SMA White Paper:

The Science of Decision Making across the Span of Human Activity

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Contributing Authors: Maj Gen (Sel) Tim Fay (USAF/A3-5), Dr. Allison Astorino-Courtois (NSI), Mr. Cortez Cooper (RAND), Dr. Douglas C. Derrick (University Nebraska Omaha), Mr. Timothy Heath (RAND), Mr. Hunter Hustus (AF/A10), Dr. Gina Ligon (University Nebraska Omaha), Dr. Bonny Lin (RAND), Dr. Clark McCauley (Bryn Mawr College), Dr. Edward Robbins (AF/A10), Dr. Peter Suedfeld (University of British Columbia), Dr. Nicholas D. Wright (Carnegie)

Editors: Drs. Nicholas D. Wright (Carnegie) and Allison Astorino-Courtois (NSI)

Copy Editor: Ms. Meg Egan (Joint Staff, J3)

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Foreword: Operational Perspective - What Operators Need to Know

Major General (sel) Tim Fay (USAF/A3-5)

Military decision making is a subject area which merits significant study, thoughtful consideration, and serious training for those that are practitioners. The reason for this is self-evident--the consequences of decision making in the military environment are measured in national blood, treasure, and interests. This paper does an excellent job of presenting wide-ranging and cross-disciplinary considerations for both those that study military decision making, and those required to make those consequential decisions. The operator will find material that provides potential for both practical and professional application, while the academic will find an area of multi-disciplinary study with growing potential for significant investigation and discovery.

For the operators, there are two perspectives to consider while reviewing this paper. The first lens through which this paper should be viewed is from the perspective of the need to continuously seek to better understand and improve our own military decision making. The dynamic and ever-evolving nature of the operational environment and the consequences involved demand this rigorous self-assessment. When conflict can be global, networked, multi-domain, across the spectrum of conflict--and corporals can have strategic effects and generals tactical ones--effective military decision making is no longer optional. This white paper provides an excellent summary of some of the common challenges and pitfalls operators face making military decisions, and offers a number of recommendations on how to avoid them. Awareness and understanding of the science behind these challenges and pitfalls will certainly improve our military decision making in a complex environment. Additionally, this paper offers some excellent examples of considerations for group dynamics, deterrence operations, and a better appreciation of adversary decision making.

This second lens for the operators to consider as they read this effort is to approach this work from a perspective of better understanding of our adversaries' military decision making. The paper provides some excellent considerations with respect to better understanding our adversaries. These considerations range from the insight provided by recent advances in neuroscience, to assessment of individual and group decision making dynamics, to practical case studies of successes and failures. The operator will find the development of the concepts from theory to practice especially enlightening.

For the academic, this paper does an excellent job of bringing a multi-disciplinary approach to a complex challenge. The paper includes both hard and soft science perspectives, historic developments in this field of study, and some of the latest theory. This multi-disciplinary approach to better study and understand military decision making should interest a wide spectrum of academia.

This white paper is an excellent step in the multi-disciplinary study and improvement of military decision making. Both operators and academics will find material that will interest and challenge them. My hope is this inspires further study and collaboration to further improve our ability to execute better military decision making, and improve our understanding of adversaries.

Preface

The Science of Decision Making across the Span of Human Activity is a primer on decision making by individuals, groups, and organizations drawn from cutting edge scientific research in neuroscience, psychology and social psychology, organizational psychology, political psychology, political science, and behavioral economics. It is intended primarily for operators and planners within US security agencies but should be of interest to those more generally interested in understanding the processes by which human decisions are made.

This SMA White Paper takes the premise that a comprehensive and nuanced understanding of decision making by individuals, social groups and organizations is essential for good decision making. It attempts to make comprehensible what at first glance may appear to be "incomprehensible" decisions by individuals and groups challenging US security interests. It makes the point that seemingly incomprehensible decision making actually arises from predictable responses to neural, psychological, stress-related and other factors at the individual level; and to interpersonal psychology and group dynamics, as well as power-relations and other conditions at the group, organizational and state levels. In short, this paper argues we have the need—and the scientific bases—to think about decision making in ways that move beyond a strict dichotomy between seemingly "rational" versus "irrational" decisions.

A more nuanced understanding of decision making and decision behavior is all the more important given the rapid and continual pace of change in global politics in the past decades. New geopolitical realities have emerged. These appear to make wars involving physical confrontation between national military forces far less likely. What we witness today are new categories of conflict that cannot be considered wars in the classical sense although neither can they be described as "peace". Low intensity wars of attrition, and small-scale and asymmetric conflicts are nevertheless characterized by intense engagement over ideas. The implications for governance and decision making of many of these "battles" are significant. The new reality includes the blurring of other, formerly binary distinctions including, for example, those between state and non-state rights; responsibilities and abilities to achieve desired outcomes in international affairs; and the distinction between illicit versus licit economic activities – an especially crucial issue in developing areas and where US aid is rendered.

Despite these changes, much of US diplomatic, legal, and military activity continues to presume clear distinctions and many actors are realizing that blurring can produce advantageous ambiguity or at least a degree of uncertainty sufficient to challenges US standard operating procedures and flexibility to respond. It is for these reasons that we present the following articles.

Executive Summary & Introduction

Dr. Allison Astorino-Courtois, NSI

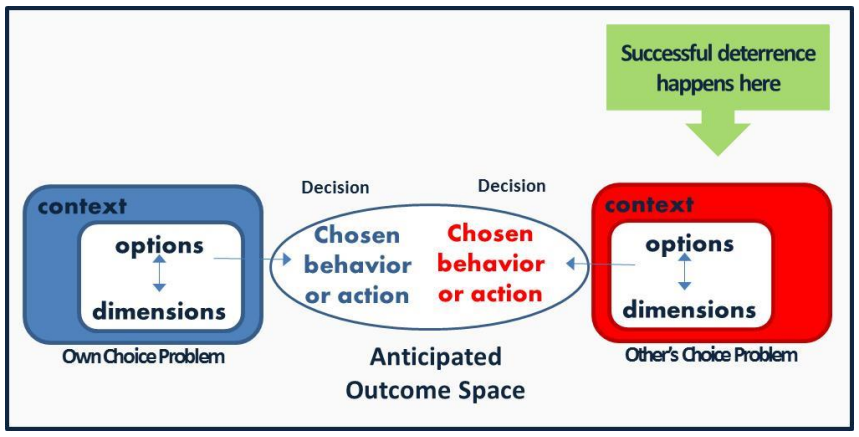
Dr. Nicholas Wright, Carnegie Endowment for International Peace (Washington, DC)
and University of Birmingham (UK)

The US is affected by the decisions of highly diverse actors, ranging from individuals, to groups (e.g. Violent Extremist Organizations; VEOs) to large and sophisticated states. The behavior of actors at any of these levels can seem "irrational" or "incomprehensible" and thus difficult to deter or influence. Understanding seemingly incomprehensible decision making is even more crucial given the growing centrality of hybrid warfare to the challenges US planners face.

Decisions are made in context and, except for the most extreme (either dire or trivial), they bear on the multiple concerns, preferences and interests a decision maker may have. The choice problems that prompt decisions are comprised of three elements: 1) the options for action an actor believes he/she has; 2) the dimensions (concerns, interests) that determine his preferences over those options; and 3) what he believes other relevant actors will do (i.e., the options and preferences attributed to others, in some cases including the state of nature.) The range of outcomes and actor expected is determined by combining his own options with what he expects others to do. In general, the difference between decision models based on strict rationality assumptions (i.e., rational choice, game theoretic approaches, expected utilty/cost benefit analyses) and those that relax or eliminate these assumptions lies in their suppositions about the nature of the processes by which multi-dimension choice problems are solved and the factors that impinge upon those processes.

Decision Making and Deterrence

Deterring unfavorable actions either by an adversary or a friend is an issue of perception; it has to do with our ability to influence how others construct their choice problems. From a decision making perspective then, successful deterrence requires the power to alter another's perception of the demands associated with achieving his objectives *to the degree that he chooses to forego actions he would otherwise take*. It is important to note that even decision approaches that include "non-rational" factors such as a decision maker's affective state, health problems, or fatigue, still rely on assumptions about basic human or group behavior. Namely, that their actions are purposeful and that people seek to avoid self-injury or harm however they may define it. Grasping a potential adversary's understanding of what is injurious or harmful, the



interests that impinge on a choice of action, the constraints imbedded in that choice problem, and the process by which it is solved are the critical information requirements for planning to deter terror attacks, regional conflict, nuclear proliferation and even weaponization of space.

US planners and decision makers will require sophisticated analyses related to each of these factors to evaluate how deterrence messages and signals are likely to be received by adversaries and even which alternative, less unfavorable adversary behaviors might be encouraged. They will need the same types of understanding regarding ally decision making in order to send the most effective messages regarding US resolve to extend our deterrent capabilities to their shores.

A final note involves something very often overlooked in US deterrence planning: understanding the political, bureaucratic and social preferences and obligations that condition *our own* choice problems and decisions. This helps us better appreciate and plan against those circumstances in which we may be self-deterred, and when our own choice processes pose barriers to effective implementation of deterrence messaging or actions.

The Science of Decision Making across the Span of Human Activity

The types of hybrid conflicts that appear to have become the "new normal" in global affairs require equally hybrid response including deterring decisions being made by individuals, groups and states operating simultaneously (e.g. in Ukraine) in various parts of the globe. Taken together the chapters that comprise this volume describe how seemingly incomprehensible decisions made at different levels of analysis most often arise from the predictable ways that individuals, groups and states function. This is a first step in generating the sophisticated understanding of deterrence decisions.

In Chapter 1 Nick Wright draws from neuroscience research to explain adversary behaviors in terms of brain functions and behavioral responses. This predicts different responses to threats intended to deter adversaries versus threats intended to compel other behaviors – and when identical threats provoke attack. He also points out how easy it is to misinterpret an adversary's activities and response to our own activities simply by our failure to consider the impacts of perceived unfairness.

In Chapter 2 Peter Suedfeld describes the conceptual progress of less dynamic to more dynamic decision theories and models. He presents his cognitive managerial model to help explain how cognitive factors and decision processing at the individual level are conditioned by the nature of the circumstance that the decision maker finds himself at the time of decision.

Clark McCauley moves the discussion to the level of group decision making in Chapter 3. He explains why group decisions are more than just the sum of individual choices. He presents an evolved group dynamics theory to explain how the type of attractiveness that defines the group can result in either: hyper consensual and often premature choice (groupthink); or can polarize the group beyond where its individuals members would have gone alone (e.g. with implications for radicalization).

In Chapter 4 David Gompert, Hans Binnendijk and Bonny Lin discuss twelve cases of war and peace decision making by national leaders and the role that the leaders' cognitive models and personality traits play in marking the difference between what have been seen as state-level blunders and national security successes.

In Chapter 5 Gina Ligon and Douglas Derrick point out that there are decision dimensions included in VEO decision making that are unique to those types of organizations, including for example, the need for increasing violence both for reasons of organizational credibility and to maintain public

attention. VEO decisions can appear to be incomprehensible or unpredictable if we consider violence as a VEO decision variable or concern rather than just a tactic.

In Chapter 6 Timothy Heath and Cortez Cooper provide an analysis of Chinese national security decision making, and in the final chapter Ed Robbins and Hunter Hustus provide the practitioners view of the value of deterrence over compellence in achieving US national security goals.

In addition to their individual contributions, two broader themes emerge when the chapters in this white paper are taken together:

- Internal Structures Condition Decisions and Behavior at all Levels of Analysis. Observable decisions are often the result of competition and interaction between internal systems, beliefs, interests, factions, components or bureaucracies. Even if not the intention, seemingly inconsistent or even self-defeating behaviors and decisions can arise even from normal functioning of these internal components as internal struggles play out in different contexts. This is true at the level of the individual decision maker where different systems in the brain constitute those structures; at the group level where the attractiveness or source of cohesion and the form of interdependence among group members significantly impact group norms and decision; and at the organization level where internal structures such as bureaucracies can incentivize certain choices and make decisions and actions inconsistent.
- Especially in Ambiguous Operating Environments the Analysis of Adversary Decision Making must be Multi-level. Decision making has common features across levels as well as features specific to the each level. As the categorical boundaries between forms of conflict are increasingly replaced by ambiguous operating environments, the best insight into an adversary's behavior will require study of decision process and contextual factors on multiple levels of analysis (e.g., individual leader integrative complexity within the context of the structure and norms of his decision group and the bureaucratic pressures of his organization).

Part I: Process Influences: Internal and External Dynamics that Shape Decision Making

1: Neurobiological and Emotional Influences: a realistic organic account of human decision making

Dr Nicholas D. Wright, MRCP PhD
Carnegie Endowment for International Peace (Washington, DC)
and University of Birmingham (UK)
nwright@ceip.org

Abstract. *Much of the behavior called incomprehensible or irrational is nothing of the sort. Understanding the neural machinery underlying human decision making behavior makes much of it predictable and comprehensible for US policymakers. Here I describe an account of individuals' choices encapsulated by the word "organic". Firstly, the account is organic as it describes how behavior derives from organic, living matter (i.e. the human brain and body). Modern biology helps explain both more emotional (e.g. rejection of unfairness) and more reasoned (e.g. forward planning) decision making. Specifically, for deterrence operations I discuss when: 1) an identical threat can cause an adversary to attack rather than be deterred; 2) rejection of fairness limits deterrence and causes escalation. Further, every individual develops through an "organic" process of natural development through their lifespan (i.e. nature and nurture matter). Moreover, the human brain itself results from a process of organic, natural evolution stretching back to our single-celled ancestor. Finally, the account itself is organic as it is largely inductive and grows organically as it incorporates new facts. For US policymakers, a "Realistic Organic Choice" account helps them understand human decision making not as some think it ought to be for moral reasons, nor as it would be according to deductive theoretical models, but as it is.*

Introduction

To deter, influence or negotiate successfully with others, we should know what motivates them and how they make decisions. Neuroscience combined with psychology and the social sciences helps make others' decision making more predictable and comprehensible. Below I outline this within a ***realistic organic account of choice***.

Pioneering realist Hans Morgenthau understood that a realistic view of human decision making matters. At the start of *Politics among Nations* he wrote, "This theoretical concern with human nature as it actually is, and with the historical processes as they actually take place, has earned for the theory presented here the name of *realism*" [italics his]. If policy-makers want to be ***realistic***, they must understand the world as it is – and this includes how humans *really* make decisions, based in our biology. As modern science clarifies the neurobiology underlying human nature, diplomats and defense planners should update their strategies for managing various types of conflict. The word

"***organic***" captures this underlying biology, both in the sense of "r*elating to or derived from living matter"* and of being *"characterized by gradual or natural development."*[1] A Realistic Organic Choice account is described in Table 3. For limits of space here I focus on only one part: human choice arising from the individual's brain.

Beforehand, however, I briefly discuss the term "rationality" as it can cause misunderstanding, although readers familiar with this can move straight to the section on choice and the brain.

A Realistic Rationality: combining social science, psychology and neuroscience to understand decision making[2]

Accounts of choice based in Rational Choice Theory[3] have dominated much of economics since the mid-twentieth century, and more recently much of political science. The core concept in Rational Choice Theory is that an agent's choices are consistent, which is what makes the agent "rational." Rational Choice Theory models individual choices through accounts such as Expected Utility Theory, and social choices through Game Theory. Although providing some useful tools, Rational Choice Theory fails to predict many aspects of human choice. To improve these models, over the past three decades a subfield of economics, called behavioral economics, has aimed to *"increase the explanatory power of economics by providing it with more realistic psychological foundations".*[4] However, *"it is important to emphasize that the behavioral economics approach extends rational choice and equilibrium models; it does not advocate abandoning these models entirely*".[5] This combination of economics and psychology has, for example, sought to modify Expected Utility Theory with Prospect Theory,[6] and Game Theory with Behavioral Game Theory,[7] but many core aspects of decision making are still not captured.

Biologically-based, neuroscientific approaches to choice have a long theoretical and empirical tradition, for instance the vast literature on associative learning.[8] Over the past decade or so this has been added to the combination of economics and psychology – to provide an extra source of evidence to understand decision making.[9] In this new field, the main object of interest is the study of value-based decision making: that is when an agent chooses from several alternatives based on the

[1] Oxford dictionaries (online, 2015)

[2] This section draws on Nicholas D. Wright, "The Biology of Cooperative Decision-Making: Neurobiology to International Relations," in *Handbook of International Negotiation*, ed. Mauro Galluccio (Springer International Publishing, 2015), 47–58.

[3] J von Neumann and O Morgenstern, *Theory of Games and Economic Behavior* (Princeton: Princeton University Press, 1944).

[4] C F Camerer and G Loewenstein, "Behavioral Economics: Past, Present, Future," in *Advances in Behavioral Economics*, ed. C F Camerer, G Loewenstein, and M Rabin (Princeton: Princeton University Press, 2004), 3–51.

[5] T. H Ho, N. Lim, and C. F Camerer, "Modeling the Psychology of Consumer and Firm Behavior with Behavioral Economics," *Journal of Marketing Research* 43, no. 3 (2006): 307–31.

[6] D. Kahneman and A. Tversky, "Prospect Theory: An Analysis of Decision under Risk," *Econometrica: Journal of the Econometric Society*, 1979, 263–91.

[7] Colin F Camerer, *Behavioral Game Theory: Experiments in Strategic Interaction*, vol. 9 (Princeton University Press Princeton, NJ, 2003).

[8] E L Thorndike, *Animal Intelligence: Experimental Studies* (New York: Macmillan, 1911); N J Mackintosh, *Conditioning and Associative Learning* (New York: Clarendon Press, 1983).

[9] This may be referred to as neuroeconomics. Paul W. Glimcher and Aldo Rustichini, "Neuroeconomics: The Consilience of Brain and Decision," *Science* 306, no. 5695 (October 15, 2004): 447–52.

subjective values it places upon them. This inter-disciplinary approach introduces new richness and robustness into models of human behavior, within an empirically grounded framework.[10]

Such accounts better resemble a straightforward idea of rationality, such as that described by scholar Robert Jervis in his classic *Perception and Misperception:*[11] "By *rational* [italics his] I mean those ways of interpreting evidence that conform to the generally accepted rules of drawing inferences. Conversely, irrational methods and influences violate these rules of the "scientific method" and would be rejected by the person if he were aware of using them. … Contradictory inferences can be equally rational. But in a complex world of ambiguous information it is questionable whether a useful definition could have it otherwise."

Why has this arisen now? New brain imaging technologies have made possible the advances in our understanding of human decision making over the past 15 years. We can measure human brain activity whilst individuals make decisions, enabling us to link the vast existing neuroscientific literature from animals and humans directly to human behaviors previously described by psychology and economics. This neuroscientific grounding in particular helps US choose between competing explanations at the behavioral level,[12] it provides an additional independent source of evidence that increases the robustness of the conclusions,[13] and it enhances our prior belief about the generalizability of findings across cultures.

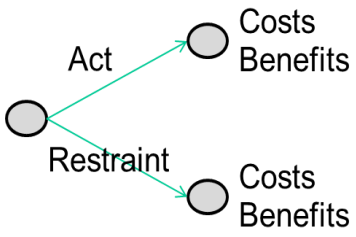


Figure 1 The adversary's deterrence calculus that is central to the DO JOC. Subsequent examples use this basic structure.

The Organic Human Brain: human choice arises from the brain

Our minds and the choices we make are "organic" in the sense that they arise from living matter; that is from our brains. Different aspects of mind arise from different aspects of brain[14] including

[10] Before continuing, I do not want to give the impression that RCT has little descriptive power in all games (e.g. the matching pennies game where individuals must keep their opponents guessing) (Camerer, *Behavioral Game Theory)*. Furthermore, even where RCT does not well predict behavior it can give a useful conceptual perspective and mathematical framework.

[11] Robert Jervis, *Perception and Misperception in International Politics* (Princeton University Press, 1976). p119

[12] J P O'Doherty, Alan Hampton, and Hackjin Kim, "Model-Based fMRI and Its Application to Reward Learning and Decision Making," *Annals of the New York Academy of Sciences* 1104 (May 2007): 35–53.

[13] Edward O Wilson, *Consilience: The Unity of Knowledge* (London: Abacus, 1999).

[14] The idea that different components of the brain make different contributions to mind has been a basic concept in neuroscience since the nineteenth century, and helped motivate more modern ideas such as functional specialization amongst brain systems (e.g. K. J Friston, "Experimental Design and Statistical Parametric Mapping," in *Human Brain Function*, ed. Richard S. J. Frackowiak (Academic Press, 2004).). Here we seek to capture the overall spirit of this idea with a deliberately broad definition of a system as a group of neural components that form a united whole to perform a function or functions. We do not claim that a particular brain region or system necessarily only carries out one function (Cathy J Price and Karl J Friston, "Functional Ontologies for Cognition: The Systematic Definition of Structure and Function," *Cognitive Neuropsychology* 22, no. 3 (May 2005): 262–75.). That is, for example we do not claim there are necessarily "specialized" systems devoted solely to social processing, but that specific systems are important and usually needed for that type of processing. Indeed, systems may be comprised of functionally specialized regions combined through functional integration. In humans many such systems are known, e.g. for language.

those involved in decision making about rewards and punishments.[15]

This directly relates to deterrence. Central to many ideas in deterrence or escalation management is the notion that adversaries decide between actions by thinking ahead about their consequences. Consider the US *Deterrence Operations Joint Operating Concept*[16] (DO JOC) which considers the adversary's decision calculus in terms of the possible costs and benefits (Fig. 1). Actually, when humans decide between actions, they use multiple brain systems – and all of these neural decision systems limit thinking ahead or drive decision making in predictable ways.

For illustration, we can see how this updates the trio of human drives that Thucydides, who some would argue is the father of Realism, suggested lie behind war: self-interest, fear and honor.[17] The importance of self-interest is well known, so here I focus on the latter two. Regarding fear, I show how the brain's Pavlovian system shapes human responses to threat – and this forecasts why some types of coercive threats are more effective than others, and when instead of deterring an adversary threats provoke defensive attack. Regarding honor, I show how the costs humans bear to reject perceived unfair or unjust treatment can cause limit deterrence and cause escalation.

Pavlovian system: shaping responses to threat

The "Pavlovian" system in the brain comprises ancient, low-level brain structures such as the amygdala and ventral striatum[18], which are highly conserved across humans and other animals. This system identifies stimuli that predict significant events (e.g. a threat of punishment) and triggers pre-specified reactions that shape our response.

Pavlovian responses to threat and why deterrence is easier than compellence: Aversive stimuli such as the threat of punishment trigger powerful Pavlovian reactions. In particular they bias individuals not to act (although below I discuss a particular context where instead they trigger attack). To illustrate, consider the poor television gameshow contestants who must overcome such inhibition of action in order to touch a (harmless) tarantula or bucket of insects.[19] More abstract stimuli representing electric shocks or losing money similarly inhibit action.[20] Threats are more likely to make decision makers not act.

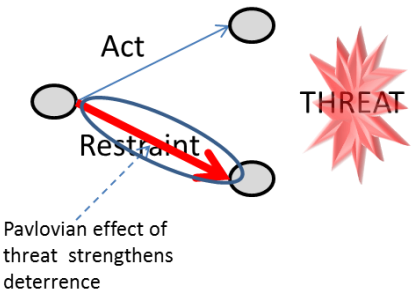


Figure. 2 Pavlovian effects: why deterrence is easier than compellence. In the DO JOC framework

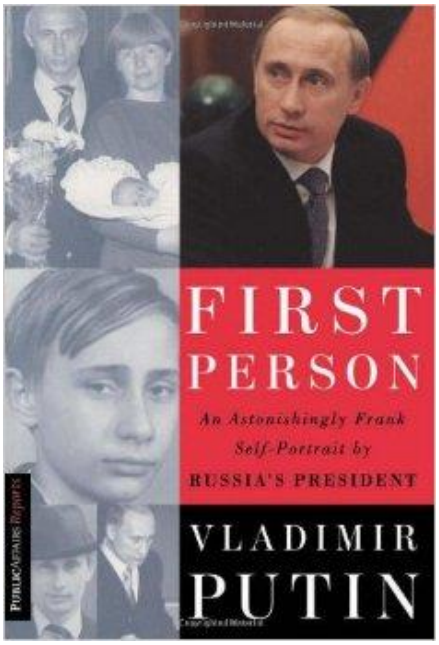
One can consider this from the point of view of the adversary: they are presented with an aversive stimulus (a threat of punishment) and have to make a decision. An aversive stimulus (a threat) triggers the Pavlovian response to inhibit

[15] The idea that human choice arises from multiple systems is ancient. Plato described a tripartite soul as did Freud, and from the cognitive psychology of 70/80s arose various two system models (e.g. one "fast", the other "slow"). Now we can better specify the brain systems contributing to choice and ground in biology.
[16] US DoD, "Deterrence Operations Joint Operating Concept," *Version 2*, 2006.
[17] Donald Kagan, On the Origins of War: And the Preservation of Peace (New York: Anchor, 1996).
[18] P Dayan, "The Role of Value Systems in Decision Making," *Better than Conscious*, 2008, 51–70.
[19] For example the currently popular UK television show "I am a celebrity get me out of here".
[20] Nicholas D Wright et al., "Approach–Avoidance Processes Contribute to Dissociable Impacts of Risk and Loss on Choice," *The Journal of Neuroscience* 32, no. 20 (May 16, 2012): 7009–20.

action – and this is exactly the behavior requested by a deterrent, but not a compellent, threat.

This predicts adversaries will respond differently to the two main types of threats in the deterrence literature: deterrent threats (i.e. issuing a threat to demand that an adversary inhibits an action); and compellent threats (i.e. issuing a threat to demand that an adversary makes an action).[21] This is important. For example, consider potential US actions to stop suspected Iranian nuclear weapons development which involves uranium enrichment. Should one focus on deterring them from possibly making nuclear weapons, or on compelling them to stop enriching uranium?

We must also consider possible alternative explanations. Despite various intuitive explanations[22] the idea that deterrence is easier than compellence has proven difficult to test with historical data.[23] Independent neuroscientific evidence helps support and explain this idea. This neuroscience-based explanation is also simpler than previous behavioral psychology accounts, which have been based on Prospect Theory.[24] These behavioral accounts suggest that, relative to a moving reference point against which potential outcomes are coded as gains or losses, deterrent demands ask an adversary to forgo a potential gain but compellent demands ask them to accept a potential loss. Decisions then differ as for gains and losses Prospect Theory prescribes different weighting ("loss aversion", where losses matter more than gains) and different risk attitudes (the "reflection effect", e.g. more gambling with losses).[25] A neuroscience-based explanation, avoids problems of determining "reference points" well-known to bedevil such efforts.[26] Note also that a neuroscience-based account explains the experimental findings on which Prospect Theory itself is based, such as "framing".[27]



When threats provoke defensive attacks: distance and escape: However our knowledge of Pavlovian effects also tells us that, while in general threats triggers avoidance as described above, an identical threat, when close and with little possibility of escape, instead provokes defensive

[21] Thomas Crombie Schelling, *Arms and Influence* (Yale University Press, 1966).
[22] Schelling (*Arms and Influence*, p70) suggested compellent threats often require punishment be administered until the other acts, rather than only if he acts as in deterrence, thus imposing greater cost. Posen argues that failing to resist a deterrent threat risks future predation by others (Barry R. Posen, "Military Responses to Refugee Disasters," *International Security* 21, no. 1 (July 1, 1996): 72–111.). Art writes that acceding to compellent threats is more public, and that "compellence more directly engages the passions of the target … because of the pain and humiliation inflicted upon it" Robert J. Art, "Coercive Diplomacy: What Do We Know?," in *The United States and Coercive Diplomacy*, ed. Robert J Art and Patrick M Cronin (Washington, D.C.: United States Institute of Peace Press, 2003).
[23] Eric Herring, *Danger and Opportunity: Explaining International Crisis Outcomes* (Manchester Univ Pr, 1995).
[24] Gary Schaub, "Deterrence, Compellence, and Prospect Theory," *Political Psychology* 25, no. 3 (June 1, 2004): 389–411.
[25] Note that is the simpler version of Prospect Theory (1979), while Cumulative Prospect Theory more complicated still.
[26] Robert Jervis, "Political Implications of Loss Aversion," *Political Psychology* 13, no. 2 (June 1992): 187–204.
[27] Wright et al., "Approach–Avoidance Processes Contribute to Dissociable Impacts of Risk and Loss on Choice."

attack.[28] This suggests that threats targeting leaders directly may lead to qualitatively different, more aggressive responses. Such a discontinuity in response to threat may explain otherwise seemingly unpredictable behavior.

Russian President Vladimir Putin describes this beautifully in his quasi-autobiography. Growing up in a dilapidated Leningrad apartment building, Mr. Putin used to chase rats with sticks. *"Once I spotted a huge rat and pursued it down the hall until I drove it into a corner," he recounted. "It had nowhere to run. Suddenly it lashed around and threw itself at me. I was surprised and frightened. Now the rat was chasing me."*[29]

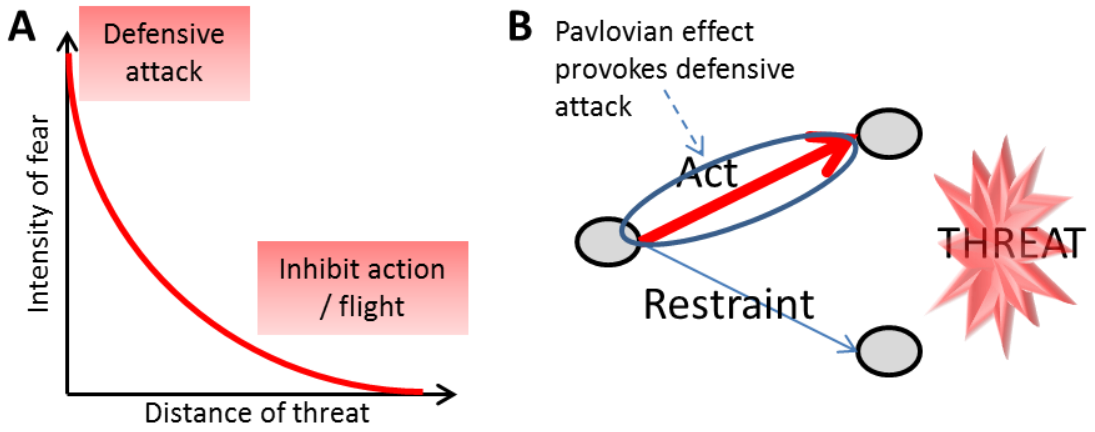


Figure 3 Pavlovian effects: When threats provoke defensive attacks .Panel A shows how an identical attack can cause avoidance or defensive attack depeding on defensive distance. Panel B places defensive attack in the framework of the DO JOC.

This critical contextual variable—the "defensive distance", which is low when the threat is close there is little possibility of escape—has been studied extensively in animals. In humans, subjective reports concur with such effects.[30] Scanning the human brain circuits that respond to threat also shows that depending on distance, different parts of these circuits mediate responses to threat – and this happens even in more abstract situations, for example in computerized simulations where "predators" that can inflict real electric shocks chase individuals through a maze.[31] Such context effects also explain changes in economic decisions that involve the threat of monetary losses.[32]

A historical example is the Sino-Soviet border confrontation of 1969.[33] Over an eight month period there were multiple non-trivial conventional military exchanges with fatalities on both sides. There was also a Soviet nuclear build-up in regions bordering China and public messages (via the US and others) of a potential Soviet nuclear attack. However, what spurred the Chinese to put nuclear weapons on combat alert for the only time so far (that is known), was the fear of a sneak

[28] D. C Blanchard and R. J Blanchard, "Ethoexperimental Approaches to the Biology of Emotion," *Annual Review of Psychology* 39, no. 1 (1988): 43–68.
[29] Vladimir Putin et al., *First Person: An Astonishingly Frank Self-Portrait by Russia's President*, 1 edition (New York: PublicAffairs, 2000).
[30] Pages 994-5 in D. Caroline Blanchard et al., "Risk Assessment as an Evolved Threat Detection and Analysis Process," *Neuroscience & Biobehavioral Reviews* 35, no. 4 (2011): 991–98.
[31] Dean Mobbs et al., "When Fear Is near: Threat Imminence Elicits Prefrontal-Periaqueductal Gray Shifts in Humans," *Science (New York, N.Y.)* 317, no. 5841 (August 24, 2007): 1079–83.
[32] Wright et al., "Approach–Avoidance Processes Contribute to Dissociable Impacts of Risk and Loss on Choice."
[33] Michael S Gerson, *The Sino-Soviet Border Conflict* (CNA, 2010). Pages 46-52

decapitation strike against the leaders themselves in Beijing (perhaps not unreasonably in light of Soviet tactics the year before in Czechoslovakia).

A second historical example relates to the Cuban leader Fidel Castro. It is notable that he was under continual threat of personal assassination when, during the Cuban missile crisis of 1962, he argued for a Soviet nuclear strike on the US.[34] That was an extremely aggressive strategy, given that any US nuclear retaliation involving Cuba would likely be annihilatory for a country of that size.

Policy Recommendations: Threats of punishment trigger powerful Pavlovian reactions	
In general, threats bias individuals to inaction or flight (e.g. deterrence) relative to action (e.g. compellence).	(1) Compellence will require larger threats (i.e. to make the adversary stop acting) than equivalent deterrence (i.e. to inhibit the adversary from acting).
But an identical threat, when close and with little possibility of escape, instead provokes defensive attack	(1) If one <u>*deliberately*</u> chooses to threaten leaders: (a) Anticipate this may provoke defensive attack (i.e. blowback or "irrationally" aggressive adversary response) (b) Understand that targeting leaders of near-peer nuclear[35] or conventional powers is likely inherently destabilizing (2) Avoid <u>*inadvertently*</u> threatening leaders or a regime (a) If leaders perceive themselves to be cornered (e.g. as in Vladimir Putin's story of the rat above), then increasing the amount of threat may have the opposite effect to that intended – i.e. increased threat won't deter the adversary more, but make them *more* likely to attack. (b) Identify perceived survival threats to adversaries to forecast otherwise unexpectedly aggressive response. E.g. Chinese regime security is a prime objective, so threatening this during attacks on the mainland (e.g. to overcome A2AD) may provoke an otherwise unexpectedly aggressive response.

Table 1 Policy recommendations from Pavlovian reactions to threat.

We must also consider possible alternative explanations. Perhaps the most important is the idea that when targeted for regime change, enemy leaders have little incentive to restrain their resistance. Whilst this likely contributes to behavior, this does not make a clear positive prediction as to what behavior to expect, such as a qualitatively different, more aggressive response.

[34] Graham Allison and Philip Zelikow, *Essence of Decision: Explaining the Cuban Missile Crisis*, 2nd ed. (Pearson, 1999).. Pages 330, 333, 361.

[35] For example, this would argue against the July 1980 US Presidential Directive that aimed to strengthen deterrence, which included finding Soviet leaders in their bunkers, and influential voices outside government calling for removing Soviet leaders. See pages 375-7 in Lawrence Freedman, *The Evolution of Nuclear Strategy*, 3rd edition (Palgrave Macmillan, 2003).

Pavlovian effects in a near-term China-US escalation scenario in the West Pacific: The first relates to the idea that equivalent threats are more likely to deter than compel. For example, this suggests that naval forces in the Taiwan Strait, be they Chinese, US or Taiwanese, that equivalent threats will be more likely to deter new deployments than compel withdrawal once deployments have been made.

The second relates to the idea that directly threatening the leaders, especially where there is no escape, may provoke a qualitatively different and more aggressive response (i.e. an otherwise seemingly unpredictable discontinuity in responses of the adversary). Any Sino-US confrontation in the Taiwan Straits carries the danger of a provocative Taiwanese action causing escalation desired by neither China nor the US.[36] In such a confrontation the PRC must be aware that targetting Taiwanese leaders deliberately or inadvertently (e.g. by missile strikes) may lead to a defensive attack. As the ancient strategist Sun Tsu wrote: "To a surrounded enemy, you must leave a way of escape." More broadly, directly attacking leaders may be desired, for example due an ascribed moral culpability, but one should be aware of potential consequences.

Fairness can limit deterrence and cause escalation

The costs humans pay to reject unfairness[37] provide a second example of how a realistic understanding of human motivation predicts otherwise seemingly irrational behavior. Humans are prepared to reject unfairness at substantial cost, and this is rooted in our biology. In a classic example called the ultimatum game, one individual gets an amount of money (e.g. $10) and proposes a split with a second player (e.g. $9 for herself, $1 for the second person). The other individual then decides whether to accept the offer (in which case both get the split as proposed) or reject the offer (in which case both players get nothing). Despite receiving an offer of free money, the second player rejects offers involving less than 25 percent of the money around half the time.[38] Even non-human primates reject unfairness. Capuchin monkeys[39] performing a simple job reject payment of cucumber (which they like) when for the same job a fellow monkey gets tasty red grapes. In essence, unfairness has a negative value that outweighs the positive value of the money (or cucumber) they would otherwise receive. In humans, neural activity reflects the precise degree of unfairness in social interactions such as the game described above. The drive to reject unfairness is a powerful motivation.

It matters practically that fairness *"is"* important—rather than that it *"ought"* to be important for moral reasons, or "*would"* be irrelevant if humans were rational self-interest maximizers. Consider deterrence.

Fairness can limit deterrence and cause escalation: Understanding fairness can help analysts interpret and forecast another's decisions more accurately. For instance, deterrence analysis that ignores the drive to reject unfairness can't correctly forecast what is needed to deter an adversary. How this affects deterrence is shown by considering the central concept in the US Deterrence

[36] Michael D. Swaine, Tousheng Zhang, and Danielle F. S. Cohen, *Managing Sino-American Crises: Case Studies and Analysis* (Carnegie Endowment for International Peace, 2006).
[37] Nicholas D Wright and Karim Sadjadpour, "The Neuroscience Guide to Negotiations With Iran," *The Atlantic*, January 14, 2014.
[38] Camerer, *Behavioral Game Theory*.
[39] S. F Brosnan and F. B.M De Waal, "Monkeys Reject Unequal Pay," *Nature* 425, no. 6955 (2003): 297–99.

Operations Joint Operating Concept.[40] The left side of Figure 4 shows how in the DO JOC the other chooses between two options (to act or show restraint) based on costs and benefits associated with each. The right side shows how in the ultimatum game in the other chooses between two options (to reject or accept) based on the costs and benefits associated with each – but, crucially, correct forecasting of behavior must include the value of fairness that drives them to reject. Now consider the DO JOC again, and see that when conducting a deterrence operation the social motivation of fairness may drive them to reject restraint, so deterrence fails.

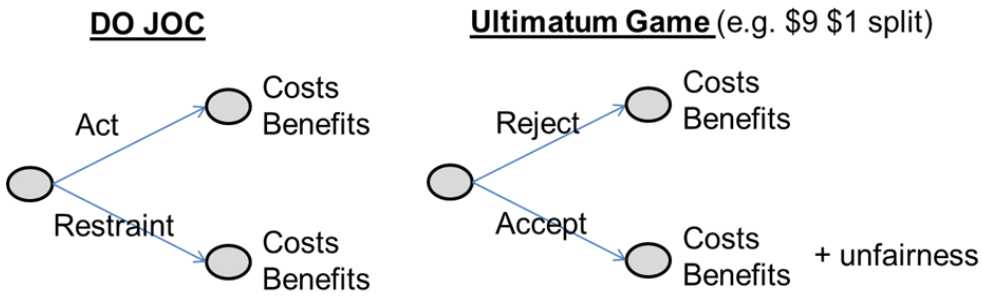


Figure 4 Fairness can limit deterrence and cause escalation

Humans are prepared to reject unfairness at substantial cost, and this is rooted in our biology. The motivation to reject unfairness and the humiliation from unfair treatment can form a central part of national narratives, and is reflected in national decision making. In a powerful Chinese narrative, mostly Western powers imposed "Unequal Treaties" on a weak China in the nineteenth century. These treaties unfairly exploited China's weakness, leading to a "Century of Humiliation".[41] This cultural narrative instills a sense of entitlement to recover and receive restitution for past losses.

Such beliefs may have played a role in the Chinese border clash with the Soviet Union in 1969, where scores died on both sides and nuclear threats were leveled.[42] The Chinese were motivated in part by the desire to revise one of the old Unequal Treaties with Russia – the 1860 Treaty of Peking. The Soviets had refused the Chinese request four years before to recognize it as an unequal treaty. And the specific objection was how to split the uninhabited, useless islands in the river Ussuri between the two countries: the Soviets wanted them all, the Chinese an equal split. It was the Chinese who initiated the military confrontation despite overwhelming Soviet nuclear and local conventional superiority.

Contemporary Iran has not been deterred from continuing to develop its nuclear program despite costs over $100 billion.[43] As Iranian Foreign Minister Javad Zarif asked in a Youtube message during the nuclear negotiations, "Imagine being told that you cannot do what everyone else is doing. Would you back down? Would you relent? Or would you stand your ground?".[44]

[40] DoD, "Deterrence Operations Joint Operating Concept."
[41] Zheng Wang, *Never Forget National Humiliation: Historical Memory in Chinese Politics and Foreign Relations* (New York: Columbia University Press, 2012).
[42] Gerson, *The Sino-Soviet Border Conflict*.
[43] Wright and Sadjadpour, "The Neuroscience Guide to Negotiations With Iran."
[44] Javad Zarif, *Iran's Message: There Is A Way Forward*, 2013, http://www.youtube.com/watch?v=Ao2WH6GDWz4&feature=youtube_gdata_player.

This social motivation can shape the specific form of events during a crisis. For example in 2001 a US EP-3 reconnaissance plane and a Chinese fighter collided, which led to the loss of the Chinese pilot and forced the US plane to land on Hainan in China. The key Chinese demand was for an apology.[45]

Policy Recommendations: Fairness
(1) Use knowledge of this motivation to understand intentions of past actions. The injunction to empathize or put yourself in the other's shoes is unhelpfully broad – and understanding this social motivation gives a targeted question: "Was this seen as fair or unfair?" This helps explain key facts, e.g.: Why has contemporary Iran borne costs estimated at $100billion to pursue its nuclear program? Why does China care so much about territory related to the Unequal Treaties and associated events?
(2) Forecasting the other's decision calculus can be incorrect without incorporating the value of unfairness. Ask the targeted question: "Will this be seen as fair or unfair?" Consider a China-US escalation scenario: when the Chinese deal with the Japanese over territorial issues, it may take more to deter the Chinese than might otherwise be understood
(3) Know how fairness shapes events and possible deals. Anticipate specific diplomatic reactions events (e.g. Chinese demands for apology). Anticipate political realities, such as in the descriptions above of contemporary Iranian nuclear negotiations (e.g. Iran's "right" to enrich Uranium) and Sino-US crisis management. This helps you understand what the other side values highly that you may not value so highly, enabling you to make a favorable trade.

Table 2 Policy implications from fairness

Conclusions

A ***realistic organic account of choice*** helps make others' decision making more predictable and comprehensible for US policymakers. If policy-makers want to be ***realistic***, they must understand the world as it "is" – rather than as some think it "ought" to be for moral reasons, or "would" be according to some deductive theoretical model. The account is also "***organic***", both in the sense of "*relating to or derived from living matter"* and of being *"characterized by gradual or natural development"* (see Table 3 below). The account provides a firm and practical foundation for analysts to anticpate others' decision making and so conduct better deterrence and control escalation.

[45] Swaine, Zhang, and Cohen, *Managing Sino-American Crises*.

Table 3 Realistic Organic Choice. *An account of decision making in individuals (on the left) and at higher levels of social organization (on the right). The account is encapsulated by the word "organic", two meanings of which the Oxford Dictionaries define as, "relating to or derived from living matter; … characterized by gradual or natural development."*

ORGANIC HUMAN INDIVIDUALS	**ORGANIC GROUPS, SOCIETIES AND INTERNATIONAL SYSTEM**
(I) Organic human brains and bodies: human choice arises from the brain Our minds and the choices they make are "organic" in the sense that they arise from living matter; that is from our brains. Examples include the neural systems underlying human responses to threat (fear) and social motivations such as the rejection of unfairness.	**(I) Societies of organic humans, emergent properties and institutions** Individuals' choices affect the population level (e.g. through the direct influence of leaders' choices or the concordant choices of many individuals). Further key facts arise from emergent properties (e.g. the business cycle) or culture and institutions (e.g. the bureaucratic level).
(II) An individual develops organically: nature and nurture Every individual develops through an "organic" process of natural development through their lifespan. Both nature and nurture matter. Nurture includes biological factors (e.g. nutrition), personal biography, and culture (e.g. nation, organization).	**(II) Societies of organically developing humans** Societies are inherently intergenerational. Understanding and managing this *change* is central to societies and the international system. Further related issues include effects of: ageing; demographics; families and nepotism; and disease.
(III) The brain evolved organically The human brain results from a process of organic, natural evolution stretching back to our single-celled ancestor. Where we are today results from what existed before (path dependence; e.g. the QWERTY keyboard's chance dominance). History's paths mean most organisms (e.g. humans) aren't optimal – so we must understand human decision making as it *is*, not as it *would* be according to a deductive model.	**(III) Societies evolved organically: history, geography and facts about the world** Human societies develop organically, shaped by history, geography and other facts about the world. In addition, there is path dependence. For example, many possible North Americas or Chinas could have existed, but we have the ones that actually do exist. Understanding China requires examining its particular history.
(IV) The account is itself organic The account of individual decision making itself develops and changes organically as it incorporates new data. It is not definitive and deductive, but instead cumulative and largely inductive.	**(IV) The account is itself organic** As for individuals, the account is inherently interdisciplinary. It comprises multiple "mid-level" theories and sources of evidence that mutually constrain, reinforce and extend each other.

2: Decision-making under Stress: The Decline in Complex Thinking

Peter Suedfeld
The University of British Columbia
psuedfeld@psych.ubc.ca

Abstract. *Three major theories of decision-making are briefly reviewed: rational actor theory, the theory of bounded rationality, and prospect theory. All three recognize that human beings are to some extent rational, trying to make decisions that maximize their positive outcomes. But they also recognize that because of cognitive limitations and environmental constraints, the actual decisions may not lead to that goal. Prospect theory also identifies some cognitive shortcuts that bias the decision-making process, making it easier and faster, but at the cost of realistic accuracy. This chapter also reviews cognitive manager theory, a resource allocation approach. Its basic hypothesis is that people assign as much time, effort, and attention as is needed for a solution in the context of the importance of a problem in the array of problems being faced at a given time, moderated by relevant aspects of the environment and the decision-maker's own characteristics. Integrative complexity, the dynamic cognitive structure underlying thought, changes accordingly. Experimental and archival studies have shown that integrative complexity, measured via quantitative analysis of texts, is related to decision-making in personal, professional, and political problem-solving. The research involving political leaders is summarized.*

Along the evolutionary chain, sentient animals – a category that includes human beings – are faced with an almost continuous series of decisions to be made whenever they are awake. Because every such occasion is a problem to be solved, requiring some level of attention and information processing, "decision-making under stress" is really a meaningless label. The very need to make a decision is itself stressful. It makes more sense to consider different levels of stress associated with different decisions than to look for decisions without stress.

Early researchers, frequently working with animal models, identified three kinds of choices, varying in the desirability of the alternatives. In approach-approach conflicts, the animal must choose which of two desirable, attractive goals to seek; in avoidance-avoidance conflicts, which of two aversive, unpleasant goals to stay away from; and in approach-avoidance conflicts, between approaching an attractive goal and avoiding an unattractive one. All of these decisions can arouse stress as the alternatives are weighed, and stress often occurs even after the decision has been made: Leon Festinger's theory of post-decision cognitive dissonance (1957) describes the likelihood of second thoughts and uncertainty. "Did I make the right choice? Wouldn't a different one have been better?"

As stress increases, cognitive processes change. The focus of attention narrows to only the most salient information; plans become rigid as alternatives are ignored; and a larger proportion of the available

information is ignored, especially if it raises uncertainty or conflicts with previous information. This happens when the stakes are higher, or time is limited, or there is either insufficient or excessive information load. Manipulations of these variables soon moved from traditional laboratories to simulations and field experiments (see, e.g., Harvey et al., 1961).

The dilemma becomes even stronger, and the stress level higher, when there are more than two choices, when several or all of them pose a mixture of positive and negative outcomes, when there is insufficient information about their respective implications, and when the outcome of a decision is of great importance – all of which are often the case in human life decisions outside the laboratory.

From the Laboratory to the "Real" World

Economists and some political scientists have grappled with how such decisions are made, and a growing cadre of psychologists has left the laboratory to study "real-life" decision-making. Cognitive, social, political, and personality psychologists in particular have addressed the relevant issues and, with the invention of sophisticated brain scanning technology, neuropsychologists are taking the first few steps to see what they can contribute.

Three theories concerning universal characteristics of decision-making have dominated the field in recent decades. Encompassing perspectives from economics as well as psychology, they have attempted to explain the goals that drive decision-making, and the parameters within which those goals are pursued. The first, and in some circles still the most influential, is rational actor or expected utility theory. It is also the most straightforward: human beings make rational decisions that are designed to maximize their positive outcomes and minimize their negative ones. In its simplest form, the theory has been applied primarily to economic decisions and outcomes, but more sophisticated versions consider non-economic ones as well. In his Nobel Prize address, one proponent (Becker, 1992) amended rational actor theory to define positive outcomes as matters of individual preferences, whether those be "selfish, altruistic, loyal, spiteful, or masochistic." He also pointed out that although ideal decision-making is rational, in fact there are limitations such as lack of time and cognitive ability that may prevent the person from fully expressing that rationality in actual decision-making. As amended, expected utility theory laid the groundwork for the two theories I discuss next.

Herbert Simon's "theory of bounded rationality" is a behavioral theory of rational choice, rather than what his Nobel address refers to as an "armchair" theory (Simon, 1978/2014). It accepts that optimization of outcomes is the overall goal of decision makers, but emphasizes that our information search and processing mechanisms are imperfect, and that environmental conditions such as limited time further detract from our pursuit of the perfect decision or solution. As a result, we are willing to accept what Simon calls "satisficing" solutions: good enough, even though not optimal. This tendency explains decisions that seem faulty, accepting imperfect outcomes rather than spending more time and effort in trying for better ones.

In turn, Daniel Kahneman's Nobel-winning "prospect theory" (Kahneman, 2002) pays more attention to defining the cognitive shortcuts and biases that limit the rationality of human decision-making. He and

his late colleague, Amos Tversky (Kahneman & Tversky, 2000) showed experimentally that people, even trained experts, often violate the laws of probability and logic when trying to solve problems. For example, we tend to be loss-averse: we take more chances to avoid a loss than to obtain a gain, even when the two outcomes are statistically equal. They and other researchers have identified a long list of specific heuristics and biases (Kahneman, Slovic, & Tversky, 1982), the use of which characterizes what Kahneman (2002) calls System 1 thinking: rapid, effortless, automatic, rigid, and intuitive, as opposed to System 2 thinking, which is mindful and thoughtful, flexible, and relatively slow.

The use of System 1 thinking is an example of "cognitive miser" theory, which hypothesizes a universal tendency to avoid slow, careful, and difficult thought (Taylor, 1980). This can be explained by the concept of resource conservation: System 2 thinking requires more mental and sometimes physical energy, time, information search, consideration of conflicting or incomplete information, the weighing of alternatives, setting a hierarchy of goals, and so on, often forcing the person to put off other decisions that need to be made in the same time frame. Thus, such thinking calls for the investment of more resources than Type 1 thinking does, and the cognitive miser prefers to hoard rather than expend limited resources. In consequence, decisions may ignore important information, stick rigidly to failing strategies, neglect probabilities, and follow well-learned steps or build on historical analogies even when a new approach would be better.

It should be noted that System 1 thinking does not necessarily lead to wrong decisions. This is one reason for military drill, and for standard operating procedures in many situations. If the individual overlearns an optimal stimulus-response relationship, such as going to his shelter when an tornado warning siren sounds, doing so quickly and without stopping to consider alternatives may save his life. System 2 thinking offers a better chance of success when the situation is novel, learned responses are not available, and creative or flexible responses must be devised. Under those conditions, System 1-based decisions can lead to failure that may surprise the decision maker as well as others, especially if those decisions had led to success on previous occasions.

The designation of these processes as System 1 and System 2 incurs the danger of considering them dichotomous. But it seems likely that there is actually a continuum in the level of mindful processes in decision-making. An alternative to "type" categories is the concept of cognitive complexity, which runs from less to more complex but without a breakpoint where one stops and the other begins. Unlike the theories discussed above, theories of cognitive complexity also build in the idea of individual differences; that is, rather than supposing universal tendencies toward a particular kind of thinking, they argue that different people are capable of, or have preferences for, particular levels of complex thinking.

Individual differences in cognition and decision-making

Cognitive styles are enduring personality traits that dominate each person's way of thinking and decision-making regardless of the immediate problem being solved. Beginning with Adorno et al.'s (1950) concept of the authoritarian personality, one anchor point in such theories tends to be an approach characterized by closed-mindedness, categorical thinking, biased information processing, and rigid persistence despite continuing failures. Adorno et al.'s almost exclusive focus on Fascism as the

prototype for authoritarian thinking was corrected in Rokeach's (1960) apolitical description of rigidity and dogmatism, resistance to changing one's perspectives or opinions, and on intolerance of ambiguity. The latter is the need for rapidly reached, clear-cut outcomes: for tasks with obvious right or wrong answers, for adopting obvious solutions even though they may be flawed, and for ignoring attitudinal or informational contradictions. Despite its misleading label, the currently popular concept of Right-Wing Authoritarianism (Altemeyer, 1981) is actually not political. The person high in RWA defers to authority, places high value on not straying from the values and customs of his or her ingroup, and is hostile and punitive toward people who do not share or conform to those norms. The authority and the norms may belong anywhere along the political left-right dimension, or for that matter on any particular dimension of ideology. They may be in the domain of religion, science, environmentalism, philosophy, art, professional practice, or economics…the possibilities are unlimited.

More recently yet, theorists have hypothesized the existence of other, but related, cognitive traits. One is the need for closure (Kruglanski & Webster, 1996), which is close to Rokeach's idea of intolerance of ambiguity. Individuals who are high on this trait opt for quick solutions to problems, even at the expense of searching for better solutions. This is an extreme example of satisficing, where the overriding goal of decision-making is to end the process. Need for cognition (Cacioppo & Petty, 1982) is another formulation. This trait is in many ways the opposite of need for closure: it is the enjoyment of thinking, information processing, and problem solving for their own sakes. Either of these cognitive styles can be pernicious for a decision maker, high need for closure possibly resulting in hasty decisions even if they are faulty, and high need for cognition leading to an unnecessarily prolonged consideration of all available information and possible strategies, even the irrelevant and futile.

Cognitive complexity

An approach that began in the 1960's and has gained considerable impetus is the focus on cognitive complexity as a personality variable (Burleson & Caplan, 1998). Several definitions and measurement techniques have been proposed, so that the term is really an umbrella that has no one universally accepted meaning; but generally, conceptual complexity is thought of as a dimension that ranges from categorical, rigid, closed thinking processes at the low end to nuanced, flexible, open, information-oriented ones at the high. High complexity is consensually believed to involve decision-making characterized by openness to new and even dissonant information, monitoring feedback from one's strategies and the behavior of others, changing, reviewing and revising decisions when necessary, and perceiving stimuli as nuanced, interactive, and dynamic.

The version of cognitive complexity that is of greatest relevance to this chapter is Schroder, Driver, and Streufert's (1967) theory of *conceptual complexity*. The theory describes a personality trait based on two cognitive processes, differentiation and integration. *Differentiation* refers to the person's ability to recognize more than one dimension or point of view with regard to a topic. In turn, differentiation is a prerequisite for *integration*, the ability to recognize relationships among the differentiated percepts.

Conceptual complexity can be scored by the Paragraph Completion Test or PCT (Schroder et al., 1967), which asks respondents to complete paragraphs starting with a sentence fragment. The sentences tap

different major aspects of social life: responses to uncertainty, dealing with authority, and social rejection. Complexity is scored on a 1 to 7 scale, with a score of 1 indicating lack of differentiation (and therefore, also of integration), 2 and 3 indicating differentiation, and 4 to 7 reflecting increasingly higher levels of integration. Many experimental studies have shown that people whose responses to the PCT differ in complexity will also differ in how they make decisions. For example, high-complexity participants in a simulated military situation tracked incoming information more closely and accurately, connected their own moves more across time periods and types of responses (e.g., reconnaissance and troop deployments), tried harder to figure out what the "enemy" was doing and planning, and communicated more within their decision-making group. These findings have been confirmed in other studies: highly complex individuals seek and take more information into account when making decisions, monitor their outcomes more closely, devise plans that are more connected to other plans, and are more likely to change their plans when the feedback is adverse. On the other hand, their decision-making tends to be slower, less decisive, and more easily distracted by unimportant information (Tetlock, Peterson, & Berry, 1993). In non-laboratory studies, groups such as business managers and emergency planners have shown similar patterns (Schroder, 1989; Schroder et al., 1967; Streufert & Swezey, 1986).

Complexity has been used to study the thinking patterns related to political positions. For example, one analysis of young adherents of Canadian political parties showed that those supporting ideologically strong parties, whether of the left or the right, were on the whole lower in complexity than supporters of two centrist, pragmatically oriented parties. Similarly, in pre-Civil War America, strong ideologues favoring either instant abolition of slavery or its indefinite continuation presented less complex arguments than those who wanted to first limit its spread and gradually to abolish it, but without drastically disrupting the fabric of society (Tetlock, 1986). In a dispute about environmental impact on a sensitive watershed area, environmentalist groups opposing development and commercial and labor union interests pushing for it were both lower than scientific researchers and a government committee, which were trying to find a middle way. The pattern is quite clear, and holds across other contexts as well: strong partisans on either side of a dispute make less complex statements and hold less complex ideas than those in the center. An interesting explanation is that conflict between important values (e.g., freedom and equality) is more frequent at the center than at either extreme, where one or the other is held paramount (for example, anarchists versus communists).

In response to persuasive attempts, people who are low in complexity are more resistant to changing their attitudes. However, if the message and circumstances are strong enough to evoke a change, that change is likely to be categorical, from one point of view to the opposite. By contrast, complex thinkers consider the message in a nuanced way, so they may accept parts of it and change their own position if they find those parts valid, without necessarily changing otherwise. Such thinkers are also more likely to respond positively to two-sided messages: that is, to arguments that acknowledge both positive and negative aspects of the position they support, as well as of the position they oppose. Low-complexity thinkers are more responsive to strong messages advocating a change without giving the opposing argument any credibility (Schroder et al., 1967).

The conceptual complexity approach has been applied in political psychology as a way to profile leaders. In two of the best-known formulations (Hermann, 2005; Pennebaker et al., 2007), a computerized measure of conceptual complexity is combined with measures of other personality traits to describe how particular political leaders view the world and their place in it. The resultant profile is used to characterize how those individuals are likely to behave in their relations with other nations and politicians, and more generally what kinds of decisions they are likely to make when faced with problems and opportunities.

Integrative Complexity

The integrative complexity approach takes a different view of cognitive complexity: it is not a personality theory, dealing with fixed preferences or abilities in thinking style. Rather, it views complexity as a dynamic aspect of cognitive processing, which fluctuates as a function of both internal and external influences. Although IC theory accepts the possibility of an underlying tendency to think in a particular way, its emphasis is on the level of complexity that characterizes cognitive processing at a particular time and under particular circumstances. The research, in turn, mostly focuses on monitoring changes in IC as decisions are made and re-made, and the consequences of those ongoing changes for the decisions that emerge.

IC is a measure not of thought content, but rather of thought structure (Suedfeld, Tetlock, & Streufert, 1992). Therefore, information processing at any level of IC can lead to any decision, and conversely, any decision, attitude, or belief may be made or held at any level of IC. Further, IC theory holds that no level of complexity leads to decisions that are necessarily preferable, more successful, or more moral than those made at some other level; these characteristics emerge from the interaction between the level of complexity and the demands and limitations of the situation. This can be a problematic aspect of the theory for some critics and even some scorers: in some quarters at least, there appears to be a prevailing assumption that higher complexity is better than lower.

The cognitive manager model (Suedfeld, 1992) is an IC-based formulation about the process that underlies decision-making. Rather than concentrating on either the strengths or the weaknesses of decisions that people make, it addresses the relationship between a dynamic range of environmental and internal factors and the complexity of the cognitive process devoted to solving a given problem. The factors that affect complexity include such external variables as time limits, the number of problems that compete for attention at a given time, the amount, quality, and relevance of available information, supporting resources such as advisors, computers, communication devices, accountability for one's decisions, and so on. Internal factors include fatigue, emotional arousal, impatience, level of interest, conflict between important values, and health, among others. Because highly complex information processing requires more psychological and other resources, cognitive managers try to make decisions without expending those resources unnecessarily. They decide how important a decision is in the context of all other decisions that have to be made in the same time frame, and adjust the complexity of their decision-making accordingly (Suedfeld, 1992). When heuristics, satisficing, standard procedures, historical metaphors, or similar shortcuts seem adequate to solve a problem, they will use those; when a

problem is new and calls for creative and nuanced thinking, their complexity will rise to the level they consider appropriate. These judgments may or may not be made consciously, although there is evidence that people have an intuitive understanding of integrative complexity and of what influences it (Suedfeld et al., 1996). This is a contrast to cognitive miser theories, which hold that people always prefer to hoard cognitive resources, as well as to "cognitive klutz" theories that cognitive processes are by nature fundamentally faulty (Suedfeld, 1992).

Besides the change from viewing complexity as a static personality trait to considering it a fluid state that responds to circumstances, IC differs from Schroder et al.'s conceptual complexity (and other cognitive style) work in the data sources it uses for scoring. Rather than using a dedicated measurement instrument, such as the PCT, IC can be scored from almost any running text, whether written, oral, or electronically recorded. The exceptions are passages of pure description of events, with no evidence of the source's opinions or perspectives ("The law was passed on 12 October 2012"), clichés and proverbs, jokes, and quotations. The last can be scored as pertaining to the complexity of the person being quoted, but not that of the quoter. Scoring uses the same 1 to 7 scale of differentiation to integration as Schroder et al.'s PCT. The results of such scoring are then analyzed through normal descriptive and inferential statistics, including both statistical significance tests and effect size calculations.

Its applications have been somewhat hampered by the fact that scoring is a labor-intensive task that requires considerable training. To qualify for independent scoring, aspiring scorers must study the scoring manual (Baker-Brown et al., 1992), participate in a live or online workshop where they score and get feedback on a large number of passages, and eventually score a test set on which they reach a reliability correlation of 0.85 or better with expert scoring. Although there have been a number of attempts to develop computerized alternatives to the qualification process, none so far has succeeded in achieving a high correlation with human scoring (Symposium, 2014).

IC FAQs

Four frequently asked questions concerning IC and political leadership, and the answers, are as follows.

1. **What is the effect of the use of speechwriters, ghostwriters, and the like?** TCA researchers have found no evidence that the IC of leaders' texts is significantly affected by this possibility. There have been comparisons of texts handwritten by leaders with texts whose original version was ghostwritten, with no significant differences. The reason for this is most likely threefold: proxy writers are selected because they think the same way their principal does; they try to write the way they believe their principal would express himself or herself; and, as memoirs have shown, the principal very frequently returns drafts with extensive changes required, and sometimes rejects them entirely with guidelines for the next version.
2. **Can leaders manipulate IC in order to produce some particular impression in the audience?** IC is a subtle measure, and it is not clear what a desirable impression would be in terms of IC. There are examples of speeches whose content is clearly designed to produce a particular impression, but whose IC shows a completely different story. For example, speeches in the UN General Assembly between 1948 and 1971 showed increasing protestations of peaceful intentions by delegates of the United Arab Republic and Israel a few months before a major war broke out; but scoring of those same speeches found significantly decreased IC in each case (see

Suedfeld, 2010). We have also found that the IC of public speeches or published writings is usually about the same as that of private materials (diaries, letters to family, etc.) produced in the same situation and time frame.

3. **Are translations faithful to the original as far as IC is concerned?** We have compared texts in the original language with authorized translations – i.e., by translators employed by governments, international organizations – as well as translations by bilingual members of our research team. We have not found significant IC differences.
4. **What if the person is lying?** IC is not a measure of content, but of structure; and there is no evidence that the structure of dishonest speech or writing is necessarily different from honest expressions.

IC in International Confrontations

The most appropriate use of IC in cognitive political psychology is to track its pattern of change across two or more situations. Changes indicate how the individual or group being scored reacts to different situations, and forecasts directions of change and probable outcomes. The patterns can also be used to identify how different individuals or groups react to events. The cognitive manager model, referred to previously (Suedfeld, 1992), traces the general outline of how IC changes in the face of an emerging problem.

When a problem is first recognized, its importance and urgency are appraised in comparison with other problems being dealt with in the same timeframe. This evaluation calls for a fairly high level of IC. The problem may be ignored or put aside temporarily, but if it is important and urgent enough, cognitive and other resources are deployed to solve it. These processes call for moderately to highly complex decisions. The implementation of those decisions may lead to higher or lower IC, as seems appropriate to the chosen strategy. For example, IC will drop if a simple decision process seems to be adequate to solve the problem. It will rise or remain stable if the problem or set of problems is judged to require complex thinking. However, if such an attempt fails, and the resources allocated to it are either depleted or must be redirected to a more important problem, IC will also drop. The theory refers to this as the decision maker having reached the stage of *disruptive stress*.

When that happens, the decision makers are likely to opt for a simplifying decision, such as abandoning the attempt to solve the problem, passing it on to someone else, or implementing a drastic, game-changing strategy. In the international political context, for example, disruptive stress may lead to statesmen choosing war – abandoning attempts at negotiation, handing the problem over to military commanders, and changing the terms of possible solutions. Conducting a war may call for many high IC decisions; but going to war may not.

Three types of war outbreak have been studied with IC analyses of the writings, speeches, and other outputs of national leaders. One is wars that are the culmination of an escalating cycle of confrontation, such as the outbreak of World War I. A second is a war that begins with a surprise strategic attack, such as Pearl Harbor. The third is periodic conventional war within an enduring international rivalry that also involves chronic violence such as cross-border firing, border incursions, terrorist attacks, and the like, as

in South Asia since the separation of India and Pakistan. As the model predicts, research has shown quite reliably that the IC of political leaders declines significantly prior to the outbreak of each war. Which of the three categories the situation belongs to is irrelevant, except that in the case of surprise attacks only the attacking nation's leaders show the IC drop before the attack. The target nation's leaders drop in IC as soon as the attack begins. A recent analysis has shown a similar IC drop by a government spokesman prior to violent government-sponsored attacks against the political opposition in Zimbabwe. In the enduring rivalries case, IC does not change significantly until before a major war begins, despite the ongoing low-intensity violence that serves as the background (reviewed in Suedfeld, 2010).

By contrast, international confrontations that are resolved peacefully through negotiations are marked by maintained or increased IC of leaders' messaging from the beginning of the problem through its resolution. This pattern has held across such situations as the 1911 Agadir Incident, the post-World War II Berlin crises, and the 1962 Cuban Missile Crisis. And interestingly, the ending of a war can lead to an almost instant increase in IC on the part of leaders, as found in studies of Gen. Robert E. Lee and Saddam Hussein. All of the war-related literature on IC is reviewed in Suedfeld, 2010.

IC and Stress

The stresses of war affect both leaders and the general public (for example, prominent scientists, authors, artists, editorial writers, etc., show reduced IC in wartime), and other kinds of stress on individuals work the same way. Men undergoing serious illness, job loss, career setback, and similar problems, show significant drops in IC and post-resolution returns to or around baseline. Women's IC, interestingly, seems more resistant to this challenge. Television newscasts on 9/11 showed fairly high IC during early speculation as to what had actually happened – an accident, like the crash of a B-25 bomber into the Empire State Building in 1945, or a bomb, a gas explosion, an erroneous report – with a subsequent IC drop as the facts of a coordinated, multi-site terrorist attack became clearer (Jhangiani & Suedfeld, 2007).

Stress resistance seems related to long-term career success, although – just as in the case of war – it is obviously not the only relevant factor. We have found that military and political leaders who have unusually long and successful careers tend to maintain or increase their levels of IC as they move from a low-stress situation to a more stressful one, such as facing an increasingly imminent battle or election. The prototype of this pattern was found in a study of Andrei Gromyko, who held high-level diplomatic and government posts in the USSR and Russia from the time of Stalin to that of Gorbachev. Gromyko showed a 22% increase in complexity when the Soviet Union was under heightened stress, whereas 15 fellow leaders in the USSR and the US all dropped, between 11% (Jeanne Kirkpatrick) and 58% (George Shultz). An extension of the study found that on average, three groups of historically eminent leaders increased in IC when under stress. A longitudinal study of Robert E. Lee showed that his initially very high IC, which may have been a factor in his successes against Union generals operating at lower IC levels during the early part of the war, dropped as the war continued and the material and manpower resources of the Confederacy diminished. It reached its lowest levels in the final battles against Grant,

whose IC was higher than Lee's, but rebounded to the original high levels starting with the surrender at Appomattox and the end of the war-related stressors (Suedfeld, 2014).

A study of leaders of successful revolutions emphasized the importance of context. Leaders from the English Civil War through the revolutions in America, Russia, China, and Cuba followed a pattern. Those who remained in power after the revolution succeeded and became the government went from low IC during the fighting to significantly higher levels when in government; those who lost their positions, many of whom also lost their liberty and/or their life, were either higher than their colleagues during the combat phase or failed to increase their IC after the takeover. It appears that in the first case, their comrades-in-arms did not trust their loyalty and dedication, because they expressed criticisms of their own side and failed to view the enemy as totally evil; in the second, they were unable to muster the level of complex thinking needed to deal with the problems of reconciliation, rebuilding, and reorganization that a new government in power – especially one that got there by force of arms -- must solve (Suedfeld & Rank, 1976).

Conclusion

Decision-making is primarily a cognitive process, although it is of course influenced by emotional, motivational, social, neurological, genetic, and situational factors. The outcome of the interactions among all of these variables is complicated and difficult to forecast. However, integrative complexity theory, methodology, and research have shown promise in three areas relevant to decision-making in the realms of political and military decisions.

1. War and other political violence is preceded and accompanied by lower levels of IC than the peaceful resolution of disagreements. The evidence in this area is solid, with many studies pointing in the same direction.
2. IC is positively related to stress resistance, which in turn can be positively associated with long-term career success. However, situational factors may modify or even reverse this pattern. The evidence supporting this is strong.
3. Communications can be more impactful is they are specifically designed with the audience's IC in mind. The evidence for this comes primarily from simulation and laboratory studies.

It is important to bear in mind that although individual decision-making complexity is important, there are systemic and societal variables that also influence decisions and personal outcomes. The relative force of complexity and the other variables depends on the situation; the measurement of IC in monitoring leader decisions is helpful, but it must be viewed as one arrow in the analyst's or forecaster's quiver.

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3: Decision making in small groups: Group dynamics, group polarization, and groupthink

Dr. Clark McCauley
Bryn Mawr College
cmccaule@brynmawr.edu

Abstract. *This chapter examines how group dynamics can affect group decision making. Groups have emergent properties, such as group norms, that cannot be understood as simply the aggregation of individual opinions. Beginning in the 1950s, group dynamics theory focused on how attraction to the group (cohesion) produces pressures for uniformity (group norms) for issues relevant to group goals. In the 1960s and 70s, two phenomena emerged that challenged existing theory. Group polarization is the tendency for opinions to become more extreme after discussion among like-minded group members. Groupthink is the tendency for high cohesion groups to come to premature consensus, without adequate review of information and alternatives, when facing a difficult and high-stakes decision. An evolved version of group dynamics theory can make sense of both group polarization and groupthink, and leads to several implications for analysts and policy makers.*

Group Dynamics: More Than Adding Up the Individual Psychologies of Group Members

The pattern of line relations we call a square does not depend on whether the sides are matchsticks or yardsticks. A melody does not depend on the exact notes that make it up, as transposing can reproduce the melody with an entirely different set of notes. The same water molecules can be ice or steam, depending on the state of interactions among the molecules. Carbon atoms related in one way are diamond, and in another way are graphite lubricant. A wave on the water's surface is not reducible to the vertical motions of water molecules that transmit the wave. More controversially, many would say that the English language is more than the speech behavior of living English speakers, and that culture is something more than the thoughts and actions of living members of the culture.

The issue here is that relationships among elements at one level can produce new properties and new phenomena at a higher level. The emergent properties cannot be reduced to the properties of the elements at a lower level because it is the relationships that are key to the new properties. Human physiology depends on chemistry but our organs are related in ways that go beyond chemical structure and chemists are not qualified as physicians. Bridges depend on the physics of steel and concrete, but physicists are not qualified as engineers. The same micro-macro issue arises in the relation of individuals and groups, where group psychology – including the mechanisms of group polarization and groupthink

of interest in this chapter -- is more than just an aggregation of the individual psychologies of group members.

Group Dynamics Theory: How Discussion Makes Group Members More Similar

Some groups are aggregations, some are dynamic systems. The people you share the elevator with are an aggregation, as are Toyota drivers, and Philadelphia's five-year olds. A school of fish, flashing first in one direction then another, is more than an aggregation, because no single fish matches exactly the heading or speed of the school. Human crowds similarly can seem to share a "group mind" although individual movements of crowd members can be highly varied. More interesting for our purposes are groups where members share a perceived interdependence, so that what happens to one member of the group can affect all. Sports teams, work teams, neighborhood associations, and problem-solving groups have perceived interdependence – as might the elevator aggregation if the lights were to go out and the elevator shudder to a stop between floors.

Study of group dynamics has focused on small face-to-face groups in which group members share a perception of group boundary and interdependence. Large aggregations can sometimes share a sense of group boundary and interdependence and so become psychological groups – a nation, for instance, or an aggregation of Toyota drivers who learn that they all face a dangerous steering problem. Beginning with research during WWII, social psychologists have studied thousands of small groups, some created by an experimenter and some found in everyday situations of work or sport. Results of this research indicated that perceived interdependence produces something new, something more than just the sum of the characteristics and needs of individual group members. Group properties emerge from the interaction and organization of individual group members.

The first step in understanding group dynamics is to distinguish between two kinds of interdependence, one obvious and the other more subtle. The obvious interdependence is that some kinds of group outcomes will affect all group members. A gang provides security to all members wearing the gang "colors." A sorority provides the rewards of congeniality to its members or it folds. An honorary society or club confers status on all its members, and if the group loses status all members lose status. In general, individuals join and stay in groups for shared goals that include material rewards, status, and congeniality. If, childlike, you asked your grandmother, "Why do people join groups?" She could easily point you to just these kinds of group attractions.

An early group dynamics experiment tried out all three kinds of attraction to the group, that is, three sources of cohesion. Pairs of college students wrote stories, first alone and again after discussion, about what was going on in a photograph. Back (1951) manipulated high versus low cohesion by presence/absence of a prize for the best pair of stories, by presence/absence of (supposed) shared expertise in the writing task, and by presence/absence of expected similarity and congeniality. For all three manipulations, high cohesion pairs showed more influence attempts during discussion and more influence accepted (i.e., changes between first and second story versions). In other words, high cohesion led to more mutual influence no matter the source of cohesion.

A more subtle kind of interdependence is based in the human need for certainty, especially about issues of meaning and value. What is beautiful, and what is ugly? What is good and what is evil? What is worth working for, or dying for? What does it mean that I am going to die? How does my life mean any more than the life of the dead squirrel I drove by on the way to work? Am I a good person, at least as good as those around me? These are questions of value, and no empirical science can answer them. According to group dynamics theory, group consensus is the only source of certainty about questions of value. If we all agree that a certain behavior is bad and disgusting, we are certain that it is bad and disgusting. The more subtle interdependence then is the degree to which we depend on group consensus for our social reality, which, if the consensus is strong enough, makes value judgment seem as objective as a judgment about which tree is tallest.

The two kinds of interdependence--for material rewards, status and congeniality, and for answering questions of value--together determine attraction to a group. High cohesion pushes group members toward consensus, especially on issues relevant to group goals, because disagreement threatens both the cooperation that can attain group goals and the consensus that gives certainty to value judgments. In this sense, group dynamics theory is a species of homeostatic mechanism. The higher the attraction to the group (higher cohesion), the stronger the pressure for group agreement around a group norm, which means stronger pressure on deviates from the norm. This pressure threatens deviates with loss of material, status, or congeniality rewards of group membership, and can at extreme levels include ridicule, exclusion from the group, and even violence. In order to avoid these punishments, an individual may conform to the group norm in public while withholding private acceptance. In other words, group pressure to join in a group norm can sometimes produce compliance—going along to get along—rather than internalization of the norm.

Group dynamics theory includes one more important claim. The power of the group to create and enforce group norms is stronger to the extent that group members do not belong to competing groups. Most of us belong to many groups: family, work group, sports team, religious meeting, book club, and so on. Different groups have different norms, and these norms compete to control our behavior. But if our social world contracts to just one small group—as for a squad of soldiers in combat, an underground terrorist cell, a religious cult—then the power of cohesion and norm-setting in that group is near irresistible.

So far group dynamics is a theory of individuals converging to a group norm, but the next section shows how group dynamics can also push norms in a particular direction.

Group Polarization: How Discussion Makes Groups More Extreme

Beginning in the 1960s, social psychologists developed an experimental model of group radicalization that has been referred to variously as “risky shift,” “group extremity shift,” or “group polarization” (McCauley & Moskalenko, Chapter 8). Groups of 3-6 individuals are brought together to discuss issues of risk taking or political opinion. These groups show consistently two kinds of change after discussion:

increased agreement about the opinion at issue (development of a social norm, per previous section), and a shift in the average opinion of group members. The shift is toward increased extremity on whichever side of the opinion is favored by most individuals before discussion. If most individuals favor risk when considering a bet before discussion, the shift is toward increased risk taking. If most individuals oppose American foreign aid before discussion, the shift is toward increased opposition to foreign aid. The shift is not just a matter of go-along-to-get-along compliance; each group member gives both pre-discussion and post-discussion opinion on a questionnaire that only the researcher sees. Thus discussion among individuals with similar values produces an internalized shift toward more extreme opinions; even after the discussion has ended, individuals retain their more extreme opinions.

There are currently two explanations of group polarization. According to *relevant arguments theory*, like-minded individuals will share a pool of arguments favoring one side of the issue more than the other side. In group discussion, each individual will hear others' positions and arguments, which, arising from the same mind-set, will also favor risk. The result is that individuals are rationally persuaded by the imbalance of arguments heard in discussion, an imbalance favoring the side most individuals inclined to before discussion.

A second explanation for the group polarization phenomenon is *social comparison theory*, based on the human need to compare ourselves with others. As noted in the previous section, attraction to the group produces pressure to form and adhere to a group norm, that is, to participate with others in a shared reality. Also important, however, is the need to preserve a positive self-image. Thus all individuals feel pressure toward agreement, but the pressure is not uniform. Individuals more extreme in the group-favored direction—the direction favored by most individuals before discussion—are more admired. They are seen as more devoted to the group, more able, more moral—in sum, as better people. This extra status translates into more influence and less change during group discussion, whereas individuals less extreme than average in the group-favored direction have less influence and themselves change more in discussion. No one wants to be or be seen as below average in support of the group-favored opinion, and the result is that the average opinion becomes more extreme in the group-favored direction.

Both *relevant arguments* and *social comparison* explanations are necessary to understand the results of group polarization experiments. In support of relevant arguments, research shows that manipulating arguments (giving participants written statements supposedly from other group members, but in fact selected by experimenters to favor one side or the other) can change the size and direction of group shift. In support of social comparison, research shows that knowledge of others' opinions without knowledge of others' arguments (for instance, giving participants a tally of others' opinions) is enough to produce a group shift. The two explanations are complementary rather than redundant. Both conduce to increased similarity and extremity in a group of like-minded individuals. McCauley & Moskalenko have described examples of group polarization in the trajectories of groups ranging from anti-tsarist terrorists of the late 1800s to the US Weather Underground of the 1970s.

Groupthink: Group Dynamics under Pressure

The name and concept of *groupthink* was introduced by Irving Janis in his 1972 book, *Victims of Groupthink*. Studying debacles of US foreign policy beginning with the infamous Bay of Pigs Invasion of Cuba, Janis tried to understand how very intelligent men could produce very stupid decisions. His answer was group dynamics: bad decisions are likely to occur with premature consensus seeking to end the stress of uncertainty about a high-stakes decision. This is an argument about the need for a social reality that answers uncertainty, a group norm that is rushed because uncertainty is painful. Janis suggested several conditions conducive to groupthink. Group conditions included high cohesion (especially cohesion based on personal attractiveness), group insulation, promotional leadership, and group homogeneity. Situational conditions included crisis time-pressure, external threat, perceived difficult decision, and recent group failure. He also prescribed antidotes to groupthink: impartial leadership, importing outside experts, appointing a devil's advocate, and methodical procedures for information search and evaluation.

Both empirical and conceptual issues have been raised in the flood of research released by the success of Janis's book. Here I focus on issues relating to group dynamics.

McCauley (1989) pointed out that groupthink is not just a matter of internalizing a group norm too quickly. Several of the cases described by Janis, including the Bay of Pigs decision, showed clear evidence of compliance. White House Staff member Robert Schlesinger and Secretary of State Dean Rusk had doubts about the plan; both suppressed their doubts when President John Kennedy called for a vote, producing a unanimous assent to the Bay of Pigs invasion. Even able men at the peak of the Washington power structure can feel compliance pressure.

In a re-analysis of the six groupthink and two no-groupthink cases studied by Janis, McCauley (1989) also pointed out that only two of the group conditions predicted occurrence of groupthink: promotional leadership and group insulation. Cohesion was high in all cases, both groupthink and no-groupthink cases, so could not predict occurrence of groupthink. No situational condition distinguished groupthink from no-groupthink. In these eight cases, the key to groupthink seems to be weakness in gathering information and defining alternatives. Group insulation blocks information that might challenge a fast consensus, and promotional leadership blocks consideration of alternatives to the leader's favored plan.

Later research resuscitated the importance of cohesion in producing groupthink, this time with a focus on the source of cohesion rather than just the level of cohesion. McCauley (1989) pointed to the pattern of results from laboratory experiments that varied the source and level of cohesion and then graded the quality of group decision making. Only high cohesion based on personal attractiveness lowered decision quality; high cohesion based on task commitment or group pride was actually associated with increased decision quality. What are we to make of this pattern? Janis asserted that optimal search and appraisal methods are undermined by high cohesion, especially cohesion based on personal attractiveness of group members (congeniality). For Janis, high cohesion produces premature consensus as an escape from uncertainty about an important decision. Experimental research indicates that there is indeed a special link between congeniality-based cohesion and poor decision making, but

the groupthink model leaves this link mysterious. Janis never explains why uncertainty should be unpleasant and early consensus attractive when cohesion is based on congeniality, but not when cohesion is based on status or a material goal.

McCauley (1989) suggested that the linkage depends, not on the special cost of uncertainty when cohesion is based on congeniality, but on the special cost of frank appraisal of ideas and alternatives offered by friends. Criticism of ideas is criticism of the individuals suggesting these ideas, and such criticism is a direct threat to the group when group cohesion depends on congeniality. In contrast, high cohesion based on group status or an important common goal will not conflict directly with unbiased search and evaluation, and will not lead to poor decision making. This interpretation amounts to a new version of groupthink theory in which poor decision making results, not from seeking consensus as the antidote to painful uncertainty, but from seeking to preserve friendly relations in a group where cohesion is based on friendly relations. In this interpretation, the importance of cohesion as an antecedent of poor decision making is dependent upon the norms of the group in regard search and evaluation of decision alternatives. If the norms enforce unbiased search and evaluation, or if the norms inhibit unbiased search and evaluation, then level of cohesion will have little effect on the quality of decision making. But if there are no norms relating to search and evaluation—no outside experts, no devil's advocate--then high cohesion based on congeniality will likely undermine group decision making in order to preserve a consensus of mutual esteem.

Evolution of Group Dynamics Theory

Looking back at the group dynamics theory instantiated in the previous three sections, it should be clear that the theory has changed. The first version of group dynamics was about how cohesion produces communication aimed at increased uniformity of opinion among group members. This is a theory of how norms emerge. The main pressure behind norm formation is the level of cohesion, understood as the sum of many sources of cohesion, both group goals and the social reality value of the group. This pressure is greatest when group members have no other group to turn to. Response to uniformity pressure can include both compliance and internalization.

The second version of group dynamics was required to deal with the phenomenon of group polarization or group extremity shift. Discussion in like-minded groups moves the average opinion of group members further in the direction favored by individuals before discussion. Relevant arguments and social comparison combine to produce the shift in average opinion, which is not just compliance but internalized persuasion that occurs in group discussion. The social comparison explanation requires recognizing that status and self-esteem needs moderate the pressure for uniformity that comes with group cohesion: individuals more extreme in the group-favored direction are accorded more status and more influence.

A third version of group dynamics theory emerged from research on groupthink. In laboratory experiments, groupthink only emerges with high cohesion based on personal attractiveness (congeniality). High cohesion based on group status or the importance of group goals and rewards does not undermine decision quality, and may indeed improve decision quality. Now it is clear that different

sources of cohesion have different effects on group process and group product. Whereas the initial version of group dynamics looked only at the sum total of cohesion, across all possible sources of attraction to the group, the latest version looks separately at the level of each source of cohesion. This evolution in the theory is not always clear in current discussions of how group dynamics influences trajectories of political radicalization and, more generally, how group dynamics influences group decisions. Even scholarly references to group dynamics are often stuck in the first version of the theory, dating from the 1950s. This chapter may help bring interested readers up to date in at least the basic concepts and predictions of modern group dynamics theory.

Implications

A few key implications from the chapter may be of use to analysts and policy makers.

- Individuals who cut family, romantic, and friendship ties to spend more time with a small group of like-minded friends are particularly susceptible to polarization of opinions in that group.

- Individuals who lose family or loved ones, especially if the loss is sudden, are susceptible to new and polarized opinions as they reach out for new ties in new groups.

- Individuals who move to another place for schooling or work are similarly susceptible to polarization in a new group. This is a principle used by every army in segregating recruits for basic training, and by every residential school that moves students from home and old friends to new group attachments at school. The Hamburg cell of Muslim immigrants showed this kind of susceptibility.

- Personal relations among a small group disconnected from other social ties can become so intense as to undermine the original purpose of the group. Terrorists can become so attached to others in their group that getting friends out of jail, or revenging torture or death of friends, can become more important than the larger cause they say they are fighting for. This is one source of "incomprehensible" terrorist decisions.

- Something similar can happen in small groups in combat, as when "fragging" an officer becomes acceptable to protect a group of soldiers from the officer's perceived undue risk-taking.

- Terrorist groups are often led by authoritarian rather than democratic leaders. These leaders will seldom avoid promotional leadership and premature consensus; terrorist groups with authoritarian leadership will thus make mistakes that counter-terrorism forces should be organized to exploit. Groupthink is another source of "incomprehensible" terrorist decisions.

- US policy makers should try to use anti-groupthink strategies whenever possible: listen to outside experts, appoint a devil's advocate to challenge every emerging consensus, develop standards of methodical search for relevant information and methodical evaluation of alternative decisions. US decision making should be further from group polarization and groupthink than terrorist decision making.

- A key indicator of the presence or absence of groupthink is the tenor of discussion in a decision making group. If the discussion is warm, friendly, relaxed, and full of smiles, then groupthink is not far away. If the discussion is tense, painful, upsetting and exhausting, then groupthink is unlikely.

As an example of high-quality decision making, Janis (1982, p. 159-172) offered the deliberations of the group that came up with the Marshall Plan. He described the tone of these deliberations in a section titled "The 'agony' of critical appraisal" (pp. 166-167). George F. Kennan led the group and had himself selected its members, but was "put personally over the bumps, to drive whole series of clichés and oversimplifications out of my head." The group did not spare one another "the embarrassments and humiliation of having to listen to a pet idea being subjected to incisive criticism and sometimes hacked to pieces." Avoiding groupthink means giving up those pleasant meetings brainstorming with friends.

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Part 2: Contextual/Domain Influences

4: State Level Decision Making: Blinders, Blunders, and Wars: What America and China Can Learn

Mr. David Gompert,
davidgompert@yahoo.com
RAND

Dr. Hans Binnendijk,
RAND
hansabinnendijk@gmail.com

Dr. Bonny Lin
blin@rand.org
RAND

Abstract. *The history of wars caused by misjudgments, from Napoleon's invasion of Russia to America's invasion of Iraq, reveals that leaders relied on cognitive models, or simplified representations of their worlds, that were seriously at odds with objective reality. The paper explores the role of information in strategic decision making. The paper highlights findings from studying eight historical cases of strategic blunders regarding war and peace and four cases of decisions that turned out well. The historical cases show that leaders' egos, intuitions, unwarranted self-confidence, and aversion to information that contradicted their views prevented them from correcting their models. Advisors and bureaucracies can be inadequate safeguards and can, out of fawning or fear, reinforce leaders' flawed thinking. The paper then applies these lessons to US-China relations. For the United States and China, war between the two countries is more likely to occur by blunder than from rational premeditation. Flawed Chinese and American cognitive models of one another create strategic distrust, which could increase the danger of misjudgment by either or both, the likelihood of crises, and the possibility of war. Although these American and Chinese leaders have unprecedented access to information, there is no guarantee they will use it well when faced with choices concerning war and peace.*

War between the United States and China could gravely harm both countries. While this makes premeditated attack by either one against the other improbable, it also underscores the need to prevent war from occurring by misjudgment. Although the United States and China collaborate on many global issues, they are increasingly at loggerheads in the Western Pacific where China's drive to recover lost territories and attain regional leadership, if not hegemony, conflicts with America's resolve to maintain

regional equilibrium, reassure allies, and preserve freedom of the seas. As Chinese military capabilities improve and the rivalry intensifies, there is a growing danger that the United States, China, or both will misjudge the other and make choices that lead to crises and even a war from which both stand to lose more than they gain. This danger warrants analysis of why and how states blunder into war.

Strategic Decision-making

The first step in this analysis is to explain how strategic decisions—defined here as those involving war and peace—get made. Our interest is in strategic decisions by states and their leaders. While there are many ways to describe this (Graham Allison's seminal work on the Cuban Missile Crisis being one), we employ a simple strategic decision making system consisting of:

- Individuals
- Institutions
- Information flows

In this system, individuals and institutions are assumed to be static, whereas information flow, as the term suggests, is dynamic. By this we mean that in the course of a given decision and what leads up to it, individuals and institutions do not change, but information does. Indeed, it can be assumed that the body of available information expands throughout the process. The soundness of the decision depends on the ability and rationality of those involved to absorb, process, and use information flowing through the system.[16] This observation will become important to our analysis insofar as the flow of information—the sensing, sharing, and use of it—might be improved. Conversely, poor sensing, sharing, and use of information may cause errors or, as our cases indicate, compound shortcomings in the individuals and institutions involved.

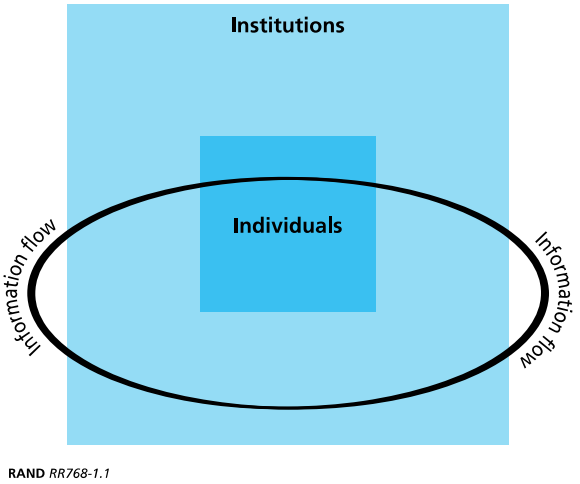

Figure 1 Simple Strategic Decision making System

Figure 1 is a simple depiction of such a strategic decision system, showing the individual decision maker in an institutional context through which information flows.

Historical Case Studies

Our study of eight strategic blunders, together with four cases in which blunders were not made, reveals a common theme: Individuals and institutions faced with complex strategic choices rely on simplified representations of reality—cognitive models— without which complexity could overwhelm them. The more these models diverge from objective reality, the more decision makers are prone to blunder, including on matters of war and peace. Leaders and staffs with great confidence in their models tend to

dismiss or discount new information that would threaten—and improve—those models. Because use of information is central to decision making, it is important and should be possible to learn how this process can break down or lead decision makers astray.

Napoleon's flawed model was that he could impose his political will on any opponent by defeating him in war, thanks to his matchless military genius and his Grande Armée. His legendary ego and belief in destiny were blinders to reality. Napoleon convinced himself and his fawning aides that by invading Russia in 1812 he could force Czar Alexander into a climactic and losing battle. Instead, Alexander had his forces retreat and thus drew Napoleon's deep into Russia's vast interior, where they would be destroyed by cold, hunger, and Cossack raids. The French emperor assumed that the Russian czar would conform to his plan for victory even though Alexander also knew that doing so would lead to defeat. Napoleon could have known better.

German military leaders during World War I were fixed by their Prussian roots in the belief that complete victory could be won, even as their troops were stalemated in the trenches of the Western Front. So in 1917 they persuaded the pliable Kaiser Wilhelm II, against the pleas of German statesmen, that the resumption of unrestricted submarine warfare against U.S. and other neutral shipping would starve Great Britain into surrender at least a year before U.S. troops could reach Europe. Within months of the German decision, U.S. convoys with antisubmarine escorts were actually increasing deliveries to Britain, and the first U.S. forces landed in Europe a year before the Germans had forecast. Though they had ample information, German generals and admirals, steeped in and committed to outright military victory, had failed to think through possibilities other than the success of their (far-fetched) plan.

The clay of Hitler's model consisted of his contempt for the Soviet Union, belief in Aryan supremacy, and faith in his own infallibility (which may have masked a deeper inferiority complex). He was impelled by the idea of destroying the Soviet Union so that Germans could live, farm, and multiply in the East. Certain that Soviet troops, willpower, and administration would collapse in the Wehrmacht's path, he invaded in 1941. Having studied Napoleon's mistakes, he then repeated them, with similar results. Although German intelligence and the campaign were flawed, the more basic causes of Hitler's misjudgment were his unbounded hubris and habit of making decisions in isolation. Hitler's circle of advisors epitomized a common weakness of authoritarian states: a paucity of people with both the nerve and the access to speak truth to power. Owing to Hitler's blunder, the "Thousand-Year Reich" would last another four years.

Japan's military leaders reasoned in the course of 1941 that by the time the United States could rebound from the destruction of its fleet at Pearl Harbor, Japan would complete its conquest of Southeast Asia and then negotiate from strength. Behind this reasoning stood the certainty of Japanese racial fitness, military prowess, and destiny to command Asia. Voices of caution went silent. By launching a deadly surprise attack on American territory, the Japanese enraged, unified, and energized an enemy with preponderant military-industrial power—as they could have expected. The United States regained the upper hand by the Battle of Midway six months later, opening the way to the devastation of Japan and the hanging of the authors of the Pearl Harbor blunder.

Deng Xiaoping decided in 1979 that China could teach Vietnam a lesson through a brief but decisive invasion, forcing the diversion of Vietnamese forces from Cambodia and delivering a blow to the Vietnamese-Soviet (anti-China) alliance. His low opinion of the Vietnamese ignored the fact that they had routed France and outlasted the United States. The Chinese miscalculation was not an unmitigated blunder: Deng cut his losses by keeping the conflict short, and the war exposed China's military weakness, allowing him to consolidate power and reform the People's Liberation Army. Operationally, though, the war was a military disaster for China: China suffered massive losses and failed to draw the Vietnamese out of Cambodia.

That same year, Soviet leaders decided that a limited military intervention to support government forces in Afghanistan would bring a quick end to political chaos, Islamist extremism, and American machinations. Based on faith in force, their model ignored information indicating that force would fail this time. All it would take was controlling major Afghan cities and the country could be pacified—so they thought. Though warned by their top military leader that the Red Army was unprepared for a counterinsurgency campaign, Soviet leaders underestimated their adversaries' capabilities, fanaticism, stamina, and refusal to fight the way Moscow expected. Soviet forces were promptly forced into direct combat with an insurgency that swelled in response to the intervention. By the time its forces withdrew a decade later, the Soviet Union was reeling from costs, casualties, and international isolation, and would soon collapse. Yet when the decision was made, habits of intimidation blinded the Kremlin to the risks of such possibilities. Pre-decision warnings from Soviet officers and agents in the field were suppressed or ignored, and the army chief was reminded that the Politburo was boss.

Argentina's military dictators decided in 1982 to occupy Great Britain's Falkland Islands in order to reverse the decline in their domestic standing by exciting Argentine patriotism. The junta's cognitive model was virtually untethered from reality, starting with the belief that UK Prime Minister Margaret Thatcher (of all people!) would not dispatch British forces to retake the islands and the assumption that the United States would not back the British. For analysis of probable Anglo-Saxon reactions, the military leaders relied on diplomats whose frustration and fury from years of British stonewalling impaired their objectivity. The outcome was the opposite of what the junta had in mind: forcible removal of Argentine troops, national humiliation, firmer British resolve not to cede the Falklands, and an immediate popular backlash that ousted the junta. The Argentines were so sure the UK would not fight that they did not prepare their occupation troops for combat; surrender was swift.

In the charged atmosphere following al Qaeda's September 11, 2001, attacks on the United States, American policymakers saw an opportunity to remove Iraq's Saddam Hussein and to create in his place a prototype for a democratic Arab world. President George W. Bush and his aides misconstrued sketchy and, as it turned out, erroneous intelligence that Saddam possessed weapons of mass destruction and had close ties to al Qaeda. They also brushed aside warnings about post invasion risks and costs in order to avoid doubts and delays about the decision to go to war. At great cost—in lives, treasure, regional stability, global image, and loss of focus on al Qaeda—the United States would fight in Iraq for eight years. Iraq remains a cauldron of sectarian strife.

Causes of Blunders and Remedies

We find from these cases that decision makers are especially prone to blunder into war when:

- information is ignored, filtered, misconstrued, or manipulated to fit predispositions
- excessive reliance is placed on intuition and experience
- arrogance, egotism, or hubris causes unwarranted confidence
- a rigid but wrong strategic concept or vision prevails
- contingencies are not considered
- enemy will or capabilities are underestimated
- operational difficulty or duration is underestimated
- dissent and debate are stifled

One finds excessive risk-taking woven through these causes of poor strategic decision making. Blundering leaders and those around them were too confident in their ability to script the future, even to the point of expecting adversaries to play their assigned parts. Across the cases, decision makers were more inclined to take risks than average people. This fits a general pattern in which highly successful people have unwarranted faith in their ability to control. It also dovetails with Barbara Tuchman's argument in *The March of Folly* that concentrated government power not only corrupts but also causes bad thinking.

We also discover throughout the study a strong correlation between strategic misjudgments and flawed cognitive models, when compared with objective reality. Those who blundered could have known better, for information seems to have been available at the time to have improved their models and supported better decisions. In contrast, when sound choices were made—Woodrow Wilson's 1917 decision to enter World War I, Henry Kissinger's handling of the 1973 U.S.-Soviet showdown, the Soviet decision of 1982 not to invade Poland to crush Solidarity—decision makers made good use of available information and so operated with sound models of reality. The fact that the propensity to blunder persists, even into the twenty-first century, despite exponential growth in the amount of and improvement in the accuracy of intelligence and other information available to decision makers, supports our argument that poor use of information is the principal culprit.

It follows that improvements are needed in how leaders and institutions use information, so that their cognitive models reflect objective reality and enable them to choose well. While this prescription is simple in theory, implementing it is anything but. Ensnared in their own models, leaders may be disinclined to admit that they filter, much less distort, information to conform to their predispositions and wishes. In this respect, they are like most people—they prefer information that supports what they already believe. The surer decision makers are of themselves and the more decisive they like to think they are, the less receptive they may be to indications that they are wrong.

Yet the very institutions and advisors that might know better are beholden and therefore disinclined to tell leaders what they do not want to hear. Time and again, our cases show that institutional checks on decision makers with blinders were nonexistent or too weak to prevent blunders.

In order to reduce the likelihood and severity of strategic misjudgments, governments need sources of independent policy analysis and advice, at least on matters of war and peace. These must be disinterested yet have standing with, and direct access to, decision makers. (Military leaders cannot be counted on for this because they are under civilian control; and intelligence officials cannot because they should not advise on policy.) In the United States, this independent source could take the form of a strategic advisory body with access to all relevant information and to the best possible analytic capabilities. Such a body could and should be circumscribed in mission and activated only when independent review is needed on matters of war and peace. It need not and should not have its own bureaucracy. In effect, it would institutionalize a common ad hoc practice of red teaming and devil's advocacy that many presidents have used.

By virtue of its proximity to the President and pursuant to its statutory duty to "assess and appraise the objectives, commitments, and risks of the United States in relation to . . . actual and potential military power," the National Security Council (NSC) is a suitable institution into which to plug such a body. It would be best to get its impartial analytic support of the highest quality from outside the government. Although this body would have no policymaking authority, it would be obligated to provide the President and the rest of the NSC with fiercely objective analysis of strategic theories, objectives, assumptions, adversary capabilities and will, implementation obstacles, prospects for success, options, and contingencies before a decision is made. Presidents should be obligated to receive this input whether or not it reaffirms existing policy. Though covered by executive privilege, the process should be a matter of historical and preferably public record, thus bolstering accountability.

In parallel, governments should set and abide by standards of analytic objectivity and rigor—akin to best practices of quality assurance—at least when it comes to decisions bearing on war and peace. Analysis should be complete, balanced, logical, evidence-based, replicable, and documented—by which standards all eight blunders we studied would have failed. The ultimate benefit would be to foster objective use of available information and thus bring decision makers' models in line with reality. An independent strategic advisory body would be the natural steward of such standards.

For this body, as well as for mainstream institutions, analysis bearing on strategic decisions should make use of demonstrated advances in analyst-computer teaming. It is relatively simple, with the help of readily available technology, to explore any number of what-ifs that decision makers and their advisors may otherwise fail to anticipate—to confront uncertainty rather than assume it away. Such methods and tools could allow decision makers and analysts to investigate complexities that cognitive models, being simplifications, do not. Cultural and psychological resistance to using computers to improve strategic analysis and decision making is likely but can be overcome. Many complex matters of public policy are already being informed by advanced analytic tools. It makes no sense to exempt matters of war and peace.

Implications for the United States and China

How do these lessons and prescriptions apply to the case of China and the United States? This case is if anything more complex than any of the historical ones studied here for two reasons. First, Chinese and

American decision makers could both be relying on cognitive models that are at least somewhat misaligned with objective reality; these can reinforce each other and thus heighten the probability of misjudgment causing crises and the possibility of war:

- The Chinese tend to think that China's growing strength entitles it to recover territory lost when China was weak and, beyond that, to be East Asia's leading power. But, as they see it, the United States wants to obstruct China's rightful claims and retain its own regional hegemony. To these ends, the United States is seen to maintain offensive forces and alliances in the Western Pacific. This model discounts Americans' assurances that they do not wish to encircle and contain China. At the same time, Chinese decision makers may underestimate U.S. will to use force on matters of less importance to it than to China, and they may overestimate their ability to control a conflict should one occur.
- Americans tend to extrapolate from China's territorial claims and increasing anti-access and area denial (A2AD) capabilities an intention to use intimidation and, if need be, force to achieve regional dominance at the expense of U.S. interests, allies' security, and regional equilibrium. Americans may underestimate how threatening U.S. strike forces appear to China and how existing alliances and new security relationships validate Chinese fears of encirclement. Yet, like the Chinese, Americans might overestimate their ability to control a conflict should one occur.

While their respective models of reality could lead Chinese or American decision makers to bad strategic choices, each capital on its own does not seem to have the deep defects of unchecked ego, blindingly bad ideas, contempt for the other side, faith in scripting, bias toward risk taking, or the aversion to debate and conflicting advice that account for so many of history's blunders. Yet the dynamic interaction of these imperfect models could lower inhibitions, such as economic interdependence, that otherwise would prevent Sino-U.S. war. This danger is compounded by the proximity of forces in the Western Pacific and by adoption by both sides of military-operational strategies that reward attacking the other's forces first.

Add to this another risk: A third party, perhaps a U.S. ally, such as Japan or the Philippines, could act imprudently over a territorial dispute and bring the two great powers into confrontation. All in all, it appears that the danger of Sino-U.S. conflict by misjudgment, while no cause for alarm, is rising and, given the stakes, too high to ignore.

In this case, even more than the blunders of history, the best way to bring perceptions in line with reality is to communicate openly and continuously between the two states and two societies. American and Chinese leaders should form the sort of relationship that goes well beyond occasional summits and hotlines of adversaries. A better model is the connection between the White House and Downing Street that American presidents and British prime ministers have, obviously taking into account that the United States and China are not allies and cannot be entirely open with one another. Regular and frank communication would improve the information each has about the other's fears, aims, perceptions, and problems, and would thus help to bring decision makers' cognitive models into closer accord with objective reality. Of course, it would also facilitate crisis management if strategic distrust is treated in quiet times. That the Chinese may be wary of such close contacts at the top means that American

leaders should be patient and persistent in seeking them, though without suggesting that the United States needs them more than China.

At the urging of the United States, the US and China have in place a forum known as the Strategic and Economic Dialogue, which provides for annual cabinet level meetings to discuss a wide range of issues that weigh on the relationship. Official connections should go beyond this mechanism not because it has been unsuccessful but because it is promising. Constant communications between national-security institutions is critical, as much to promote cooperation as to deepen understanding.

Military contacts have been irregular, mainly because of the Chinese military's wariness, but are obviously important. The United States should keep up the pressure to expand military-to-military relations, for avoiding miscalculations and possibly hostilities could depend on it. Although both states will gather as much intelligence as they can from official and military contacts, so be it: there is less danger that China and the United States gain too much knowledge about each other than that they have too little.

Nongovernmental connectivity should also be increased, especially involving Chinese and American strategic communities (think tanks, universities, and retired officials and officers). There is much afoot already in this domain, but there is no way to do too much. One especially valuable practice is to conduct and learn from joint crisis "games" involving non-officials with knowledge of how U.S. and Chinese leaders and institutions think. In addition, because Chinese and American decision making models have roots in popular suspicions of the other, every sort of educational exchange should be fostered.

More Sino-American communications, from general officers to general public, may not be enough to dispel strategic distrust, for the two powers have undeniable differences, not just of perception but of interests in the objective world, especially in East Asia. These differences are not worth the cost of conflict to either country. Therefore, in addition to more communication, it is important for both governments to institute general decision making safeguards along the lines recommend earlier.

History warns us not to underestimate the potential of leaders and institutions to blunder into war. Prudence demands that we not be too sure that war between China and the United States is precluded by awareness of its terrible consequences—for if such a war were to happen, it would likely be by misjudgment, like those made time and again. Information, well used, has the potential to improve decision making and prevent blunders. China and the United States have the opportunity as well as the responsibility to avoid repeating history.

5: VEO Level Decision Making

Dr. Gina Scott Ligon
University Nebraska Omaha

Dr. Douglas C. Derrick
University Nebraska Omaha

Leaders of violent extremist organizations (VEOs) have competing demands that shape their decision making. In this chapter, we discuss the findings from a longitudinal study of VEO leaders whose cognition is shaped by the need for adherence to an overarching ideology, but also goals of organizational survival and the pursuit of personal power within their group. Adhering to an ideology creates an environment that is the frame for decisions and is also the lens through which followers receive the decisions. Additionally, because of the inherent risks to VEOs, the leaders of these groups often lead an organization that is in flux and crisis; these organizational and personal threats can drive decisions that are counter to ideological and group maintenance goals. We outline a model that can be used to understand VEO leader decision making, and we delineate the congruent and counter valence forces that may provide planners and operators openings for prediction and influence.

VEO Decision Making

Leaders of violent extremist organizations (VEOs) have at least three interacting influences that shape their decisions (see Figure 1): 1) ideological, 2) violence, and 3) organizational. First, they must adhere to an overarching ideology, which creates a framework through which decisions are made and/or decisions are framed to followers. Second, VEO leaders operate in dangerous, crisis-laden environments. The threats they face—both threats to their organizations and to their roles as leaders—also shape their decisions. Finally, the need to grow and maintain an organization in the context of their ideological goals creates a powerful shaping mechanism on their decisions. How these often-competing forces interact provides insight into the nature of VEO leader decision making. In the following sections, we will first outline drivers of each force separately (i.e., ideological inputs, violence inputs, and organizational inputs). Next, we will describe examples where these forces either coalesced or

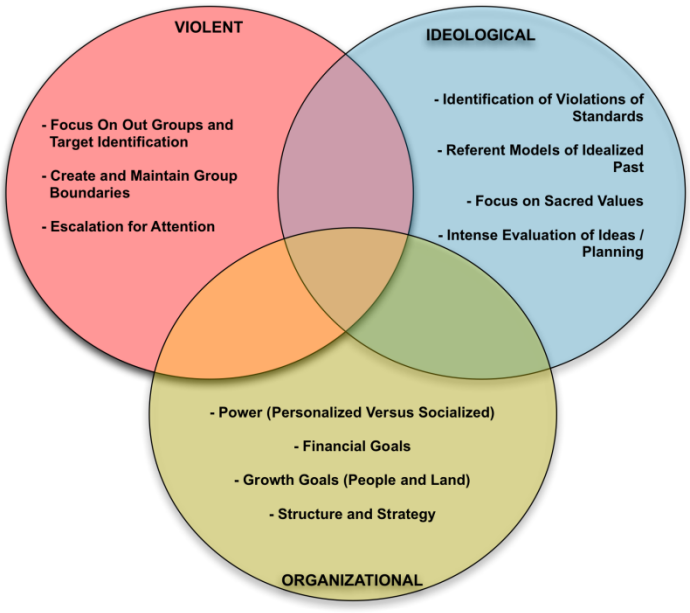

Figure 2 - Forces in VEO Decision Calculus

competed to shape a VEO leader's decision making. Finally, we will offer recommendations to readers about how to predict and capitalize on the cognitive biases and heuristics VEO leaders use in decision making.

Ideological Inputs

Weber's (1924) historical model of leadership addressed some components of how ideological, or belief-based, leaders make decisions and influence others. A few scholars have extended this initial model (Freeman, 20143; Gerring, 1997; Mumford & Strange, 2002), and we have applied these frameworks to examine the leadership style of over 50 VEO leaders across both western and non-western regions and a host of ideologies (Ligon, Harris, Harms, & Friedly, 2012). Ideological leadership represents vision-based leadership, where the vision is a compelling, emotionally evocative view that often appeals to virtues of a past ideal state (e.g., a Caliphate). Ideological leaders frame this vision around values and standards that must be maintained in order to build or re-build this just society (Mumford, Strange, & Bedell, 2006).

The first factor in ideologically-driven decisions is the ***identification of violations of standards, morals, and codes of conduct*** that underlie the overarching ideology. Extreme ideological leaders tend to view violations of such standards and values in black-and-white terms, drawing distinct differences between adherents and non-adherents. Current examples of this input are found in the city of Raqqa, the ISIS stronghold of Syria. Residents have stated that the city has "gone black", meaning that only the pure adherents to the rules and standards set out by the Hisbah (the Sharia Law police who patrol the merchants and citizens) have remained. Violators of the rules that underlie the Islamic State ideology are punished with swift severity. The ability to identify and enumerate violations gives a sense of moral superiority and "justness" to the leaders of the cause. Their perceived and perpetuated rightness is necessary to build ideological legitimacy. The strict adherence causes dissonance that brings follower attitudes more in line with the leaders' desires.

A second ideological input is the use of ***referent models of an idealized past state*** for the group. Ideological leaders tend to hearken back to times of past greatness, drawing from key figures in the ideology and lessons learned from them. Ideological leaders compare present and past conditions in making decisions (Strange & Mumford, 2002), contrasted with pragmatic or charismatic leaders who tend to examine conditions based on more flexible models for how the world "could be." This focus on the past may result in ideological leaders rather rigidly identifying fewer ways to accomplish goals, as they are constrained by the evaluation of key causes and outcomes of past conditions when making decisions for their organization in the present. While this analysis may provide an appealing lens for a follower via familiarity with the historical parables and lessons learned, it may also lead to less generative approaches and more predictable decisions. Hence, hearkening back is both a strength and a weakness. It is able to motivate and give a sense of time and purpose, but also constrains the lens through which decisions are made.

Third, ideological leaders ***focus on sacred values*** in decision making. Because problem definition and decision making is framed in terms of these shared principles and beliefs, ideological leaders tend to

give weight to those that are highly salient to their followers as a means for influence mechanisms. For example, while members of the White Supremacist movements may evidence some heterogeneity in beliefs about homosexuality and family values, they all have common values in white superiority (Simi & Futrell, 2007). Thus, the majority of decisions are made based on adhering to the principles underlying this common, shared belief for maximum satisfaction from followers and congruence with the ideology. A sacred value is more than just a shared value or moral value. It is a value that is prescribed by deity and by which adherents judge and evaluate their actions and ultimately their lives. These values color every decision and every edict. Rational arguments and disconfirming information are ignored, discounted, and discarded in the face of these values.

A final ideological input is the emphasis on the ***evaluation of ideas and planning***. In a study examining the problem solving style of both violent and non-violent ideological leaders, Mumford and colleagues (2006) found that these leaders tended to relentlessly seek information about causes that concerned them. Compared to charismatic leaders who tended to gather only surface-level information in searches, when evaluating plans that impacted the ideological goals of their organizations (e.g., the Provisional Irish Republic Army's analysis of negotiations with Ireland in the late 1990s), ideological leaders exercised remarkable planning and forecasting of downstream consequences. This may be because ideological leaders, given their focus on the past and an extant set of values, have well-defined criteria against which to evaluate decisions prior to endorsing them. Thus, it is dangerous and erroneous to assume that ideologically motivated decision making is irrational; rather, it is more instructive to assess the criteria that ideological leaders use to evaluate decisions and consider outcomes.

In our examination of VEO leaders in the Leadership of the Extreme and Dangerous for Innovative Results study (LEADIR; Ligon et al., 2013), we found that VEO leaders who are not prototypical ideologues themselves still use ideological inputs such as adherence to belief-based standards and rules in decision making. For example, several key leaders in ISIS evidence styles, which are more "pragmatic" in nature, as they held sectarian positions in the Baathist military under Saddam Hussein. However, because they now operate in an ideological organization, the Jihad-based principles, rules, and standards for behavior still shape the decisions they make, albeit perhaps differently than how the standards and values input into a true ideologue's decision calculus. Instead, pragmatic leaders operating in ideological organizations must frame decisions around the ideology, as this is the lens through which ideological followers will receive and appraise the decisions.

Violence Inputs

While ideological leaders in general are guided by overarching belief-based principles and values in decision making, violent extremist ideological leaders' decisions are also governed by the need for destruction and violence to an identified target. VEO leaders operate in perceived or real dangerous, crisis-laden environments, where the need and pressure for proactive or retaliatory violence against the people, property, processes, and symbols of their target shape their decision making (Drake, 1998). Moghaddam (2005) has argued that the perceived societal conditions of injustice, loss, victimization, and grievance give rise to ideological leaders who promote massive amounts of destruction. In a study comparing violent ideological versus non-ideological leaders, Mumford, Espejo and colleagues (2008)

identified how this need for violence serves as an input into their decision making in at least three ways. First, VEO leaders consider the boundary conditions for violence—who and what make acceptable targets. Second, because of the focus on shared values in decision making, ideological leaders' decision making may promote greater denigration of others who do not share those values and beliefs. Third, given a need to increase violence to draw attention to their beliefs and cause, ideological leaders are prone to consider increasingly savage acts of brutality.

A key consideration to violence-driven decision making is the notion of ***who or what makes an acceptable target***. This is typically driven by what Asal and Rethemeyer (2008) have called "Othering" or the degree to which the target is different from members of the ideological group. For example, VEOs with targets who have no possibility of joining the ideological group based on the genetic lineage, background, or other immutable characteristics (e.g., race, sexual orientation), are said to have strong othering. Conversely, groups are deemed to have "weak othering" when they can accept a wide variety of members—including those who currently fall into the target category (e.g., animal researchers are targets of the Animal Liberation Front, however, if they were to stop their research in this area, they could theoretically join ALF as members). Thus, their ideology dictates who will be seen as acceptable targets, as well as the amount of destruction and violence that can be levied against these targets. Asal and Rethemeyer (2008) found some evidence that groups with strong othering were far more lethal than groups with weak othering of targets, suggesting that when clear lines exist between in-group and out-group membership, greater violence is able to be expressed toward the target. Related, the nature of the ideology dictates who the targets actually are (e.g., members of a minority group, Kurds, animal researchers). Issue-specific (e.g., animal rights) versus supernatural-audiences (e.g., Allah) can dictate the amount and type of violence considered by VEO leaders. VEOs whose mission is in the name of a supernatural versus terrestrial audience are more likely to be lethal, or kill greater amounts of the target group. Specific tenets of the ideology also help frame the viability of certain targets. For example, while water and food supply are typically deemed unacceptable targets to Islamic fundamentalists, when ISIS invoked scriptures from the Quran about being attacked from the target group, they were able to justify the attack on historically off-limit food sources (e.g., the grain silos in Khobane) and water sources (e.g., the Mosul Dam). Thus, the degree and type of violence considered by VEOs is shaped by ideological and violence considerations (see figure 2).

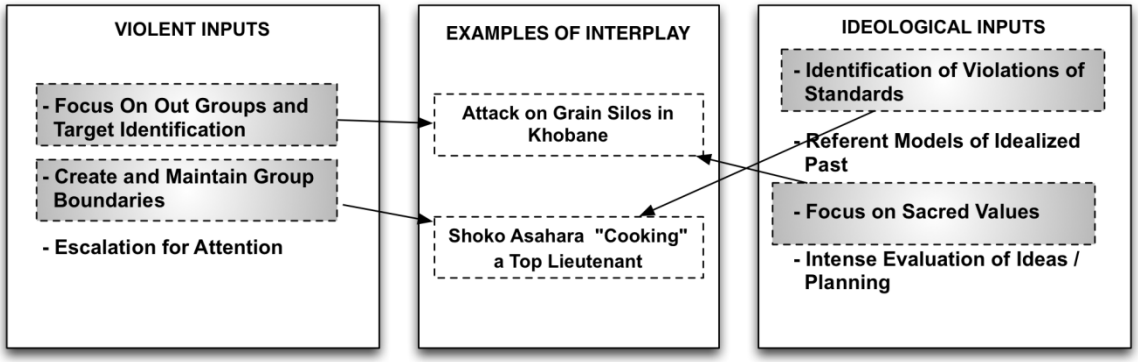

Figure 2 Interplay of Violence and Ideology

The need to create and maintain group boundaries also shapes violence carried out by VEO leaders. Given the need for secrecy, VEO leaders draw clear distinctions between in-group and out-group members. This is manifested in distrust from outside information, heightened identity development, and institutional sanctioned violence against both targets and transgressors of organizational norms and standards (Ligon et al., 2013). Because membership in the group is not reinforced by pragmatic incentives (e.g., pay), VEO leaders use ideology and violence to strengthen group bonds and subsequent personal commitment from followers. This can be accomplished in at least two ways. First, VEO leaders tend to mete severe violence to members—particularly high-ranking members—who have transgressed living by ideological standards within the organization. For example, Shoko Asahara of the Aum Shinrikyo literally "cooked" one of his top lieutenants who had failed to adhere to some of the more eccentric but important moral tenets of the ascetic Aum (see figure 2). In addition, VEO leaders can use violence to heighten group identity by making more salient external threats. When VEOs face internal rife and discord, leaders often will launch more attacks on the enemy to draw negative attention from the internal workings of the group and to the out-group (i.e., "the real enemy"). Yasser Arafat used this tactic effectively after assassination attempts on him from factions within the PLO. He often would wage unprecedented and seemingly non-ideologically motivated attacks on outsiders to rally his troops and create the external threat needed for group maintenance of his organization. Thus, VEO leaders use intra-group violence to punish members who do not adhere to standards outlined by the ideology, and inter-group violence to draw attention away from strife within their own group; both of these are in the name of the creation and maintenance of group boundaries.

Finally, VEO leaders ***escalate violence to draw attention to their cause***. A key consideration for VEO leaders is to garner continued attention from the media, adversaries, and potential recruits and sympathizers. Thus, they recognize that there is a need to increase the novelty and destructiveness of violent attacks. For example, in a talk about the internal workings of ISIS, Dr. Hassan Hassan (March, 2015) noted that the leadership relies heavily on the book, *The Management of Savagery*. In this book it states that overwhelming violence overrides most decision making considerations. *The Management of Savagery* states that jihad is about violence, extreme, shocking violence. This Jihad playbook also dictates that violence must be increasingly shocking each time to have the desired effect.

In addition, when considering response generalization theory, it seems that increasing violence is a way to recapture attention of an intended audience who may have habituated due to decreasing novelty. This can be evidenced by the changing strategy of ISIS from beheadings to burning of targets in cages—the change in tactics helped recapture attention to the nature of ISIS and their ideological cause. Finally, we found evidence that highly cruel and increasingly novel attacks resulted in greater media attention, which also related to increasing organizational size and munificence over time (Ligon, Harms, Breazeale, and Pleggenkuhle-Miles, 2013). In a longitudinal study that examined the subsequent attention, fundraising, and recruiting that occurred after "run-of-the-mill" attacks versus "highly and uniquely cruel" attacks, we found that even when controlling for lethality, the more gruesome and violent attacks resulted in greater organizational outcomes down the road for the VEO. In other words, when it comes to malevolent creativity and cruelty of attacks, the media attention garnered resulted in positive organizational outcomes down the road and the "any news is good news" axiom truly holds.

Organizational Inputs

While ideological and violence inputs may shape the **intent** of a VEO leader's decision making, organizational inputs shape the **capacity** for executing those decisions (see figure 3).

Figure 3 The Relationship between Intent, Capability and VEO Decision Inputs

There are at least four organizational considerations that shape a VEO leader's decision calculus: 1) pursuit of power in achieving organizational goals, 2) need for funding to maintain operations, 3) need for organizational growth, and 4) the design of organizational structure to implement the leader's strategy. Thus, the considerations required for organizational maintenance and growth mandate that VEO leaders examine more pragmatic considerations than those violent extremist lone actors or even foot soldiers must examine in decision making. Few scholars have examined the nature of violent extremist organizations, but we have examined 80 ideological organizations in a longitudinal study sponsored by Department of Homeland Security and the National Consortium for Studies of Terrorism and Responses to Terrorism (START) to better understand the pragmatic considerations that such leaders face in planning and decision making.

First, the VEO leader expresses ***either personalized or socialized power*** in achieving organizational objectives. In a study of how leaders use power in organizational settings, House and Howell (1992) identified two juxtaposed strategies that impact decision making. O'Connor and colleagues (1995) identified that personalized versus socialized leader decision making is less malleable and likely shaped by early life experiences such as exposure to negative life themes, object beliefs, and marked personal grievance.

Personalized leaders see the organization as an extension of themselves, existing mainly to further the leader's advancement of their personal power and resources. Personalized leaders tend to have negative views of others, showcasing limited trust and consideration of followers' needs, value, and input when making decisions. They tend to surround themselves with other personalized leaders who can help them accomplish their goals or sycophants who parrot back their missives and ideas (Thoroughgood et al, 2012). They engage in limited sharing of decision making with followers, as they see other organizational leaders as threats to their own personal power within the organization. In addition, as personalized leaders are more prone to overvalue their own competence and undervalue

the competence of others, they engage in more risky decisions that often fail to robustly consider all the factors at hand. Personalized leaders can erode followers' commitment over time, as they tend to rule by fear, threat, and punishment. In our LEADIR study, we found that violent ideological organizations were far more likely to be led by personalized leaders than non-violent ideological organizations (Ligon et al., 2013). However, when examining destructiveness of personalized leaders (over 1406 attacks coded), we found that personalized leaders were much more lethal and achieved higher visibility through destructive attacks. These personalized leaders tended to pursue attacks on targets such as educational institutions, telecommunications, airports/airlines, and utilities when compared to other VEO leaders (Ligon et al., 2014).

Socialized leaders view themselves as extensions of their organizations, and make decisions based on the survival of the organization rather than securing their particular place in it. These leaders engage in more succession planning and development of other leaders, as they see the need to further the longevity of the organization beyond their tenure as leader. Socialized leaders make decisions based on the good of the whole of the organization rather than preserving their place in it, and they tend to share in decision making responsibility as they trust their key lieutenants to also evidence socialized leadership. As a result, it is not surprising that in our longitudinal study of attack profiles, we found that socialized leaders were more able to plan and implement complex attacks that required coordination between multiple units, greater expertise, and more weapons (Ligon et al., 2014). In addition, we found that socialized leaders were more adaptive over time, learning new strategies and creating organizations that became more lethal over years during their height of power.

The second organizational influence mechanism is ***the pursuit of financial goals to maintain the organization*** and this plays a key role in a VEO leader's decision making (Hoffman, 2002). In order to remain viable and finance ideological objectives, VEO leaders must consider how decisions impact revenue sources. For example, al-Qaida in Iraq leader al-Zarqawi was feared to have alienated moderate Muslim donors from the al-Qaida Associated Movements (AQAM) given his ruthless beheadings and singular decision making. There is also evidence that VEO leaders consider how to demonstrate return on investment to donors by detailed accounts of how their weapons and donations were used in battle. This was most recently evidenced in the ISIS Annual Report, which detailed fastidious record keeping as to how funds were used. In addition, the relentless pursuit of national critical infrastructure as evidenced by the campaign plan of ISIS shows a pragmatic focus on securing lucrative, long-term investments such as oil refineries and other natural resources. Financial pursuits also dictate attack and recruiting strategies. For example, while several VEOs have had the intent to pursue chemical, biological, radiological, and explosive weapons of mass destruction, few have been able to translate that intent to action based on limited organizational capability and financial resources.

A central consideration of a VEO leader is how ***to grow the organization***—both in terms of followers and territory. Recruiting is a central component of VEO leader decision making, resulting in a focus on branding, organizational legitimacy, and creating a compelling narrative. Decisions are both made and framed in relation to the brand, such as which alliances to endorse, what media to use in recruiting, and what statements to make by key figures. For example, ISIS has designated al-Adnani has the Chief Media Officer, charged with delivering "official" organizational speeches and approving media content such as

the video *Flames of War*. With an emphasis on the attraction and recruitment of Foreign Fighters from distinct regions, Adnani appeals to specific local grievances when speaking to them in recorded messages. In addition, because Foreign Fighters are a valued component of the ISIS organizational structure, leaders make decisions to feature them heavily on external media and in relation to local fighters. For example, Foreign Fighters are given premiere housing in urban areas while local fighters maintain modest homes in more rural outskirts. In addition, leaders must make decisions to recruit followers with specific skills. While ideological considerations would dictate that all members who share a particular set of sacred values are welcomed into the organization, pragmatic organizational capacity considerations dictate that some members are pursued more doggedly than others. For example, ISIS has made several calls to potential members with specific technical expertise in weaponry, computer science, and medicine. Given demonstrated expertise in some of these areas, ISIS is willing to overlook deficiencies in lineage or ideological piety. VEO leaders must make decisions about whether pragmatic expertise-based considerations outweigh ideological considerations when making staffing decisions for the organization. We found that organizations that had titles based on expertise as well as ideological tenure were more lethal than VEOs who used titles to denote organizational commitment alone (e.g., tenure; Ligon et al., 2014). This may signify that more destructive leaders weigh organizational considerations as heavily as they do ideological ones when making decisions.

An additional measure of organizational growth is the capturing and holding of territory which is often an important measure of VEO success. A physical territory provides a meeting and training space for VEO members to become more proficient in their tradecraft, but also creates organizational legitimacy in the eyes of potential recruits and funders. Securing desired land is key in recruiting in all types of non-violent organizations, so it follows that it also plays into the decision making of violent-ideological leaders. For example, establishing the Caliphate in Iraq and Syria granted ideological legitimacy to the brand of ISIS when compared to VEOs with similar jihad aspirations but in less ideologically congruent regions (e.g., Nigeria). Finally, making decisions to pursue actual land versus less tangible targets (e.g., ideas) can result in a powerfully motivating influence mechanism for followers. The concreteness of the actions is a tangible reminder of progress and success.

Finally, VEO leaders must decide what type of ***organizational structure will best match their strategy*** in light of organizational forces that shape the terrain. In our study examining ideological organizations, we found that most groups manifest some degree of hierarchical structure over time (Ligon et al., 2013). This is consistent with organizational theory literature that states that as organizations increase in age, they become more mechanized with regard to how they accomplish objectives, which can lead to greater levels of departmentalization and centralized decision making structures. However, given these parameters, VEO leaders must still consider what functions of an organization will help them execute their strategy. For example, the PIRA established punishment squads to help enforce ideological standards, while ISIS has established a court system to help determine violations of Sharia law. Of late, we also see a designation of a specific function dedicated to media and outreach across a variety of VEOs. The coordinating mechanisms between these organizational subunits and the degree of autonomy afforded to the leaders of each all play into the decision making of the senior VEO leader.

Whether or not these decisions are consciously made or evolve over time, the leaders will be confronted with organizational structure challenges that will drive decision making and the organizational form.

VEO Leader Errors in Decision Making

In this chapter, we have identified at least three inputs that play into a VEO leader's cognition and decision making. Since these considerations operate across the ideological, violence, and organizational levels, VEO leaders are likely to exhibit a set of cognitive biases that will result in erroneous decision making: 1) overestimation of their own capabilities, 2) underestimation of opponents' capabilities, 3) rigidity during implementation, 4) limited reliance on experts or independent thinkers, 5) risk taking during crises, 6) overreliance on singular fundraising sources, and 7) limited succession planning.

Given that VEOs are more likely to be led by personalized leaders, they tend to create structures where the leader is insulated from bad—albeit accurate—news about the organization. This is exacerbated by the fact that sacred values may also blind the mind to disconfirming information. This impacts a VEO leader's capacity to accurately assess the nature of the adversary against his own capabilities, which can result in over-commitment and extension of resources. If a VEO leader places an inordinate amount of weight on ideological objectives (e.g., pursuit of a particular target even when incoming information suggests that implementation will be difficult), he may ignore salient pragmatic considerations that might result in a more accurate assessment of the adversary. Moreover, when internal organizational conditions necessitate that attention be directed externally to the organization for group maintenance, the VEO leader is likely to ignore disconfirming evidence about the veracity of the plan given the sense that there may be "nothing left to lose."

While Mumford (2006) found that ideological leaders were highly analytical and exhaustive in their evaluation of plans against ideological goals, once they have committed to a plan, it may be difficult for them to change course and make mid-stream corrections/adjustments. Thus, once in implementation mode, VEO leaders are likely to charge ahead with a COA rather than back down, even if it is more prudent to do so. This can be manifested in taking what is perceived as excessive risk in decision making; because VEO leaders, particularly those with religious or supernatural audiences, believe that they are charged with a higher purpose, they often will ignore more pragmatic incoming data that non-ideological leaders may weight more heavily. This can result in overly rigid commitment to plans once the VEO leader has endorsed them.

Given the need for secrecy in their organizations (Crenshaw, 2011) and oft-personalized leadership style, VEO leaders may fail to consider the alternative viewpoints of experts. Because they build organizations comprised primarily of individuals selected for ideological congruence, they may not have access to leading thinkers on strategy and decision making. In addition, if the VEO leader manifests a personalized style, he is much less willing to seek out or entertain expert opinion as it can affront his own sense of superiority and strength.

Due to the input of focus on shared sacred values, VEO leaders may become overly reliant on funders who meet ideological rather than pragmatic criteria for their organization. For example, VEO leaders

often will shun support from revenue streams that violate their ideological sacred values, which may limit the diversification of their financial portfolios and long-term sustainability. Thus, VEOs are particularly susceptible to organizational failing when an important revenue stream is cut off.

Finally, VEO leaders, in their need for power consolidation and given the high-pressure environment that characterizes their organizations, are less likely to engage in focused succession planning. While they are likely to have identified successors in the event of a decapitation event (Jordan, 2014), there is little evidence that VEO leaders have the time, motivation, or resources to adequately train and develop future leaders of the organization. Thus, given loss of a VEO leader the overall organization is likely to lose key sources of expertise and ability in marshaling the violent extremist followers.

Conclusions

While pursuit of ideological goals using violent strategies is most related to leader ***intent,*** pragmatic organizational considerations shape and are shaped by ***capacity*** in terms of a leader's decision calculus. Our goal in the present effort is to refocus the conversation away from the irrationality of VEO leader decision making. It is dangerous and inaccurate to state that leaders of violent extremist ideology make decisions in an irrational, unpredictable way. Stating that there is no discernable contour to the VEO leader's decision calculus makes it less likely to identify potential interdiction points and cognitive openings for influence. Understanding VEO leader's sacred values, need to pursue perceived moral grievances, acceptable targets, focus on key financiers, and goals of personalized versus socialized organizational power can provide insight into understanding at least some influences on VEO leader decision making.

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6: Chinese Elites View of the International Environment and National Security Decisions

Timothy Heath
Senior Defense Policy Analyst, RAND Corp.
theath@rand.org

Cortez A. Cooper III
Senior International Policy Analyst, RAND Corp.
ccooper@rand.org

Abstract. *The ruling Chinese Communist Party (CCP) has outlined a vision for China's revitalization as a great power, referred to as the "Chinese Dream" by PRC President Xi Jinping. The pursuit of strategic and policy objectives inherent in this vision provides the lens through which China's elite leaders view the international geo-strategic environment, and an intellectual framework within which the leaders carry out national security decision making. These elites focus first and foremost on policy objectives to ensure economic prosperity, social stability, and a higher quality of life for PRC citizens; but these primary objectives depend in part on China's ability to shape the regional and international environment and secure its core sovereignty interests. This paper examines how China's ruling Party leaders under Xi have focused on structural, systemic reforms aimed at improving China's ability to sustain development, compete in the global economy, and defend an expanding array of national interests. The paper then examines how these reforms drive directives and policy efforts aimed at incentivizing international cooperation with China's vision, and punishing opposition to PRC efforts to shape the international order and defend core interests. Finally, the paper concludes with a brief consideration of the implications of the Chinese decision making framework for regional security and for US policy makers.*

Introduction

While previous white papers in this volume have provided a broad range of perspectives from which to view individual and collective decision-making under various conditions, this paper aims to describe the intellectual framework within which China's leaders operate to make national security decisions. The paper delineates the rationale driving Chinese policy decisions—a rationale deeply rooted in perceptions of vulnerability to threats both at home and abroad.[46] The principal objective of the CCP is to ensure its long term rule by delivering competent governance in a manner that reinforces CCP authority and

[46] Andrew J. Nathan and Andrew Scobell, *China's Search for Security,* New York: Columbia University Press, 2012, pp. 3-4.

guides China's revitalization as a great power. Threats to the realization of these objectives are by the CCP's own count numerous; and policy decisions refer either directly or indirectly to a strategic vision provided by the senior Party leadership to meet the principal objective and mitigate threats.

Since 2002, the CCP has designated itself a "governing party" [*zhizheng dang*] oriented towards the fulfillment of the people's "fundamental interests" [*jiben liyi*].[47] This represented an important adjustment from the "revolutionary party" of the Mao era, and from the near exclusive focus on increasing economic growth that characterized much of the Deng Xiaoping and Jiang Zemin eras. To fulfill these "fundamental interests," the CCP has outlined a vision of the revitalization of the Chinese state and its people, referred to as the "Chinese dream" by PRC President Xi Jinping. The "Chinese dream" includes two major parts. First, it aims to increase the standard of living for all Chinese people. Second, it seeks to realize China's rise as a great power.

In Xi's explanation, the Chinese Dream is "the goal of completing the building of a wealthy, powerful, democratic, civilized, and harmonious socialist modernized nation" which he anticipates will "definitely be realized" by the 100th anniversary of the 1949 founding of the People's Republic of China.[48] The ruling party has developed an elaborate network of strategy and planning documents to achieve this end state. Since 2002, Beijing has articulated dozens of policy objectives to be achieved by 2021, spanning economic, political, social, cultural, and economic fields.[49] These objectives underpin elite Chinese decision making across the board, helping guide the development of major tasks, planning documents, and other policy decisions.[50]

Recent Developments Under Xi: Centralization of power and structural reform

When Xi Jinping assumed the role of General Secretary in 2012, he faced a situation much different than that faced by his predecessor, Hu Jintao, in 2002. Over the span of Hu's tenure, China's economy rocketed from a GDP of $1.45 trillion to $8.29 trillion. By 2010, China had overtaken Japan to become the second largest economy in the world. This period of sustained rapid growth occurred at a time of relatively slow or stagnant growth for many other regional powers. Japan, South Korea, Taiwan, and other Asian economies experienced substantial downturns in growth rates.[51]

Despite the rapid economic gains, the imbalances generated by such a heavy reliance on export and investment driven growth proved unsustainable, especially in the aftermath of the global financial crisis in 2008. Consequently China's leaders agreed in 2012 to prioritize structural and systemic reforms to the nation's economy and governance to maintain a stable growth rate and ensure social stability. To enact

[47] "Full Text of the 16th Party Congress Report," Xinhua, November 18, 2002. Available at: http://news.xinhuanet.com/english/2002-11/18/content_633685.htm
[48] "Xi Jinping Addresses Exhibition on China's Renaissance," Xinhua, November 29, 2012. Available at: http://news.xinhuanet.com/politics/2012-11/29/c_113852724.htm.
[49] "Full Text of 18th Party Congress Report," Xinhua, November 17, 2012. Available at: http://news.xinhuanet.com/english/special/18cpcnc/2012-11/17/c_131981259.htm
[50] Timothy Heath, *China's New Governing Party Paradigm*, London, UK: Ashgate Publishing, December 2014.
[51] World Bank website, 2014. Available at: http://data.worldbank.org

these reforms and overcome opposition from powerful officials, companies, and other vested interests, Xi Jinping has pursued centralization of authority. Xi oversaw the development of numerous central leading groups with himself at the helm, including the "Central Leading Group for Comprehensive Reform," the "National Security Commission," and other groups. He has also vigorously prosecuted an anti-corruption campaign that has netted the former head of the security apparatus, Zhou Yongkang, a former vice chair of the Central Military Commission, Xu Caihou, and other powerful officials.[52]

The consolidation of power has coincided with significant shifts in the CCP's approach to various policy decisions. Party leaders under Xi have focused on structural, systemic reforms aimed at improving China's ability to sustain development, compete in the global economy, and defend China's expanding array of national interests. The widely invoked phrase "top level design," an idea borrowed from engineering to suggest top down structural and systemic reform, captures well the ambition of the party's leadership. This focus on structural reform stood out as the primary focus of the third plenary session (Third Plenum) of the 18th CCP Congress in November of 2013, and continues to pervade much of the administration's policy agenda.

China's Increased Shaping Efforts and Hardening Position on Core Interests

While much attention has focused on the application of systemic and structural reform for domestic purposes, the CCP is pursuing changes to accord with China's developmental needs in the international arena as well. Xi has highlighted the importance of building the economic infrastructure needed to realize Asia's economic potential through initiatives such as the "Maritime Silk Road" and Asian Infrastructure Investment Bank (AIIB). He has also emphasized the importance of changing the security order in Asia and modifying elements of the international order, ideas embodied in the vision of a "New Asia Security Concept." In Xi's words, China "cannot be bystanders and followers but must be participants and leaders." He urged PRC officials to "inject more Chinese elements in framing international rules."[53]

Beijing has also promoted a number of directives and policy efforts aimed at incentivizing cooperation and punishing opposition to PRC efforts to shape the international order and defend core interests. At the Central Work Forum on Diplomacy to the Periphery held in 2013, Xi Jinping directed foreign relations workers to pursue policies that provided material benefits while emphasizing the country's moral rectitude, especially to countries that demonstrated friendly behavior to China. PRC officials and scholars point out that the same directive, known as the "profit righteousness concept" (*liyiguan*), also carries punishments for those countries that pursue policies hostile to PRC interests.

An area of notable shift in policy concerns China's stance regarding its so-called core interests. The Xi administration has hardened its position regarding possible compromise, a stance embodied in the policy directive of the "bottom line principle" (*dixian zhengce*). In 2013, Xi Jinping pledged that China

[52] David Ignatius, "China's Xi Jinping Consolidates Power and Brings Stability," Washington Post, February 28, 2014. Available at: http://www.washingtonpost.com/opinions/david-ignatius-chinas-xi-jinping-consolidates-power-and-brings-stability/2014/02/28/3280148a-9ff7-11e3-9ba6-800d1192d08b_story.html

[53] "Xi Jinping Remarks at 19th Politburo Collective Study Session," Xinhua, 6 December 2014.

would not "compromise an inch" of any of its territorial and sovereignty claims. These statements demonstrate a growing willingness to "impose costs" through primarily non-military means to deter countries from impinging on PRC core interests, a trend already well under way in the years leading up to Xi's ascent. Numerous countries within Asia and beyond have felt the impact of this policy shift. China retaliated against the arrest of a Chinese fishing boat captain near the Senkaku Islands in 2010 by freezing the export of rare earths. It restricted banana imports from the Philippines and curbed tourism to the country in response to a dispute near Scarborough Reef in 2012.[54] In Europe, an early example of this evolution in Chinese policy could be seen in the 2010 decision to halt imports of Norway's fish in retaliation for the country's recognition of dissident Liu Xiaobo with the Nobel Peace Prize.[5556] In 2013, China also froze its diplomatic contacts with the United Kingdom for a year after Prime Minister Cameron met with the Dalai Lama.

PRC Threat Perceptions

Nested within its overall national strategy, PRC leaders are also pursuing a security strategy to reduce vulnerabilities, cope with threats, and support the nation's revitalization. Reflecting the broader themes of potential cooperation and competition, Beijing has identified a broad array of security concerns, some of which converge with those of the United States, but some of which do not. The 2013 Defense White Paper named several threats that showed some potential for convergence with the United States, such as criticism of terrorism and religious extremism, though these labels often obscure China's tendency to conflate political subversion with broader dissatisfaction among ethnic minorities under Beijing's heavy-handed rule. But other transnational threats show clearer convergence, such as piracy, crime, and various humanitarian crises.

Among the perceived dangers cited in the White Paper, the primary areas of divergence with the U.S. included threats that the PRC believes emanate either directly or indirectly from the United States and its allies. It cited the threat of U.S. military alliances and interventions, when it criticized "some countries" for "strengthening alliances" and "making the situation more tense." It criticized Japan and other neighboring countries for "taking actions that complicate or exacerbate the situation." China also named Taiwan "independence forces" as the "biggest threat to cross-Strait stability."[57] The diverse array of convergent, divergent, and mixed security concerns between China and the United States informs Beijing's security strategy aimed at shaping the regional and global order as well as defending core interests.

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[54] Andrew Higgins, "Philippine Banana Growers Feel Effect of South China Sea Dispute," The Washington Post, June 10, 2012. http://www.washingtonpost.com/world/asia_pacific/in-philippines-banana-growers-feel-effect-of-south-china-sea-dispute/2012/06/10/gJQA47WVTV_story.html

[55] "Britain's Cameron Turns Page on Dalai Lama Row with China Visit," Reuters, November 30, 2013. http://www.reuters.com/article/2013/11/30/us-britain-china-cameron-idUSBRE9AT05I20131130

[56] "Soul or Salmon? Norway's Chinese Dilemma," *The Diplomat*, May 9, 2014. http://thediplomat.com/2014/05/soul-or-salmon-norways-chinese-dilemma/

[57] China State Council Information Office, The Diversified Employment of China's Armed Forces, April 16, 2013, http://news.xinhuanet.com/english/china/2013-04/16/c_132312681_3.htm

Shaping the Regional and Global Order to Mitigate Threats. Chinese leaders since 2005 have promoted the vision of a "Harmonious World" to guide foreign policy towards shaping a world order amenable to China's rise. This idea, which also features prominently in the "Chinese dream," carries both elements of accommodation and revision. It upholds the authority of the United Nations and the basic structure of the existing economic and political order. PRC policy also supports the development of multilateral organizations to address disagreements and disputes in a consultative and cooperative manner. However, it does envision revisions to existing, and the introduction of new, institutions and organizations to better serve the needs of China and other rising powers. Beijing advocates revising Internet governance to expand the influence of China, Russia, and other non-western powers. It also promotes political principles, such as the "Five Principles of Peaceful Coexistence," as norms alternative to those favored by western powers, upon which to base international laws and rules.[58]

Under Xi, the Asia Pacific region has steadily risen in strategic priority for PRC foreign policy. China's policy makers have called for building a "community of shared destiny" (*minyun gongtong*) featuring a high degree of economic integration to realize the region's potential growth. Examples of policies implemented in accordance with this imperative include the Silk Road, Maritime Silk Road, Asian Infrastructure Investment Bank (AIIB), and proposed regional free trade agreements. The vision also carries security and political connotations. According to Vice Foreign Minister Liu Zhenmin, the community of shared destiny is one in which Asian countries have "primary responsibility" for ensuring the region's security.[59] This echoes comments by President Xi Jinping, who declared, "Asians have the capacity to manage security in Asia by themselves."[60] China's leaders cite the Shanghai Cooperation Organization (SCO), Korean Peninsula Six Party Talks, and Conference on Interaction and Confidence Building Measures (CICA) as examples of initiatives that support this imperative.

Through the steady accretion of national power and carefully calibrated policy objectives that aim to minimize the risk of conflict, Beijing hopes to persuade countries that conflict is both prohibitively costly and futile. Efforts to build a "new type great power relationship," in which the United States accommodates PRC preferences regarding its core interests, aim to "avoid conflict" by resolving structural differences peacefully. Despite these efforts, PRC leaders are well aware of the possibility that crises could erupt and that violence is not always avoidable. To manage this risk, Beijing has promoted the use of consultation and dialogue to defuse tensions through peaceful means, an idea at the heart of the Chinese "new security concept." PRC officials highlight the Six Party Talks regarding the Korean peninsula and the Shanghai Cooperation Organization (SCO) as manifestations of this idea.

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[58] "Wang Yi: China a Staunch Defender of International Rule of Law," PRC Foreign Ministry Website, October 24, 2014. Available at: http://www.fmprc.gov.cn/mfa_eng/wjb_663304/wjbz_663308/2461_663310/t1204247.shtml.
[59] "Build a Community of Shared Destiny to Ensure Regional Peace and Stability," *Renmin Ribao*, November 27, 2014. Available at: http://world.people.com.cn/n/2014/1127/c1002-26101342.html.
[60] "Xi Jinping Speech at Conference on Interaction and Confidence Building Measures," Xinhua, May 21, 2014. Available at: Xinhua

PRC leaders have called on foreign policy and military officials to "prevent crises."[61] PRC thinkers promote the idea of "preventive diplomacy," an idea that originated in Europe to refer to policies that mitigate the risks of conflict and civil war. As used by Chinese authorities, this term stands for "diversifying diplomatic risk" by engaging with multiple political actors, not just the leadership, in a foreign country that features a high degree of instability. It also calls for expanding humanitarian aid and taking part in international efforts to combat extremist forces and other security threats.[62]

Recognizing the fact that crises could break out, senior PRC leaders have promoted efforts to manage crises and avoid the outbreak of war.[63] In the event a crisis erupts, Beijing's leaders will seek to prevail or deescalate in a manner that allows the country to resume the path of peaceful day-to-day policy making to achieve national goals. However, PRC leaders have emphasized that development will not come at the cost of the nation's core interests. In the event an adversary puts at risk PRC control of any of its core interests, PRC leaders recognize that the resort to a military option in the region carries high risk of escalation. Since the 1979 China-Vietnam conflict, the PRC has avoided recourse to large-scale military action; and since the China-India border war in 1962 has avoided major military operations to secure disputed claims.[64]

Threats to Core Interests. Chinese leaders employ various formulations to describe its core national interests. The 2011 Peaceful Development White Paper, for example, outlined six core interests, which it listed as, "national security, sovereignty, territory, national unification, China's political system, and the interests of economic and social development."[65] However, the most commonly encountered list consists of three broad groupings:

- *Security*: Preserving China's basic political system and national security
- *Sovereignty*: Protecting national sovereignty, territorial integrity, and national unification
- *Development*: Maintaining international conditions for China's economic development

The first concerns the maintenance of China's basic political system, or Communist Party rule over the country. Chinese leaders see a range of potential domestic threats to their position, including increasing social unrest as well as "serious natural disasters, security accidents, and public health incidents." The Internet and new social media platforms have also challenged the CCP's control by providing Chinese

[61] "Xinhua: PRC's Hu Jintao Says SCO Members Should Unite To Safeguard Regional Peace," Xinhua, June 7, 2012. Available at: http://news.xinhuanet.com/english/china/2012-06/07/c_131638088.htm.
[62] Zhang Hongzhi, "Continuing to Develop China's Path of Peaceful Development Under the New Situation," *Liaowang*, February 17, 2014, pp. 34-36.
[63] "Xinhua: Japan, China Urged To Effectively Manage Crises," Xinhua, May 3, 2012. Available at: http://news.xinhuanet.com/english/china/2012-05/03/c_131566856.htm.
[64] Chinese and Soviet troops came into contact across the Ussuri River in 1969 as Chinese and Soviet relations deteriorated, leading to border demarcation negotiations; and Chinese and Vietnamese forces skirmished in the Paracel and Spratly Islands in 1974 and 1988, respectively. China gained complete control over the Paracels as a result, and solidified control over seven reefs and atolls in the Spratlys following the 1988 incident.
[65] "China's Peaceful Development," State Council Information Office, September 6, 2011. Available at: http://www.china.org.cn/government/whitepaper/node_7126562.htm

citizens with avenues to share information, vent frustration, and organize protests. Leaders in Beijing are particularly sensitive to any activities by foreign powers that might exacerbate threats to its control. China continues to accuse foreign powers of inciting discontent in Hong Kong and among Chinese Internet users.

The second core interest concerns national sovereignty, territorial integrity, and national unity. Chinese strategists view Taiwan, Xinjiang, and Tibet as areas of particular concern and sensitivity. Currently, official discussions of China's core national interests explicitly link the term "territorial integrity" to these three contested regions. China's 2013 Defense White Paper noted, for example, the dangerous rise of the "three forces" of terrorism, separatism, and extremism. To date, senior Chinese leaders have not explicitly labeled islands in the South or East China Sea as core national interests, though Beijing does claim the islands as Chinese territory.

The third category concerns those economic and other interests deemed vital to ensuring the sustained growth of the Chinese economy. This refers to the economic raw materials, markets, sea lines of communication, and other resources critical to sustaining the nation's development. Threats include piracy and other non-traditional threats both in China and abroad.

The Role of the People's Liberation Army

The PLA is a lynchpin of China's security strategy to shape the international environment and defend the country's core interests. Its tasks include shaping through military to military engagement, participating in non-war missions, and upholding stability to ensure a good environment for economic development. For defense of core interests, the PLA is charged with reinforcing domestic stability, ensuring national security through strategic deterrence, defending territorial and maritime claims, and land border defense.

Given these broad tasks, the PLA's modernization program has spanned the full range of capabilities development. This includes improvements in weapons systems across the force, an increase in joint and combined arms exercise activity, doctrinal and structural changes for "informatized" war fighting, and improvements in space and cyber capabilities. PLA leadership also emphasizes the need for significant personnel reform aimed at professionalizing the force, rooting out corruption, and enhancing civil-military relations. This across-the-board modernization effort has shifted the balance of military power in China's favor vis-à-vis most of her neighbors, but significant gaps remain in the PLA's capability to conduct operations against the U.S. or Allied forces that might respond to an Asian regional contingency. As such, the PLA has prioritized development of weapons and operational concepts to deny an advanced adversary the capability to operate effectively against China in a regional fight. In addition, the PLA has built a more robust strategic deterrent, to include nuclear, space, and cyber capabilities.

Beyond the region, China's expanding global interests increasingly require a capacity to provide security in some of the world's worst neighborhoods. This set of interests encompasses China's investments and business ventures around the globe, to include thousands of PRC citizens living abroad, access to energy and other natural resources, and the continued ability to freely access critical shipping lanes.

Shaping the Security Environment. The PLA routinely participates in military to military engagement with countries around the world, which takes the form of official leadership visits, participation in foreign military exercises (such as the recent Chinese participation at RIMPAC), track two dialogues, and other exchanges. This type of engagement has several goals: it shapes others' perceptions of the PLA's capabilities and professionalism, and allows the PLA to influence others through high-level dialogue. The 2014 DoD Report to Congress on China's Military Power notes that US-China Mil-mil relations have increased in frequency and the types of activities have expanded, though the relationship is still prone to being used as a political tool by Chinese leadership displeased with US policy on China (e.g., arms sales to Taiwan).[66]

One of the main shaping tools in the PLA's growing arsenal is the relatively recent addition of a state of the art hospital ship, the Peace Ark, to its fleet. The PLA has so far been making good use of the Peace Ark: the ship has traversed the globe to places such as Africa, Bangladesh, South and Central America, and the Caribbean for various humanitarian missions, and recently hosted a medical exchange at RIMPAC in Hawaii.[67] In addition to its hospital ship, the PLA routinely participates in humanitarian aid missions through the United Nations peacekeeping operations. Illustrating that peacekeeping from the Chinese perspective is both a shaping mechanism and essential to China's development, the 2013 Defense White Paper states, "China's security and development are closely connected with the peace and prosperity of the world as a whole. China's armed forces have always been a staunch force upholding world peace and regional stability, and will continue to increase cooperation and mutual trust with the armed forces of other countries, participate in regional and international security affairs, and play an active role in international political and security fields."[68] Given this, China contributes police, observers, and military personnel with contingent sizes numbering in the hundreds to countries such as Lebanon, Liberia, the Democratic Republic of Congo, and Sudan.[69]

Another ongoing PLA effort that falls into this category is the counter-piracy operations off the Horn of Africa, which the PLA Navy has participated in since 2008. In September 2014, the PRC announced that it would send a submarine to assist in the operations; a first for China, which has so far mainly sent destroyers with supply ships to the region. [70]

Defending Core Interests. The primary mission of the PLA is ensuring that the CCP remains in power, and this requires upholding domestic stability. The PLA is expected to perform a range of operations to support the domestic order. These include humanitarian assistance and disaster relief, such as during

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[66] Office of the Secretary of Defense, *Report to Congress: Military and Security Developments Involving the People's Republic of China 2014*, http://www.defense.gov/pubs/2014_DoD_China_Report.pdf.
[67] Department of the Navy, "RIMPAC Medical Exchange Conference Held Aboard PLAN Peace Ark," July 5, 2014, http://www.navy.mil/submit/display.asp?story_id=82057.
[68] China State Council Information Office, The Diversified Employment of China's Armed Forces, April 16, 2013, http://news.xinhuanet.com/english/china/2013-04/16/c_132312681_3.htm.
[69] Current numbers of military and police involvement by country can be found at the United Nations website, Peacekeeping Statistics, http://www.un.org/en/peacekeeping/resources/statistics/.
[70] US Naval Institute, "Chinese Submarine Headed to Gulf of Aden for Counterpiracy Ops," September 30, 2014, http://news.usni.org/2014/09/30/chinese-submarine-headed-gulf-aden-counter-piracy-operations.

the 2008 Sichuan earthquake when the PLA sent hundreds of units to assist in the emergency response effort, and again when an earthquake struck the same region in 2013.[71] The PLA is also charged with domestic counter-terrorism operations and internal security operations in support of the Peoples Armed Police, including at large events such as the Beijing Olympics.[72]

Perhaps no other task drives PLA modernization efforts more directly than the requirement to have credible options to deter moves by Taiwan toward independence, or achieve Taiwan unification with the mainland by force if directed by CCP leadership. This task includes developing the capabilities to deter, delay or deny third party intervention (mainly by US forces) should a cross-Strait crisis arise; and to defeat enemy forces in an armed conflict over Taiwan. This is the area in which the PLA's capabilities and investments have been most concentrated since the 1990s, though the PLA has had to increasingly focus on security interests outside of the region as China's overseas interests expand. The PLA has several campaigns that it could execute individually or in combination in the event Taiwan attempts independence, or if the Chinese leadership decides to try to force Taiwan unification with the mainland. These include a conventional missile attack campaign, joint blockade campaign to sever Taiwan's economic connections, a joint island landing campaign to seize and occupy Taiwan and/or Taiwan held islands, and an anti-air raid campaign that includes defeating air raids through strikes on air bases and aircraft carriers.[73]

The requirement to defend China's maritime claims and economic interests includes preventing US or Allied forces from defeating China's enforcement of maritime claims, control of maritime territory, and defense of PRC shoreline in a conflict with a regional adversary. This encompasses building capabilities to enforce a variety of disputed claims to sovereignty over islands and other land features in the South China and East China seas, as well as defending China's claims to its Exclusive Economic Zone (EEZ).[74] China currently has maritime boundary disputes with numerous countries in the region, to include Japan, North and South Korea, Vietnam, the Philippines, Malaysia, and Brunei.[75] Recent events continue to illustrate the possibility of escalating territorial and maritime tensions in the region, to include actions against Vietnamese outposts in the Paracels and Spratlys; the standoff at Scarborough Shoals with the Philippines; and recent imbroglios with Japan in the Senkaku/Diaoyu islands.

In addition, stability of the maritime region has become a key imperative for the Chinese leadership as PRC economic growth increasingly depends on seaborne trade, exploitation of offshore oil and natural

[71] James Mulvenon, "The Chinese Military's Earthquake Response Leadership Team." China Leadership Monitor, No. 25, Stanford University Press, June 2008; China Military Online, "PLA Troops Plunge Into Sichuan Earthquake Disaster Rescue," http://en.people.cn/90786/8217014.html http://en.people.cn/90786/8217014.html.

[72] China State Council Information Office, *The Diversified Employment of China's Armed Forces*, April 16, 2013, http://news.xinhuanet.com/english/china/2013-04/16/c_132312681_3.htm.

[73] For a thorough description of these and other campaigns, see Michael Chase et.al., China's Incomplete Military Transformation, RAND, 2015, pp. 27-39.

[74] Taylor Fravel, "Maritime Security in the South China Sea and the Competition over Maritime Rights," in Patrick Cronin and William Rogers, eds., *Cooperation from Strength: The United States, China and the South China Sea* (Center for New American Security: Washington, DC, 2012).

[75] Peter Dutton, "Three Disputes and Three Objectives: China and the South China Sea," *Naval War College Review*, Autumn 2011, volume 64 no. 4.

gas reserves, and access to fishing stocks and other natural resources. [76] For the PLA, this means ensuring access to key regional Sea Lines of Communication (SLOCs), and extending China's strategic and operational depth.[77]

Border and territorial defense is one of the PLA's primary tasks, as evidenced by the most recent white paper. While territorial incursions rarely occur in China, there have been some recent incidents, such as the deaths of 13 Chinese sailors at the hands of drug traffickers on the Mekong River in 2011, which led to a joint operation by Chinese, Thai, Lao, and Myanmar police. The traffickers were eventually caught and executed in China.[78] Recently, Sino-Indian border tensions have flared again: in May 2013 the two countries engaged in a tense standoff along the disputed border separating Tibet from Ladakh; and tensions in the disputed Arunachal Pradesh area continue to simmer, goaded on by a recent Chinese official map claiming the area and India's plans to construct a new road by the border.[79]

The PLA alsocontributes to anti-terrorism operations along its borders and periphery. The Chinese military is a regular participant in the Peace Mission exercises with other Shanghai Cooperation Organization (SCO) nations (Russia, Kazakhstan, Kyrgyzstan, and Tajikistan). These exercises focus specifically on multilateral anti-terrorism cooperation, and are designed to test interoperability between SCO member forces, though China and Russia generally take the lead. The exercise has had new life breathed into it with the rise of terrorist groups in Afghanistan, Syria, and Iraq that Chinese analysts worry could spill over into Central Asia.[80] Peace Mission 2014 consisted of ground and aerial reconnaissance, joint precision strikes, integrated air-ground assaults on fortified position, joint hostage rescue and urban assault missions, and extensive information-sharing, according to a PLA commander. Several new pieces of equipment were on display, including the PLAAF's most advanced drone, the CH-4 UCAV, and the WZ-10 and WZ-19 attack helicopters.[81]

Another requirement encompasses cross-border contingencies, such as would be required in a North Korea collapse scenario. It is likely that the PLA has developed contingency plans for a North Korea collapse given the enormous refugee crisis such an event would generate for China, not to mention the

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[76] *China's Ocean Development Report*, 2010, OSC translation, March 31, 2011, CPP20110208786002, pp. 171-182.
[77] For a comprehensive discussion of China's objectives in the Near Seas, see Tom Bickford and Julia Rosenfield, *China and Its Near Seas: Objectives, Drivers, and Implications*, CNA, November 2011.
[78] Interestingly, this event has prompted a new approach towards international waterway security along the Mekong River resulting in joint patrols from China, Thailand, Laos, and Burma. Edward Wong, "China and Neighbors Begin Joint Mekong River Patrols," *New York Times*, December 10, 2011.
[79] For a compelling argument about when China decides to act see: Thomas J. Christensen, "Windows and War: Trend Analysis and Beijing's Use of Force," in Alastair Iain Johnston and Robert S. Ross, eds., *New Directions in the Study of China's Foreign Policy*, Stanford, Calif: Stanford University Press, 2006, pp. 50-85.
http://thediplomat.com/2014/07/new-chinese-map-claims-arunachal-pradesh-provokes-india/;
http://www.bbc.com/news/world-asia-india-29639950
[80] Find Chinese source. http://www.sldinfo.com/analyzing-peace-mission-2014-china-and-russia-exercise-with-the-central-asian-states/
[81] http://www.sldinfo.com/analyzing-peace-mission-2014-china-and-russia-exercise-with-the-central-asian-states/;
China Unveils its Most Advanced Drone at 2014 Peace Mission,
http://english.cntv.cn/2014/08/27/VIDE1409091365559432.shtml

security issues inherent in dealing with a neighboring nuclear-armed failed state and the involvement of South Korea and the U.S. However, very little hard evidence of contingency planning on the part of the PLA exists in the public domain.[82]

One final mission requirement for which the PLA prepares is that of protecting Chinese citizens and economic interests abroad. Many of China's overseas investments are in some of the world's worst neighborhoods. Many of these countries suffer from instability and lawlessness as witnessed by a number of high profile kidnappings and killings of overseas Chinese workers in places such as Egypt and Sudan. According to a *People's Daily* editorial, Chinese companies invest in dangerous regions abroad "because most safe investment destinations have already been occupied by Western companies, and the remaining destinations are mostly full of trouble or dangers, leaving Chinese companies few choices."[83]

While China has yet to send PLA troops overseas to protect Chinese businesses (security is currently provided by private Chinese security companies), the PLA Navy has performed non-combatant evacuation operations (NEO) in Libya to evacuate Chinese citizens because of armed conflict and violence in the country. Assisting the Chinese Ministry of Foreign Affairs in its efforts to evacuate 35,000 Chinese citizens, the PLA sent four military transports and a navy frigate to the Mediterranean Sea to escort and provide over watch for the chartered shipping. Staging from Khartoum, PLAAF Il-76 transports retrieved 1,001 people working on a Chinese owned investment (761 Chinese and 240 foreign workers) in the desert city of Kabha. Meanwhile the PLAN frigate "Xuzhou" arrived in Libyan waters from the Gulf of Aden, in time to escort one chartered ship.[84] In all, the PLA directly provided or assisted in the evacuation of almost 3,000 Chinese citizens.

Conclusion

Chinese leadership decisions occur in the context of a rational, identifiable framework. When evaluating PRC policy decisions, it is important to understand Beijing's strategic objectives and threat perceptions, and the implications of the policy priorities that follow from them. The pursuit of international structural reform and hardening of PRC positions regarding its core interests suggest the potential for an accelerating competition with the United States. But at the same time, the two countries retain considerable incentive to increase cooperation. China and the United States have the largest economies in the world and remain top trade partners with one another. Further underscoring the need for collaboration, the two countries remain deeply integrated in the global economy and vulnerable to a

[82] On this issue see: Bruce W. Bennett & Jennifer Lind, "The Collapse of North Korea: Military Missions and Requirements," *International Security*, Vol. 36, No. 2, 2011, pp. 84-119; Bruce W. Bennett , "Preparing for the Possibility of North Korean Collapse," testimony to the US-China Security and Economic Review Commission, January 29, 2014, http://www.rand.org/content/dam/rand/pubs/testimonies/CT400/CT404/RAND_CT404.pdf; Andrew Scobell, *Projecting Pyongyang: The Future of North Korea's Kim Jong Il Regime*, Carlisle, Penn: Strategic Studies Institute, 2008.

[83] "Overseas Chinese Firms Face Security Risks," *People's Daily*, February 6, 2012.

[84] "Chinese Naval Warships Visit Durban on 4 April 2011," Embassy of China in South Africa, March 29, 2011.

broad array of nontraditional threats, from piracy to transnational crime. Balancing the imperatives to compete and cooperate poses major policy challenges for both sides.

With increased investment in the PLA and the commensurate increase in military capabilities, comes heightened expectations from PRC leaders and the Chinese populace concerning the PLA's role in resolving disputes. As PRC leaders weigh responses to potential threats, developing crises, or perceived opportunities, they consider the employment of military forces through the same shaping and defense of core interest lenses that frame the broader national strategy. An awareness of the framework in which Chinese policy decisions are made should open opportunities for U.S. decision makers to develop policy options in crisis that offer both incentives and disincentives to PRC leaders at the crossroads of peaceful resolution and conflict.

7: Decisions & Deterrence

Edward Henry Robbins, Ph.D.
Supervisory Management Analyst, AF/A10 – Strategic Deterrence & Nuclear Integration
edward.h.robbins.civ@mail.mil

Hunter Hustus
Technical Advisor, AF/A10 – Strategic Deterrence & Nuclear Integration
hunter.hustus@gmail.com

Abstract. *Use of force by a state to achieve political objectives often leads to unsatisfactory outcomes. Deterrence offers a much more economical method, in both blood and treasure, to achieve national objectives. Deterrence is about influencing an adversary's decision making. Contemporary scientific advances in understanding decision making must be considered by practitioners crafting deterrence strategies. The relevance, or usefulness of insights from science depend on many factors, such as the timespan of the deterrent activity, generalizability of the insight, knowledge of the specific adversary, and the stakes. We note that many facets of nuclear deterrence include long timespans and very high stakes.*

Introduction

On first impression, the reader may think this paper out of place with its companion pieces, but to twist a point made by Nick Wright in Chapter 1, here we strive to be *realistic*. Our colleagues in this project approach this work as researchers. We are practitioners. We applaud their contributions and endeavor to operationalize their research in order to improve our practice. However, we must do so within the confines of our responsibility to provide operational military capabilities without interruption. Knowledge of the biological or organizational factors shaping human decision making are helpful and perhaps even necessary *if* they lead to operational alternatives that would otherwise go unconsidered (see Figure 1 *Four Simple Rules for Using Neuroscience in Policy*). Unfortunately, contemporary research on decision making includes many studies in which researchers attempt to generalize to real-world foreign policy decision making from experiments that employ trivial stakes. We feel this presents a significant deficit in this literature and does little to narrow the gap between researchers and practitioners. Decisions regarding strategic deterrence are not trivial. They are made in competitive, often high-stakes situations by leaders who have some ability to change the situation under consideration, which increases the level of complexity.

Compellence

In this chapter we focus on examining decision making as it relates to deterrence, in particular nuclear deterrence. We begin with some observations on *compellence*. We adopt a working definition more constrained than the classic, *action taken to force an adversary to act* (Schelling, 1966).[85] In the role of practitioner we focus on strategic and nuclear issues, the highest level of commitment and national interest. Our interest in compellence also lies at the high-end: armed-conflict between states.[86] To *compel* one's adversary is typically understood as to coerce, or to force or drive an adversary to some behavior by the use of force. We contend that except when confronting a rabid and intransigent antagonist a compellence approach is unlikely to succeed.

First, actions involving an employment of force (compellence) tend not to utterly crush an enemy. Rather, surviving forces will flee, re-organize, and continue the fight—as has been understood since antiquity.

> *"A man who flees will fight again."*
>
> *Menander (ca. 341—290 B.C.)*

For example, while attacks on Iraqi forces retreating from Kuwait during Operation Desert Storm achieved the

Four simple rules for using neuroscience in policy

These four rules help us decide when and how to use neuroscience and the behavioral sciences more generally, to address practical policy issues.

(1) Are we sure enough of the neuroscience? In a rapidly advancing field like neuroscience there are a plethora of findings. Thus, focus on robust findings.

(2) Does it matter in the real world? Findings may be convincing in individuals in a lab, but what about the real world? There are two main approaches:

- Show how an aspect of decision-making explains a variety of historical cases across contexts (e.g. Jervis, 1976). These may directly affect decision-makers themselves, and/or shape the reactions of the public or key interest groups and so influence the political landscape in which the decision-makers must operate.

- Observational or randomized controlled trials in the field (e.g. reconciliation in real communities in Rwanda; Paluck and Green, 2009)

(3) Even if it is true in the real world, is it worth adding to the policy process? Adding yet another consideration can carry a big opportunity cost.

(4) What does the neuroscience add that behavioral approaches, such as psychology or economics, do not already give us? Reasons include:

First, the concept of "consilience" (Wilson, 1999). We can be more confident of a particular explanation if it is supported by both psychological and neuroscientific evidence.

Second, a biological basis enhances prior belief about the generalizability of findings *between* cultures (e.g. the US and China) and *within* countries or cultures (e.g. as leaders may differ from the general population). If we know an aspect of decision-making plays an important role across many diverse species, including in humans, then it is much more likely that it plays an important role.

Figure 3 Rules for Using Neuroscience (Wright, 2015)

[85] As we focus on strategic (i.e., nuclear) deterrence and decision making, our interest in compellence lies at the high-end of commitment and national interest: armed-conflict between states.

[86] For obvious reasons, the examples of armed-conflict are "conventional" conflicts (i.e., non-nuclear).

goal of liberating the Emirate, having retreated back into Iraq, the Iraqi Army was quickly re-organized[87] and used to put down internal rebellions such as those led by Shia in the southeast, and the Kurds in the north. Following the Second Gulf War a decade later, elements of the Iraqi Army once again dissolved into the civilian population. Civil war in Syria has now spilled over into Iraq where Sunni extremists led by former Iraqi Army officers have succeeded in holding significant territories and drawing US forces back into the mix.

Second, attempts to compel especially from outside, can excite their own opposition. A recent example of this is the War in Afghanistan. Simultaneous heavy bombing and ground attacks coupled with an alliance between Western forces and indigenous opponents of the Taliban forced the Taliban regime from power in Afghanistan. However, it also produced a long-term insurgency against coalition forces from both internal and external sources. Many analysts anticipate that a best case scenario involves incorporation of Taliban elements into a national reconciliation government as U.S. forces draw down. Others expect a re-collapse of Western-backed elements and reinstitution of the Taliban to national power. Recent successful attacks by Taliban forces against the Afghanistan Army and other security forces suggest that the latter scenario is more likely to occur.

In fact, we must turn to World War II for the most recent example of successful American compellence in other than comparatively trivial actions (e.g., Grenada). The Axis powers were defeated at the cost of more than one million American casualties, tens of millions from other nations, and disruption/destruction of a significant amount of the world's economic infrastructure. One might argue however, that even those costs were insufficient: The United States has maintained forces on the ground in Europe and the Far East over the past three quarters of a century, initially aimed at pacifying Germany and Japan and bringing them into the group of democratic nations—later aimed at preventing aggression against those militarily weakened nations. The costs of compellence can be huge in lives, human suffering, and economics and should not be taken lightly by any rational nation.

It is frequently noted that the United States has not made a formal declaration of war since World War II and that American military efforts should be dignified by Congressional action. We take a somewhat different perspective on this matter. We believe that absence of a formal declaration of war is indicative of unwillingness as President John Kennedy stated, to "…pay any price, bear any burden, meet any hardship, support any friend, oppose any foe, in order to assure the survival and the success of liberty." Absent such "resolve" and lacking a clear record of success in conventional conflict, perhaps it is best to seek out alternative means than compellence, especially at the highest potential level of violence - nuclear conflict.

[87] Approximately one-half of the tanks of the Iraqi Republican Guard remained available after the retreat from Kuwait. Supplemented by allocations from headquarters units, helicopter gunships, and helicopters re-fitted for bomb runs and chemical weapons employment, the surviving forces were sufficient to subdue the 1991 rebellions against Saddam Hussein's regime.

Deterrence

Deterrence, persuading an adversary to forgo an action due to fear of retaliation, is a critical alternative to employment-of-force. It is collaboration, an opportunity to concur with an adversary that forceful actions are best avoided. Achievement of that goal rests on taut requirements. Each side must trust the other to act self-interestedly as they maintain credible threats against the other through: (1) establishment and maintenance of forces and doctrines; and (2) creation and preservation of political resolve that an attack must be met with serious, forceful response. We believe an appropriate framework for deterrence decision making must encourage predicable responses, yet not be so automatic that false signals of attack engender unintended war.

For serious policy analysts, the real question becomes, "How do we, without appearing weak and willing to appease, convince opponents that we have mutual interest in avoiding armed-conflict?" We believe the answers lie in issues of demonstrated ***preparedness*** (capabilities) and ***resolve*** (will)**.** Although the first of these is rather overt, both might be regarded as signals of intent. In the simplest sense, both sides should demonstrate these attributes in order for deterrence to achieve a non-violent equilibrium state. Deterrence scholars have argued that the credibility of deterrent threats is enhanced when adversaries perceive that the costs associated with an opponent's preparedness and resolve are not insignificant (e.g., see, Kissinger, 1957; Rosenzweig, 2015; Schelling, 1960). In the next two sections, we discuss these two criteria in the context of strategic deterrence.

Preparedness

> *"In a deterrent threat, the objective is often communicated by the very preparedness that make (sic) the threat credible."*
>
> *Thomas Schelling, Arms and influence*

It is the temporal nature of preparedness that demands significant commitment of resources and development of policy, doctrine, and operational plans. Many of these activities must be undertaken years, if not decades prior to any specific crisis in which they may prove decisive. The obvious implication is that preparedness programs often are undertaken without specific adversaries in mind. Therefore, nuclear deterrence constructs must be flexible across time and adversaries. The components of preparedness are as follows:

Research, Development, and Implementation. Although ours is an era of rapidly advancing technologies, the pertinent timeline for nuclear deterrence preparedness is years. Efforts in this area affect adversary decision making in at least two ways. The first is the signal sent to potential strategic competitors when resources are allocated to activities that lack short-term payoff. In theory, this puts adversaries on notice of the critical importance placed on strategic interests. To be credible, an enduring unwillingness to appease or submit to coercion must be communicated. The second effect on adversary decision making is that it forces the issues of whether to compete with the United States. This was directly broached in previous versions of the National Security Strategy where the United States sought to

"dissuade future military competition" (National Security Strategy, 2002). The Secretary of Defense at the time articulated, "Our goal is not simply to fight and win wars; it is to prevent them. To do so, we must find ways to influence the decision making of potential adversaries, to deter them not only from using existing weapons *but also from building dangerous new ones in the first place*" – emphasis not in the original (National Security Strategy, 2002; Rumsfeld, 2002).

Force Development, Deployment, and Sustainment. The work of establishing a strategic deterrent is not merely theoretical. It must be put into practice. Of course, it is necessary for nations to determine how to allocate funding among forces, where they place those forces, how they intend to use those forces, and the like. The focus cannot be limited to weapons and control technology. Supporting systems, policies and procedures must be established and enforced. An entire nuclear enterprise exists within the US Department of Defense and other governmental entities to identify, operationalize, and fulfill these requirements ranging from loading ICBM's into silos; loading stored weapons on to heavy bombers; preserving operability of submarines, bombers and NAOC (National Airborne Operations Center) planes, etc.

Despite a long list of critical requirements and supporting capabilities the central dilemma in deploying and sustaining US strategic capabilities is often economic: the allocation of scarce resources. Operating the US nuclear enterprise costs billions of dollars annually. Since the start of the Cold War costs have cumulated into the trillions. Arguably this is a drain on national resources and competes with alternative societal goals. With a political system that seems more and more polarized how are we to maintain a national consensus on the importance of maintaining strategic forces and capabilities? How are goals to be prioritized in a way that leaves critical strategic defenses in place in a manner that arouses no adversary to question American capabilities?[88]

Investing in strategic defenses does impose huge costs that are unpopular with many citizens. Yet, not to do so could provoke credibility questions regarding our nuclear capabilities that we believe no leader of the United States should accept. But what degree of preparedness and which combinations of forces are seen by the range of possible US adversaries as convincing? To tailor deterrence to a specific adversary, one needs to know which capabilities that adversary believes you could and would employ.

Resolve

If a nation has the assets to conduct nuclear war but is seen to lack the will to do so, the effort to build an *in-kind* strategic deterrent is for naught, for any threat of nuclear retaliation would lack credibility. To understand this point, focus on the classic case of the peer-on-peer threat of nuclear war during the Cold War. If either the Soviet Union or the United States had volunteered the information that it would

[88] Certainly this is a problem for other states as well. For example, imagine the difficulty of providing the massive resources for nuclear warfare capabilities in a country whose economy is stressed from within or without (e.g., Russia or Iran), where aggregate economic activity is capped by a tiny population (e.g., Israel), where competing demands for social welfare benefits drown out calls for almost any form of strategic defense (e.g., Britain or France), or even where rampant poverty impacts the lives of the majority (e.g., Pakistan or North Korea).

surrender if seriously threatened, one might argue that it would have been inviting just such an outcome. In short, the second necessary condition for establishing strategic deterrence is that the nation projects an enduring image that it will fight back if attacked.

Is there a predictable solution to the problem of making resolve anything more than opinions about your beliefs and those of your opponent? US military planners face a host of questions:

- What does resolve mean? How can it be displayed convincingly? Military exercises might demonstrate capabilities but do they signal that, when push comes to shove, those capabilities would actually be employed?

- How do capabilities themselves shape perceived resolve? Is resolve credible if it rests on only high-yield, indiscriminate capabilities or does the ability to generate flexible or limited nuclear responses bolsters adversary perception of resolve?

- Might resolve be easier to convey if the international community were to establish consensus on what constitutes a strategic attack and how properly to respond? Drawing such lines in the sand for all parties involved might bring universal understanding of which boundaries must not be transgressed and what actions are appropriate when those boundaries are overstepped.

- How can a nation that is dependent on US extended deterrence be convinced of US resolve such that it will forgo building its own means of strategic deterrence? French incredulity over America's willingness to sacrifice New York to save Paris led to a commitment to develop and maintain its own national strategic defense forces.

- How can the consistency of US resolve be guaranteed across time and political changes? For example, as governmental administrations and technologies change over time, how can the nation assure that our resolve to act remains constant and well understood abroad?

These issues are more difficult to deal with than the preparedness questions discussed earlier. It is easier to display preparedness than to convince one's adversaries and allies of US resolve to act in undefined, future contexts. While it might be *ex ante* rational to present an image of resolve prior to an attack by one's adversary (because that perception serves as a critical component to strategic deterrence), it is highly unlikely to be *ex post* rational after suffering a first strike. Somehow, this conflict must be resolved in a way through which deterrence is achieved.

Summary and Conclusions

> *"The war-waging use of military power is akin to a powerful flood; it washes away all before it. The peaceful use of military power is akin to a gravitational field among large objects in space: it affects all motion that takes place, but it produces its effects imperceptibly."*

Robert Art, The Fungibility of Force

We have strongly argued that compellence is rarely a good idea. It is far too costly to achieve its full goals and often results in various forms of blowback that are detrimental to the national interests of the United States (or any other nation, for that matter). When the country is less than committed to a course, it is foolhardy to lope aimlessly down the pathway of seeking military victory. Instead, deterrence offers a more promising plan than armed conflict. First, by recognizing that opponents have intents and purposes, it should be possible to find compatible solutions so that we jointly avoid direct military conflict, especially regarding vital interests. Second, we can and should seek mutual agreements on one another's political boundaries and agree on how to avoid offending those limitations.

In the arena of strategic deterrence, we believe that achieving these goals requires duty, vigilance, strength, and assuredness. We must raise and reward a cadre of defense professionals who believe that their efforts will achieve US national security goals. We must put into place the forces needed to keep those enemies at bay, and we must display the resolve to maintain those forces perhaps for many decades.

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