters of uncertainty are captured in the Spiral and Deterrence Models articulated in Robert Jervis, *Perception and Misperception in International Politics* (Princeton, NJ: Princeton University Press, 1976), 58-67.

¹⁰ See Patrick M. Morgan, *Deterrence Now* (Cambridge: Cambridge University Press, 2003), pp.80-115 for a thorough examination of general deterrence.

Policymakers' established beliefs about what constitutes a credible nuclear deterrent, and the ensuing patterns of heuristic thinking about doctrine and force structure, both facilitate and hinder the US ability to process these uncertainties. Psychologists have demonstrated that individuals employ heuristics, which are knowledge sets stored in one's memory, in order to make sense of uncertain decision environments.¹¹ Such research further shows, however, that the very function of heuristics as simplifying mechanisms typically leads to overconfidence and biased thinking: people seek out information that confirms established beliefs; they reject or marginalize conflict information; and, they interpret ambiguous information as supporting their expectations. Moreover, recent findings show that experts are not only just as prone as laypersons to exhibit biased thinking but they also tend to be more inclined toward overconfidence and, thus, tend to be less capable of learning over time.¹²

My fellowship year research on tailored deterrence builds on a model I developed that explains how one determines whether doctrinal and force structure positions will help or harm the credibility of a state's nuclear deterrent.¹³ In this model, I show how the deterrent value one assigns to such positions is predicated on the set of conflict scenarios one deems most likely at some point in the future. More specifically, I explain that an individual tends to evaluate deterrence policies in the context of scenarios rooted in one of two ideal types characterizing the nature of nuclear conflict: in the "RDA" ideal type, the cause and course of conflict are dictated by calculated risk factors (i.e., Rational and Deliberate Action); and, in the "FMA" ideal type, conflict is shaped by autonomous risk factors (i.e., the unintended consequences of Fear, Misperception, and Accident). This model advances that, on the one hand, those who operate more according to RDA-based conflict scenario sets tend to prefer doctrine and force structure policies that mitigate calculated risk via a relative advantage in counterforce and damage limitation capabilities; and, on the other hand, those who tend to employ FMA-based scenarios usually prefer policies that mitigate autonomous risk via only a safe, secure, and reliable retaliatory capability. Optimally, a policymaker would initially conduct a comprehensive search of information on potential adversaries' capabilities and intentions and then, as new information becomes available, adjust his/her operational conflict scenario set and deterrence preferences to account for changes in both calculated and autonomous risk. In practice, however, policymakers tend to fall short of this goal, to varying degrees, due to psychological limits and, as a consequence, biases in information processing.

It follows, therefore, that central to the feasibility of tailoring a nuclear deterrent in the 21st century is the degree to which US policymakers seek and integrate information suggesting changes in calculated as well as autonomous risk—during both immediate and general deterrence. If policymakers respond to the greater complexity of this threat environment by rigidly assessing information about potential adversaries in the context of a single definition of credibility—focusing on the mitigation of either calculated or autonomous risk—then tailored deterrence is not feasible. Yet, the behavioral decision-

¹¹ For greater detail on this process, see "Causal Schemas in Judgments Under Uncertainty," in Daniel Kahneman, Paul Slovic, and Amos Tversky, eds. *Judgment Under Uncertainty: Heuristics and Biases* (New York: Cambridge University Press, 1982).

¹² Philip Tetlock, *Expert Political Judgment: How Good Is It? How Can We Know?* (Princeton: Princeton University Press, 2005).

¹³ Zwald, "Imaginary Nuclear Conflicts: Explaining Deterrence Policy Preference Formation," *Security Studies* (forthcoming 2013).

making literature suggests a possible remedy: frequent discussions within the policymaking community about this complexity may (1) allow one to recognize how established beliefs affect the processing of information about adversaries, (2) minimize one's tendency toward belief perseverance, and (3) lead one to integrate threat assessments arrived at by individuals using different beliefs about credibility.

Research Design:

Through archival research and process tracing, I will develop and evaluate two accounts of the U.S. nuclear deterrence policy formulation process during the Cold War. One account, which conveys the conventional wisdom on this period, provides the foundational logic for the determinants of feasibility advanced in the existing policy debate on tailored deterrence (capabilities versus intelligence) and the alternative account that I will develop corresponds to my project thesis regarding the information processing challenge. By evaluating the relative validity of each historical account, I will demonstrate that unless US policymakers can think more flexibly than they have in the past neither an array of military capabilities nor detailed intelligence will lead to effectively tailored nuclear deterrence.

According to the conventional wisdom, it was easier to formulate a credible nuclear deterrent during the Cold War than it is in the 21st century. This account is predicated on two assumptions: First, U.S. policymakers previously confronted a relatively simple threat environment and, thus, there was limited uncertainty to have to reduce and account for. Deterring the Soviet Union required that U.S. policymakers understand Soviet leader psychology, organizational structure, and national culture as well as the nature of the U.S.-Soviet dyad—this was by no means an easy task but it was seen to be manageable. Second, the U.S. policymaking community's understanding of the conditions necessary for credible nuclear deterrence evolved over time. They came to learn that the “threat that leaves something to chance” is an effective means to credibility under the condition of mutual vulnerability to nuclear attack;¹⁴ and, subsequent changes in U.S. doctrine and force structure were rational adjustments made by the policymaking community to maintain credibility in light of the strategic and technological developments that transpired over time. I will show how it is based on these two assumptions that the feasibility of tailored nuclear deterrence in the 21st century is thought to be a function of whether the U.S. can obtain the “right” combination of military capabilities and/or learn “enough” about adversaries.

I will compare this account of the Cold War to an alternative one in which formulating a credible nuclear deterrent was, much like today, cognitively overwhelming due to the complexity and, thus, uncertainty that U.S. policymakers had to process. Contrary to the conventional wisdom, first, the strategic and technological dimensions of the Cold War presented policymakers with irreducible uncertainty about what was necessary for a credible nuclear deterrent: information about the capability and intentions of the Soviet Union was persistently incomplete and ambiguous; the bipolar, ideologically divergent, and nuclear-armed dynamic between the superpowers was without precedent; and, there were complex and fluid dynamics between each superpower and various client states throughout the world. Second, U.S. policymakers tended to make sense of these developments in the context of their initial beliefs about what constitutes a credible nuclear deterrent. Specifically, according to some policymakers'

¹⁴ Thomas C. Schelling, *The Strategy of Conflict* (Cambridge, MA: Harvard University Press, 1960).

beliefs, credibility was a function of whether a nuclear deterrent can mitigate calculated risk while for others it was based more on a deterrent's potential to mitigate autonomous risk. Over time, policymakers tended to process new information about the threat environment in a manner that affirmed their established belief set regarding credibility. Accordingly, they tended to reject assessments of that information based on the alternative belief set, and U.S. nuclear deterrence policy tended to reflect the belief set regarding "credibility" held by those with greater political influence more than reflect any consensus on the matter.

Research Product:

I plan to write an article manuscript and submit it to a refereed international relations journal as well as present my research, throughout its stages of completion, in seminars and at conferences.

Target Audience:

In addition to the academic community, I think my findings and recommendations will be relevant to those currently examining the feasibility of tailored nuclear deterrence in the Departments of Energy, State, and Defense.