COGNITIVE TARGETING: A COERCIVE AIR POWER THEORY FOR CONVENTIONAL ESCALATION CONTROL AGAINST NUCLEAR-ARMED ADVERSARIES

BY

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A THESIS PRESENTED TO THE FACULTY OF

THE SCHOOL OF ADVANCED AIR AND SPACE STUDIES

FOR COMPLETION OF GRADUATION REQUIREMENTS

SCHOOL OF ADVANCED AIR AND SPACE STUDIES

AIR UNIVERSITY

MAXWELL AIR FORCE BASE, ALABAMA

JUNE 2016

APPROVAL

The undersigned certify that this thesis meets master's-level standards of research, argumentation, and expression.

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ACKNOWLEDGMENTS

I would like to acknowledge several people, because of whose support and help, I was able to complete this study. I want to thank Dr. Stephen Wright, Deputy Commandant, School of Advanced Air and Space Studies. Dr. Wright's knowledge of the subject guided my efforts and focused my attention toward the correct framing of the problem. Additionally, his experience and insight have been invaluable in helping me eliminate inconsistencies and logical errors in this study. I would also like to thank Dr. Mark Conversino. His review helped put the final additions on the argument, expression, and presentation in this study.

I also want to thank one of my classmates for being my sounding board and helping me create this theory's thesis and methodology. Major Angelo Fernandez has helped me at every step of this process with both critical analysis and with encouragement.

Most importantly, I want to express my most sincere appreciation to my family. Their love, patience, and understanding during the long hours I spent on this study were very important to me and made all the difference in ensuring my success in completing this work.

ABSTRACT

With the resurgence of Russia, the rise of China, and the proliferation of nuclear weapons to regional powers such as North Korea, the post-Cold War geo-political environment characterized by U.S. hegemony is fading away. In the emerging, multipolar environment, the likelihood of engaging in an escalating conventional conflict with a nuclear-armed opponent is increasing. The assumptions and theories that guided U.S. military successes in the Cold War, and the post-Cold War era no longer have explanatory power in the emerging environment.

This study analyses the applicability of three operational targeting paradigms to coerce a nuclear-armed adversary in a regional crisis, while simultaneously deterring nuclear aggression, thereby de-escalating the conflict. This study uses J. F. C. Fuller's three spheres of war to order the principles and elements of war and understand the coercive ability of utility targeting (a capabilities-based targeting paradigm, CBTP), axiological targeting (a will-based targeting paradigm, WBTP), and cognitive targeting (a decision-based targeting paradigm, DBTP). By examining the order of each targeting model, along with its ability to coerce and deter - based on the doctrine and policy of nuclear-armed adversaries - this analysis suggests that cognitive targeting is the only paradigm that can produce positive results in coercing action while deterring nuclear escalation.

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Introduction

If our intention is to study military history or to work out a military plan, the first thing we should do is to examine the opposing instruments. Two nations confront each other; what is the degree of fighting force each nation can apply? In general terms, the answer to this question is a threefold one, namely, the thinking power, the staying power, and the fighting power of the nation and of its military instrument.

Colonel J. F. C. Fuller

21st CENTURY ESCALATION CONTROL

In the history of warfare, theorists and strategists have hypothesized about the most effective and efficient forms of fighting to bring about victory with the least amount of effort, cost, and suffering. The opening quote by J. F. C. Fuller represents one of many post-World War I additions to the canon of theorists claiming, "There's a better way." When it comes to the relatively short history of air campaign planning, theorists often debate targeting for aerial bombing as a means to accomplish the most economic form of fighting to gain the peace. In *How Effective is Strategic Bombing? Lessons from WWII to Kosovo*, Gian Gentile states about strategic bombing, "Pundits have railed against its perceived *ineffectiveness*, advocates have praised its apparent *effectiveness*, and zealots have been seduced by its professed cheaper cost in national blood and treasure."[1]

However, in the discussion, most theories discuss what, physically, to target to assure victory, instead of how to think about targeting paradigms to

[1] Gian P. Gentile, *How Effective Is Strategic Bombing? Lessons Learned From World War II to Kosovo* (New York City, NY: New York University Press, 2001), 1.

accomplish specific solutions to international political issues. This oversight reduces complex actors with various political goals in war to a simplistic polarity of the "victor" and the "defeated" with no regard for the language of war. This neglect is especially problematic given the proliferation of nuclear weapons. Nuclear-armed states are particularly difficult to coerce using traditional air campaign methods due to their massive retaliatory capability. In a panic, they can retaliate with nuclear weapons in order to undermine any gain achieved by an aggressor's conventional attack. Therefore, attaining "victory" in a conventional sense against a nuclear-armed opponent seems impossible. However, it may actually be possible given the right thinking about targeting paradigms.

After the end of the Cold War, scholars, politicians, and warriors took an intellectual holiday from serious thinking about coercion, deterrence, and compellence as described in detail by Thomas Schelling in *Arms and Influence*. He wrote in 1966, "War appears to be, or threatens to be, not so much a contest of strength as one of endurance, nerve, obstinacy, and pain. It appears to be, and threatens to be, not so much a contest of military strength as a bargaining process – dirty, extortionate, and often quite reluctant bargaining on one side or both - nevertheless a bargaining process."[2] With several successive episodes involving the use of overwhelming military force over several decades, post-Cold War Western theorists gave little thought to this bargaining process in limited war scenarios. The most prominent airpower theorists of this time believed there is no such thing as a limited war.[3] Given the luxury of using overwhelming military force against non-nuclear parties,

[2] Thomas, C. Schelling, *Arms and Influence*. (New Haven: Yale University Press, 2008. Originally printed in 1966), 7.
[3] John Warden, *Desert Story Collection*, October 22, 1991, 4; May 30, 1991, 35-36 in John Andreas Olsen, *John Warden and the Renaissance of American Air Power*. (Washington D.C.: Potomac Books, Inc), 37.

Western coalitions in the 1990's through the first decade of the 21st century have pursued military and political objectives with no regard for the adversary's retaliatory capability or danger of vertical escalation as they did during the Cold War. The United States, and the coalitions in which it participated, attained escalation dominance early in each conflict. Therefore, they could pursue targeting paradigms that gave little credit to the high-level political bargaining process that characterized limited uses of conventional force during the Cold War: namely Korea and Vietnam.

However, with the resurgence of Russia, the rise of China, and the proliferation of nuclear weapons to rogue regimes such as North Korea, many are again thinking critically about escalation control, in the terms of Schelling's bargaining process, for twenty-first-century threats. Against these potential nuclear-armed adversaries, a coalition cannot gain conventional escalation dominance. Therefore, a transition in targeting paradigm is required. This transition requires a renaissance in the language of war and communicating through coercive air power strategies for de-escalation.

THE LANGUAGE OF WAR, FORCE, AND VIOLENCE

Schelling's description of limited war as a bargaining process resembles the thoughts of the famous Prussian theorist, Carl Von Clausewitz when he concluded that war is the language of statecraft, of expressing a message to the adversary, as a form of speech, and that "combat is an expression of hostile feelings."[4] The degree to which the attacker articulates this language with

[4] Carl von Clausewitz, *On War*, Edited and Translated by Michael Howard and Peter Paret. (Princeton, New Jersey: Princeton University Press, 1976), 137. In discussing war as an instrument of policy, Clausewitz asked, "Do political relations between peoples and between governments stop when diplomatic notes are no longer exchanged? Is not war just another expression of their thoughts, another form of speech or writing? Its grammar, indeed, may be its own, but not its logic." 605.

force and, more importantly, the degree to which the deffender interprets it and acts on this interpretation, determines the degree of success for the language of limited war. This interpretation is the psychological aspect of violence in conflict. In *War from the Ground Up: Twenty-First-Century Combat as Politics*, Emile Simpson posits, "Short of absolute war, in which the primary goal is the annihilation of the enemy, the outcome of any more limited conflict will involve the perceptions of multiple strategic audiences… how those audiences interpret the use of force politically will probably be essential to any military planning."[5] This interpretation is critically important in limited war because it is necessary to attain a political decision below the threshold of total military surrender or capitulation by one of the two sides. On the language of war, Simpson continues:

> … force is simply another way to communicate meaning, another language. If force is a 'language,' war is the interpreter who acts as a medium between the speaker and the listener… Once seen as a form of language, force assumes the same properties as language in terms of the capacity to transmit meaning… Meaning has to be interpreted by a human agent. The meaning of action in war (the outcome of a battle, for example) may be mutually recognized, just as two people may well agree on the meaning of a text or a speech… Once actions in war (both violent and non-violent) are seen as a form of language used to communicate meaning in the context of an argument, there is the possibility of being misunderstood. In order to use war successfully as an instrument of policy, one's actions in war must ultimately need to be interpreted in accordance with the intent of one's policy.[6]

The basic premise, then, is for the air campaign planner to understand the desired political ends and the supporting military intent of the operation and the corresponding message he intends to send with use or threatened use

[5] Emile Simpson, *War From the Ground Up: Twenty-First-Century Combat as Politics*. (New York, NY: Oxford University Press, 2012), 12.
[6] Simpson, *War From the Ground Up*, 27-28.

of force. Then he must choose the best method for communicating this message in a manner that has the best chance of the enemy correctly interpreting it, and taking the communication seriously enough to affect his decision-making and behavior in favorable terms. This behavioral adjustment is the fundamental purpose of coercive air power.

COERCIVE AIR POWER

Coercive air power is that which is used to change an adversary's behavior prior to the pure destruction of the enemy through military conquest.[7] This definition implies using coercion as an instrument of economy-of-force to reach a decision in the most efficient way. Another definition of "coercion" is the "use of threatened force, including the limited use of actual force to back up the threat, to induce an adversary to behave differently than it otherwise would."[8] This description implies not only a change in behavior but a change the adversary would not make of his own accord. It is a change brought specifically because of the use of force or threat of force. However, there are several strategies for the application of coercive force.

Coercive air power requires favorable conditions and depends heavily on the strategy chosen by the adversary.[9] Therefore, maximizing favorable conditions and employing focused military force against those components on which the opponent's strategy or power base depends alters an adversary's

[7] This is a combination of two definitions found in Ellwood, P. Hinman IV, *The Politics of Coercion: Towards a Theory of Coercive Airpower for Post-Cold War Conflict*. (Cadre Papers: Air University Press, 2002), 2. and Daniel L. Byman, Matthew C. Waxman and Eric Larson. *Air Power As A Coercive Instrument*. (Santa Monica, CA: Project Air Force, RAND, 1999), xiii and 1.

[8] Daniel L. Byman and Matthew C. Waxman, "Kosovo and the great Air Power Debate," *International Security*, Vol. 24, No 4 (Spring 2000) pp. 5-38, 9.

[9] Byman, Waxman, and Larson, *Air Power as a Coercive Instrument*, 29.

decision calculus to bring his policy into congruence with that of the coercer.[10] There are four basic coercive air power strategies, each holding at risk various components of an adversary's power: punishment-, risk-, decapitation-, and denial-based coercion.[11]

A punishment strategy raises the societal costs of the adversary's continued resistance. Punishment strategies increase adversarial costs by causing civilian suffering and targeting the state's economic power.[12] Additionally, as Robert Pape explained in his book, *Bombing to Win*, "[P]unishment is not limited to hitting civilians and population centers. It may take the form of killing military personnel in large numbers to exploit the casualty sensitivities of opponents."[13] Punishment is a theory for total war that grew out of the interwar period, espoused by Italian airpower advocate Giulio Douhet and the faculty of the Air Corps Tactical School.[14] Most modern theorists find punishment strategies to be incompatible with limited, conventional war scenarios because it assumes waging a total war without political restraint.[15]

A risk strategy slowly raises the probability of civilian damage because operations increase in intensity, geographic area, or both.[16] A risk strategy uses the logic of punishment but does so incrementally and gradually to produce a change in the adversary's decision calculus to avoid more severe

[10] This is a more precise description of that famous and elegant dictum that "*War is an act of force to compel our enemy to do our will*." Clausewitz, *On War*, 75.
[11] Robert A. Pape, *Bombing to Win: Air Power and Coercion in War* (Ithaca, NY: Cornell University Press, 1996), xx.
[12] Byman, Waxman, and Larson, *Air Power as a Coercive Instrument*, 16.
[13] Pape, *Bombing to Win*, 13.
[14] Hinman, *The Politics of Coercion*, 9.
[15] Hinman, *The Politics of Coercion*, 12; Pape, *Bombing to Win*, 20: Pape explains, Inflicting enough pain to subdue the resistance of a determined adversary is normally beyond the capacity of conventional forces. Punishment strategies will only work when core values are not at stake.
[16] Pape, *Bombing to Win*, 19.

suffering to follow.[17] The key to effective risk strategies is signaling to the enemy that graduated attacks are contingent upon his change in behavior. The theorist most closely associated with risk strategy is Thomas Schelling. As weapon systems during the Cold War increased in range and magnitude, Schelling's theory provided a conceptual alternative to punishment in order to provide a coercive approach for limited war.[18]

A decapitation strategy through air power entails the use of precision munitions against key leadership and communications facilities.[19] Under this theory, proponents liken an enemy to an organism (or system) and its leadership to the organism's brain: if you destroy it, the body dies; if you isolate it, the body is paralyzed.[20] There are three general types of decapitation strategies. The first is leadership decapitation, which assumes that by killing specific regime leaders responsible for hostilities, one might end the war. The second type is political decapitation, which employs air power to create conditions for internal political change. The third type is military decapitation, which strikes communications links in order to isolate the national leadership from its military forces, disabling them from coordinated military effort.

John Warden's contempt for risk strategies during the Cold War, particularly in Vietnam, was the catalyst for his late 20th century theories of decapitation. He believed Vietnam's Rolling Thunder air campaign represented the wrong way to use air power. His Gulf War air campaign design, that he named "Instant Thunder," utilized relentless shock, surprise, and

[17] Pape, *Bombing to Win*, 18-19.
[18] Hinman, *The Politics of Coercion*, 15.
[19] Pape, *Bombing to Win*, 79.
[20] Pape, *Bombing to Win*, 80.

simultaneous attacks at multiple levels of war, to coerce the adversary with fears for his life and the legitimacy and survival of his regime.[21]

A denial strategy "targets the opponent's military ability to achieve its territorial or political objectives, thereby compelling concessions in order to avoid futile expenditure of further resources."[22] Additionally, a specifically air power denial campaign weakens enemy air and ground forces to the point where friendly ground forces have a favorable force ratio.[23] Denial is the most "operational" version of coercion strategies because it focuses on battlefield targets rather than "strategic" targets. Coercion by denial seeks to strike exclusively military targets rather than civilian, political, or economic targets associated with the other coercive airpower strategies. Pape's denial theory suggests that the other air power coercive strategies may work in a nuclear context, but in a strictly conventional war, he asserts that denial is the only strategy that may work in altering adversarial behavior.[24]

The planner must be familiar with the tools of coercion to apply pressure correctly in order to influence behavior. An air campaign is simply the tool to operationalize a strategy. Thus, within the limits of the scenario of this study, the purpose of the air campaign is to communicate with the right mix of coercive air power strategies – to influence the enemy's decision calculus to come into congruence with our own political objectives - without inciting him to use punishment- or risk-based coercive strategies in return. Effectively, the planner must use these two elements to attain and maintain escalation dominance. Schelling describes these two components of coercion as compellence and deterrence.

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[21] Hinman, *The Politics of Coercion*, 19.
[22] Pape, *Bombing to Win*, 19.
[23] Pape, *Bombing to Win*, 69.
[24] Hinman, *The Politics of Coercion*, 25.

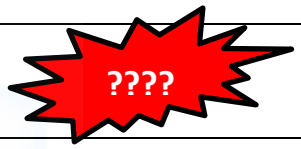
According to Schelling, compellence is an active form of coercion in that it administers punishment *until* the opposition acts in accordance with direction; deterrence, on the other hand is a passive form of coercion that administers punishment only *if* the opposition acts against direction. Compellence seeks to start a behavior or stop one that has already begun, whereas deterrence encourages continued non-action of behavior not yet begun. In order to simplify terms for the remainder of this study, the term *coercion* will suffice for any forced change in behavior and the term *deterrence* will reinforce continued non-action. Thus, this study will treat coercion as Schelling's idea of compellence rather than the umbrella under which both compellence and deterrence rest.

In the post-Cold War era, many conventional air planners have come to believe the theoretical ideas of history's air power advocates have culminated in the panacea that is John Warden's "Five-Rings" approach to strategic paralysis, now institutionally mainstream. This paradigm, known as *utility targeting*, serves military conquest and a decapitation-based coercive air power strategy. Others advocate for targeting that affects the enemy's will through punitive attacks. This approach, called *axiological targeting*, serves a punishment-based coercive air power strategy. Both of these strategies project the enemy in monolithic terms that provide little ability to bargain for limited objectives during escalation. Neither of these air campaign targeting theories accounts for the enemy's ability to escalate. Therefore, the divide between conventional war planning and nuclear war deterrence has left action officers and leaders with no sound theory of campaign targeting that includes modern escalation control and true denial-based coercion strategies.

The purpose of this study is to fill this void and give critical analysis to the ability of air campaign targeting paradigms to influence escalation in a

manner that deters a nuclear-armed adversary from employing nuclear weapons, or explicitly threatening their employment against the U.S. and her allies, yet still achieves the political objectives using a coercive, conventional air campaign.[25]

Table 1: Missing Targeting Paradigm

Coercion Strategy	Influence mechanism	Sphere of War	Targeting Paradigm
Decapitation/ Denial (Force)	Strategic Paralysis (Mobility)	Physical	Utility Targeting
Punishment/Risk	Break Will (Determination)	Moral	Axiological Targeting
Denial (Strategy)	Direct Options (Direction)	Mental	

Source: Author's Original Work

The primary research question this study aims to answer is this: How can the United States wage a conventional conflict against a nuclear-armed opponent, which accomplishes limited (and/or acceptable) political objectives while discouraging adversarial escalation to use or threat of use of nuclear weapons? In other words, how can the U.S. coerce action in a conventional conflict, while simultaneously deterring adversarial nuclear threats or employment?

Because of diplomatic and military skill or by luck (or a combination) the great powers that possess nuclear weapons thankfully have not directly escalated conflicts into high intensity conventional or nuclear war. Therefore,

[25] This study acknowledges that the mere presence of nuclear weapons represents an implicit threat of their use. Thus, a more specific goal of this study is to find a targeting paradigm that deters an adversary from the provocative behavior of escalating with the explicit or stated threat of nuclear use.

all we think we know about waging nuclear war, or about avoiding it, is entirely theoretical and we can neither prove nor disprove these ideas. Additionally, since coercion and deterrence are psychological influencers, decision-makers can never be sure that political outcomes from escalation control measures relate directly or indirectly to policy or military operations. Consequentially, this leads to as many beliefs about escalation control as the number of authors contributing to the discussion.

With the world order shifting from unipolarity to multi-polarity, as many predict, the U.S will be less likely to achieve its policy goals through unlimited war strategies. It will seek limited obtainment of its objectives through limited military efforts against more capable states. This change warrants a renaissance of limited war strategies about coercion and deterrence, and the operational air campaign paradigms that support those limited strategies.

THEORY

In *A General Theory of Power Control*, J.C. Wylie describes what consists of a theory: "A theory is simply an idea designed to account for actuality or to account for what the theorist thinks will come to pass as actuality. It is orderly rationalization of real or presumed patterns of events… A theory is an idea, a scheme, a pattern of relationships designed to account for events that have already happened with the expectation that this pattern will allow us to predict or foresee what will come to pass when comparable events take place in the future."[26] It is with this pattern of events in mind – the events that have occurred that help project events that will occur - that this study posits a theory of cognitive campaign targeting to influence escalation control.

[26] J. C. Wylie, *Military Strategy, A general Theory of Power Control* (Annapolis, Maryland: Naval Institute Press, 1967), 31, 96.

METHODOLOGY

This study will first examine the doctrine and policy of potential nuclear-armed adversaries in a conventional conflict to determine what actions by the U.S. may cause retaliatory nuclear responses. This analysis is critical to compare the operational targeting paradigms against possible outcomes.

Secondly, this study will use J. F. C. Fuller's spheres of war to provide a critical and theoretical analysis of three conventional campaign-targeting paradigms: utility targeting - a capabilities-based targeting paradigm (CBTP), axiological targeting - a will-based targeting paradigm (WBTP), and the new category, cognitive targeting – a decision-based targeting paradigm (DBTP). This study compares these paradigms, and their ability to positively influence escalation, to the three aspects of the opposing instruments of this chapter's opening quote by Fuller:

> *If our intention is to study military history or to work out a military plan, the first thing we should do is to examine the opposing instruments. Two nations confront each other; what is the degree of fighting force each nation can apply? In general terms, the answer to this question is a threefold one, namely, the thinking power, the staying power, and the fighting power of the nation and of its military instrument.*[27]

Each targeting paradigm examined in this study represents one part of Fuller's threefold answer. Utility targeting represents attacks on the adversary's *fighting power*; or his ability to resist; axiological targeting attacks his *staying power*, or determination (will) to resist; and cognitive targeting attacks his *thinking power* by directing his military and political options. Each one of these targeting paradigms will have varying degrees of success

[27] Colonel J. F. C. Fuller, *The Foundations of the Science of War* (London, England: Hutchinson & Co Publishers, LTD, 1926, Reprint by Books Express Publishing, 2012), 91.

depending on the character of a given conflict. However, this study will only analyze each of the targeting paradigms to determine which is best to coerce adversary behavior while simultaneously deterring escalation to nuclear employment.

Fuller believed that by applying science to war, and by correctly ordering and arranging the elements and principles of war according to their values, he could better educate those involved in war's "art."[28] This study will follow his logic to slightly re-order and overlay his principles and elements of war to explain the proper relationship between an air campaign-targeting paradigm to the object of influencing enemy behavior.

Third, this study will use the historical comparison of various air campaign targeting paradigms and offer suggestions to influence adversary decision space that supports mutually beneficial de-escalation. This study will contrast utility, axiological, and cognitive targeting and provide implications for potential future conflicts. Through this comparison, we may use J. C. Wylie's "patterned" approach and apply these various targeting paradigms to the policy and doctrine of the potential nuclear-armed adversaries. In his words, this will help us "account for events that have already happened with the expectation that this pattern will allow us to predict or foresee what will come to pass when comparable events take place in the future." By reviewing historical examples of each targeting paradigm, and applying adversarial doctrine and policy, we may predict which targeting methods will trigger enemy nuclear escalation and which will not.

Given this methodology, Chapter 2 examines the expected behavior of potential nuclear-armed adversaries as a starting point for critically analyzing targeting paradigms. The doctrine and policy of Russia, China, and North

[28] Fuller, *The Foundations of the Science of War*, 36.

Korea will indicate their expected behavior from the U.S. as well as their potential response options to U.S. action.

Chapter 3 analyzes the capabilities-based targeting paradigm: utility targeting. This analysis uses J. F. C. Fuller's physical sphere to address how reducing an enemy to a system in which inputs in the physical sphere of war produce strategic paralysis with *Mobility* as the principle of control to affect the decision maker's ability to continue hostilities. This analysis uses Operation Desert Storm as a case study in the uses and outcomes of utility targeting and projects how it may affect a nuclear-armed adversary in an escalating conventional conflict.

Chapter 4 analyzes the will-based targeting paradigm: axiological targeting. This chapter uses Fuller's moral sphere of war to address how striking non-military targets of value can affect the decision maker's *Determination*, as a principle of control, to continue hostilities. This chapter uses Operation Allied Force in Kosovo as a case study to determine the applicability of axiological targeting to affect the psychology of an adversary's decision-making construct during an escalating conflict.

Chapter 5 introduces the decision-based targeting paradigm: cognitive targeting. This chapter uses Fuller's mental sphere of war to address how an air campaign may influence an adversary's decisions by addressing target sets as political and military options to the adversary decision-making construct. This analysis uses the principle of control, *Direction*, to influence an adversary's psychology directly within the mental sphere rather than indirectly from the physical or moral spheres. This study uses the 1999 Kargil War between India and Pakistan as a case study to determine the usefulness of cognitive targeting to coerce a nuclear-armed adversary while deterring escalation.

Chapter 6 concludes with a summary of the main points and findings of each chapter. Additionally, the conclusion will compare the three targeting paradigms against their ability to answer the research question and provide a recommendation based on the findings of that comparison.

Chapter 2

Doctrine and Policy of Potential Nuclear-Armed Adversaries

> *Powers possessed of nuclear weapons have not only refrained from using these weapons against each other, but have avoided becoming involved in direct military conflict with each other… We have no reason to assume that these elements of restraint in the politics of the two leading nuclear weapon states are bound to endure, or to be generalized so as to embrace other nuclear weapon states, actual or potential.*
>
> Hedley Bull
> *The Anarchical Society*

The purpose of this chapter is to view the doctrine and policy of nuclear-armed adversaries to determine their triggers for use or threat of use of nuclear weapons. This information will be useful to apply the current targeting paradigms to potential conflicts against these nation states.[1]

RUSSIA

In 2014, Russian President Vladimir Putin approved the Military Doctrine of the Russian Federation. In this document, Russia's nuclear employment strategy is consistent with its conventional inferiority to the U.S. and NATO:

> The Russian Federation reserves the right to use nuclear weapons in response to use against it and (or) its allies of nuclear and other weapons of mass destruction, as well as in the case of aggression against the Russian Federation with use of conventional weapons, when under

[1] The author re-used the majority of this chapter from a previous paper he had written for the Air Force Research Institute while in an Air Force Fellowship. The paper, entitled "The Future of Strategic Arms Control Post New-START," inspired this study.

> threat the very existence of the state. The decision to use nuclear weapons is taken [by the] President of the Russian Federation.[2]

This statement signifies the intent to employ nuclear weapons in response to a conventional attack that threatens the existence of the state, or a de facto first use nuclear strategy. In addition, this document illustrates Russia's willingness to take advantage of the deterrent value of its nuclear weapons. As the U.S. is decreasing the role of nuclear weapons in its own defense, Russia has included conventional attack as the crossing threshold to nuclear employment.

The doctrine also identified Russia's main military danger to be "violations of international law" by NATO. This statement is troubling given that the U.S., as a NATO member, has agreed to aid in the defense of NATO nations, via Article V, that an attack against one represents an attack against all.

Finally, the categorization of this doctrine defines the main tasks of Russia's armed forces during peacetime, during the immediate threat of aggression, and in wartime.

- During peacetime:…preparedness and training of the strategic nuclear forces as a means to ensure their operation and use, and management systems at a level guaranteeing the infliction [of] unacceptable damage to the aggressor in any situation.
- During the immediate threat of aggression: maintaining a nuclear deterrent [and] established degree of readiness; [and] the strategic deployment of the Armed Forces.
- During War time: defeating forces of the aggressor, forcing him to stop hostilities on terms that meet the interests of the Russian Federation and its allies.[3]

[2] Vladimir Putin, *Military Doctrine of the Russian Federation*, 2014. (Translated into English by U.S. Government), 6.
[3] Putin, *Military Doctrine of the Russian Federation*, 6-7

The prominent language specifically referring to defeating an aggressor and forcing him to stop hostilities again suggests Russia's willingness to use battlefield nuclear forces as a central part of its defense strategy, even in response to conventional operations by NATO or another coalition.

Furthermore, in response to its emerging conventional inferiority, Russia has documented a controversial deterrence posture in which it would intentionally seek to escalate a conflict across a nuclear threshold in order to deescalate on terms favorable to the Russian Federation. The concept is that Russia might respond with a limited nuclear strike if faced with a large-scale conventional attack that exceeded its capacity for conventional defense.[4] In the case of an escalating conventional crisis in between Russia and NATO partners, Gustav Gressel suggests, "The most worrying trend in the Russian debate is the discussion of the "de-escalatory" use of nuclear weapons. This concept revolves around the use of an early limited nuclear strike to deter NATO intervention."[5] This 'escalate-to-deescalate' policy may negate the ability of any targeting paradigm to control escalation. However, by properly matching the political context with the operational campaign design, opportunities may exist to cause this strategy to backfire. This study will explore these opportunities in further chapters.

CHINA

China has constructed ambiguity into its nuclear force structure, its policies, and strategy. In doing so, it has transformed from a "minimum deterrent" force to that of a more secure second-strike-capable, deterrence-

[4] Nikolai N. Sokov, "Why Russia calls a limited nuclear strike "de-escalation," Bulletin of the Atomic Scientists, 13 March 2014, http://thebulletin.org/why-russia-calls-limited-nuclear-strike-de-escalation (accessed 13 May 2016).
[5] Gustav Gressel, "Russia's Quiet Military Revolution, and What it means for Europe," *European Council on Foreign Relations, Policy Brief: ECFA/143*, (London, England, October 2015), 12.

postured force with “integrated nuclear and conventional missile operations.”[6] Its force ambiguity includes mobile ICBM forces that travel to various sites through a networked underground tunnel system. Some experts estimate that this system has over three thousand miles of tunnels, and it may be much more.[7] This arrangement dramatically increases targeting complexity for an adversary. The words “integrated nuclear and conventional operations” sends a message to an adversary that not only deters a nuclear attack but also the conventional attack of nuclear or critical infrastructures.[8]

Preventing attack and controlling escalation in a conventional crisis are the primary reason for the Chinese nuclear weapons program. China's nuclear strategy's "fundamental goal is to deter other countries from using or threatening to use nuclear weapons against China."[9] This goal is to prevent another nation from attaining escalation dominance over China. China first developed nuclear weapons to thwart nuclear coercion strategies. In the 1950s, Mao Zedong called this bullying, and it is likely that China will rely on its retaliatory nuclear capability to counter any other coercive behavior, especially as China competes on the global stage for more resources to support a growing middle class. China values the strategic stability generated from a nuclear force capable of reaching the U.S., Russia, and India. China also has declared its commitment to a no-first-use (NFU) policy but it is not entirely clear about what this means. For example, using nuclear weapons in retaliation for a conventional strike against china seems to be within the bounds of this policy:

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[6] Toshi Yoshihara and James R. Holmes. *Strategy in the Second Nuclear Age* (Washington D.C.: Georgetown University Press, 2012), 54.
[7] Paul Bracken,. *The Second Nuclear Age: Strategy, Danger, and the New Power Politics* (New York, NY: St. Martin's Griffin Press, 2012, 2013), 282.
[8] Yoshihara and Holmes, *Strategy in the Second Nuclear Age*. 54.
[9] Yoshihara and Holmes, *Strategy in the Second Nuclear Age*. 58.

> ...nuclear weapons are a strong backstop for ensuring the status of large countries and they are a potentially huge deterrent resource. In local conventional wars under informatized conditions, just by moderately revealing one's nuclear strength, one is able to apply many types of deterrent methods flexibly. An enemy that is using informatized, conventional air raids against us cannot but consider prudently how high the price might be, thereby achieving the goal of supporting conventional operations.[10]

China's threats of nuclear retaliation for conventional attacks seems justified, in their minds, to be within the NFU policy. This ambiguity, even in the context of a purely conventional war, increases the deterrent value of their weapons program in that it not only deters against nuclear, but also conventional attacks. A closer look at *The Science of Second Artillery Campaigns* reveals several conditions that would cause China to alter its stated NFU policy, thus lowering the nuclear threshold.

> Lowering the nuclear coercion threshold means that when a strong military power possessing nuclear-armed missiles and an absolute advantage in high-tech conventional weapons is carrying out intense and continuous attacks against our major strategic targets, and we have no good strategy to resist the enemy, our nuclear forces must obey the orders of the Supreme Command, quickly adjust nuclear coercion policy and actively carry out strong, forceful nuclear coercion in order to dissuade the continuation of the strong enemy's conventional attacks against our strategic targets.
>
> The times for our nuclear forces to lower the nuclear coercion threshold are:
>
> 1. When enemy forces threaten our nuclear infrastructure by carrying out conventional attacks.
>
> 2. When the enemy threatens major strategic targets affecting the security of the lives of broad masses of people.

[10] *Science of Second Artillery Campaigns* (SSAC): Chinese nuclear doctrine, 274 In Yoshihara and Holmes, *Strategy in the Second Nuclear Age,* 59.

> 3. When the enemy threatens to carry on high and medium level conventional attacks against our capital, large and medium sized cities, our political and economic centers etc.
>
> 4. When conventional war continuously escalates and the strategic situation is extremely disadvantageous to us and the safety and survival of the nation is seriously threatened.[11]

This departure from the NFU policy - or China's interpreted use within the bounds of China's ambiguous NFU policy - shows three things about China's evolving thought process on escalation. First, China recognizes the conventional superiority of the United States. Second, China recognizes that it may have no winning conventional strategy in a crisis and its nuclear weapons may be its only credible coercive instrument. Third, China recognizes that its NFU policy may limit its freedom of maneuver during a crisis.

The cost-benefit equation in the strategic domains still favors the offense. The money China would spend to maintain an offensive nuclear capability against the U.S. is far less than the U.S. would have to spend on missile defense to attain an adequate and reliable defensive capability against China's nuclear ballistic missile forces.[12] Because of the cost of strategic defense, and the provocative political signal given by a full-scale nuclear defense apparatus, the U.S. is unlikely to eliminate China's (or any nuclear nation's) retaliatory threat. This condition provides China the ability to deter an attack with the threat of retaliation against a U.S. strategic vulnerability.[13] Without fighting force on force, China can effectively threaten to use nuclear weapons to an advantage without the U.S. having a reasonable defense. Because of the

[11] Yu, Jin, *The Science of Second Artillery Campaigns*. Ed. 2004 Beijing: People's Liberation Army Press. Translation of Chapter 10, section 7. Translated by Gregory Kulacki, Union of Concerned Scientists, 19 September, 2014.
[12] David C. Gompert and Phillip C. Saunders. *The Paradox of Power: Sino-American Strategic Restraint in the Age of Vulnerability* (Washington D.C.: National Defense University Press, Center for the Study of Chinese Military Affairs, Institute for the National Strategic Studies, 2011), xix.
[13] Gompert and Saunders, *The Paradox of Power*, 3.

United States' reluctance to cross the nuclear threshold, China could seek to exploit this vulnerability to attain an asymmetric advantage in an escalating conflict. This advantage is not only true of China but also any nuclear-armed power with weapon delivery platforms of strategic range. Additionally, China's willingness to lower the nuclear threshold when losing an escalating conventional conflict with no "good strategy to resist," represents an underlying policy, and strategy, to depart from their politically favorable no-first-use policy.

DEMOCRATIC PEOPLES REPUBLIC OF KOREA

In the Democratic People's Republic of Korea, also known as North Korea, Kim Jong-un most likely views his nuclear arsenal to have two main utilities: as a means to ensure his regime survival and to use for political advantage in other negotiations.

Hans K. Pak, of the Korea Economic Institute, postulates that "when one asks any North Korean about the reason for the U.S. invasion of Afghanistan and Iraq, one will get only one answer: Those countries were unable to defend themselves. Every North Korean is also likely to offer that the United States would not have attempted either invasion if the target country had nuclear weapons."[14] The lessons they have learned from U.S. military dominance over the last two decades have only strengthened their resolve to maintain a nuclear deterrent capability against the U.S. The North Korean Minister of Foreign Affairs stated, "It has become an absolutely impossible option for [North Korea] to even think about giving up its nuclear weapons."[15] This position suggests that even if every other nuclear power were to agree to dismantle their nuclear

[14] Yoshihara and Holmes, *Strategy in the Second Nuclear Age*. 91.
[15] Korean Central News Agency, 13 June 2009 in Yoshihara and Holmes, *Strategy in the Second Nuclear Age* 91.

arsenals, the North Koreans aim their deterrent not only at America's nuclear forces but also at its conventional superiority. Therefore, as long as the U.S. also has conventional superiority, North Korea's nuclear weapons are here to stay. Even if not intended for war fighting, use as a deterrent is enough for Pyongyang to justify them in their own minds.[16]

It is unclear if the Kim regime has contemplated under which circumstances if and how it would employ nuclear weapons once it attains an operational weapon system. As any act of nuclear aggression would surely result in a hostile coalition pursuing regime change, offensive weapons use would ultimately be an existential decision for the regime. That, in addition to North Korea's low economic ability to produce sophisticated and redundant strategic launch systems, is why it bases much of its nuclear doctrine on attaining a minimal deterrent.[17] Pyongyang will use its nuclear arsenal for not only deterrence and prestige, but also coercive diplomacy and threats against conventional attacks by superior military forces. When analyzing the modern record of nations at war with the U.S. and Western coalitions, North Korean pundits have highlighted the existential nature of the conflict for America's adversaries. For these reasons, in a dangerous and escalating crisis on the Korean Peninsula, it is possible that North Korea will pursue a strategy to escalate to deescalate or threaten nuclear employment to force a stalemate.

ASSUMPTIONS & PLANNING FACTORS

Based on the policies and doctrines described above, this study arrives at several assumed planning factors. First, due to increased nuclear proliferation and increased competition between nations, the chances of the U.S. facing an

[16] It must be noted that North Korea has shown a propensity for following its own version of rationality even if it conflicts with that if the international community.
[17] Yoshihara and Holmes, *Strategy in the Second Nuclear Age*. 96.

escalating conventional conflict against a nuclear-armed opponent are increasing in the 21st Century. Simply because conflict between large nuclear powers has not yet happened, we cannot assume this trend will continue.

Russian aggressiveness toward neighboring states, exemplified by the 2014 annexation of Crimea and its hostile stance toward NATO, provide the pretext for an escalating crisis in Eastern Europe. Additionally, China's recent aggressive stanve toward the Philippines, Vietnam, and Japan over territorial disputes may mean China will force the U.S. to prove its commitments to security agreements in the Pacific. Finally, North Korean leadership may miscalculate a coercive measure and create a crisis that Kim Jong Un believes he can escape only by threatening or using nuclear weapons against the U.S or our allies. None of these scenarios requires a vivid imagination to consider.

Second, a conventional air campaign that threatens a regime's leadership or its sources of political and economic power invites adversarial nuclear retaliation. Schelling described how nuclear states might behave if threatened and unable to defeat the enemy's military forces. "Nuclear weapons make it possible to do monstrous violence to the enemy without first achieving victory. With nuclear weapons and today's means of delivery, one expects to penetrate an enemy homeland without first collapsing his military force. What nuclear weapons have done, or appear to do, is to promote this kind of war to first place."[18] Further expanding on the political significance of this capability, Schelling claimed if a nation could inflict pain and damage to the adversary's population during war itself, it would not need to delay the punishment for the negotiations after a military decision it could not attain. It would seem more advantageous to expend coercive power while it lasts rather than exhaust it in

[18] Thomas, C. Schelling, *Arms and Influence*. (New Haven: Yale University Press, 2008. Originally printed in 1966), 22.

a struggle failing to achieve a military victory.[19] Therefore, the greater the disparity between conventional forces, the more likely is the weaker nation to resort to nuclear threats.

Third, the adversary's defensive, negative object to defend its current regime justifies (from its perspective) all means available to defend itself and its most vital interests; this includes threatening or employing nuclear weapons against the U.S. and her allies.[20] If the last twenty-five years provide Russia, China, and North Korea any measurement on the fate of those on the receiving end of American air power, they will have little incentive to limit their means of defense to ensure their regime survival.

Fourth, and above all, in a given conflict, avoiding nuclear war should be the primary goal of any national policy, strategy, and targeting paradigm. Therefore, the U.S. defensive, negative objective to prevent adversary nuclear employment against the U.S. and her allies is a more important political objective than the offensive, positive object to attain any particular regional policy congruence from the enemy. If the United States expects other nations to extend the tradition of nuclear non-use, it must give them incentives during escalation to honor it. Therefore, the U.S. should seek limited military means that attain limited political objectives to accomplish acceptable outcomes for all parties.

The next chapters will utilize these assumptions to contextualize the evaluation of the effectiveness of each targeting paradigm to achieve limited objectives while simultaneously deterring escalation.

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[19] Schelling, *Arms and Influence*, 30.

[20] Schelling *Arms and Influence*, 22. What Schilling is stating here reflects an adversary's willingness to employ nuclear weapons against U.S. targets or those of U.S. allies to deter or coerce the U.S. in either counter-force or counter-value strategies to raise the cost of U.S. intervention higher than the expected gains by continuing pursuit of military objectives.

Chapter 3

Utility Targeting: The Physical Sphere

Destruction of the enemy's physical strength is the canon of the physical school of war; to the moral, it is the destruction of the enemy's will.

Colonel J. F. C. Fuller

Essentially war is fighting, for fighting is the only effective principle in the manifold activities generally designated as war. Fighting, in turn, is a trial of moral and physical forces through the medium of the latter.

Carl von Clausewitz

This chapter analyzes the capabilities-based targeting paradigm, utility targeting, through J. F. C. Fuller's physical sphere and determine the usefulness in influencing adversary decisions in a coercion-deterrence scenario.

THE PHYSICAL SPHERE

War is far more than mere combat. Actors and actions in all three spheres of war (the mental, moral, and physical), make war the social institution of a legal dispute between hostile parties. The use or threat of combat is the tool by which actors manipulate the enemy in all spheres. The act of combat in war takes place in the physical sphere. The moral and mental spheres impose conditions on the physical and vice versa. The physical is a tangible entity while the moral and mental are abstract ones existing only in the thoughts, minds, and dispositions of the people involved in the war.

Fuller used the analogy of the human body to describe a military organization's architecture as threefold: structure, maintenance, and control.

He described the structure as the body, maintenance as the soul, and control as the mind. In doing so, he classified interacting entities as *elements* and *principles* of force for each sub-architecture (body, soul, and mind) and its associated sphere of war. The structure of the "body" is associated with the physical sphere of war. Fuller's elements of force are stability, activity, and cooperation. Each sphere has its own unique elements of force corresponding to stability, activity, and cooperation. The elements in the physical sphere that correlate to the elements of force are protection, offensive action, and movement. Fuller also described these elements as moving, guarding, and hitting.[1]

Table 2: Elements of War

	Stability	Activity	Co-operation
Mental Sphere	Reason	Imagination	Will
Moral Sphere	Fear	Morale	Courage
Physical Sphere	Protection	Offensive Action	Movement

Source: Author Derived Table from concepts in Fuller, The Foundations of the Science of War, 79.

Fuller described the relational dependency of the elements:

> In each case, the third element is the resultant of co-operation between the first two, and also the point of contact with the sphere below it. Thus, force acting on the intelligence causes it to react according to the quality of reason and imagination, and the resultant is will, or the lack of will. Will acting on the sentiments causes them to react to fear and morale, and the resultant is courage or the lack of courage. Courage acting on physical energy causes it to react to pressure (offensive power) and resistance (protective power), and the resultant is movement, or the lack of movement, which takes place in the material sphere outside man.[2]

[1] Colonel J. F. C. Fuller, *The Foundations of the Science of War* (London, England: Hutchinson & Co Publishers, LTD, 1926, Reprint by Books Express Publishing, 2012), 148.

[2] Fuller. *The Foundations of the Science of War*, 210. The author has substituted Fuller's use of the italicized word *moral* with the modern term morale and will do so for the remainder of this study.

Fuller plotted the relationships between the elements as depicted in Figure 1:

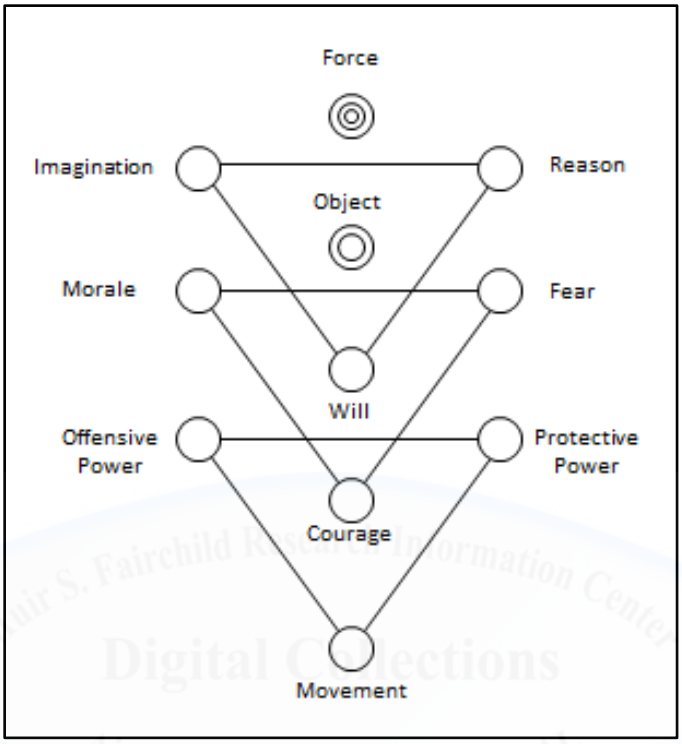

Figure 1: The General Relationship of the Elements of War

Source: The author slightly altered Fuller's Diagram 15 to align the elements of stability and activity on corresponding sides. Fuller, The Foundations of the Science of War, 211.

With the activity elements on the left, stability elements on the right, and cooperation elements centered, all the elements interact together in a chain from the object in the mind (or control), through maintenance, to the body, in order to produce some kind of movement.

Fuller used the same construct when classifying the principles of control, pressure and resistance as derived from the law of economy of physical force, moral force, and mental force. The principles of force that derive from the law

of economy of physical force are mobility (control), offensive action (pressure), and security (resistance).

Table 3: Principles of War

	Law of Economy of Mental Force	Law of Economy of Moral Force	Law of Economy of Physical Force
Principles of Control	Direction	Determination	Mobility
Principles of Pressure	Concentration	Surprise	Offensive Action
Principles of Resistance	Distribution	Endurance	Security

Source: Author Derived Table from concepts in Fuller, The Foundations of the Science of War, 225.

These classifications are important because they show Fuller's threefold order of control springing from a dual order of pressure and resistance, which form the basis for the economic use of force.[3] Economy of force is the most efficient and purposeful application of force to attain the object on a path of least resistance. Fuller described Economy of Force as a path:

> [E]conomy of force demands that force should be directed with a purpose, since rationally it cannot be directed unnecessarily – there must be a reason for its expenditure… In war opposition is always met with; therefore movement takes place along the resultant of all tractions and resistance, and its direction is seldom straight – that is, direct. The straighter it is the more economically shall we reach our goal… The more we can concentrate force the straighter will be its direction, and, as this presupposes lack of resistance, the longer will our force last, and the sooner will our objective be gained, and the nearer shall we approach to the full application of the law of economy of force.[4]

[3] Fuller, *The Foundations of the Science of War*, 225.
[4] Fuller, *The Foundations of the Science of War*, 214.

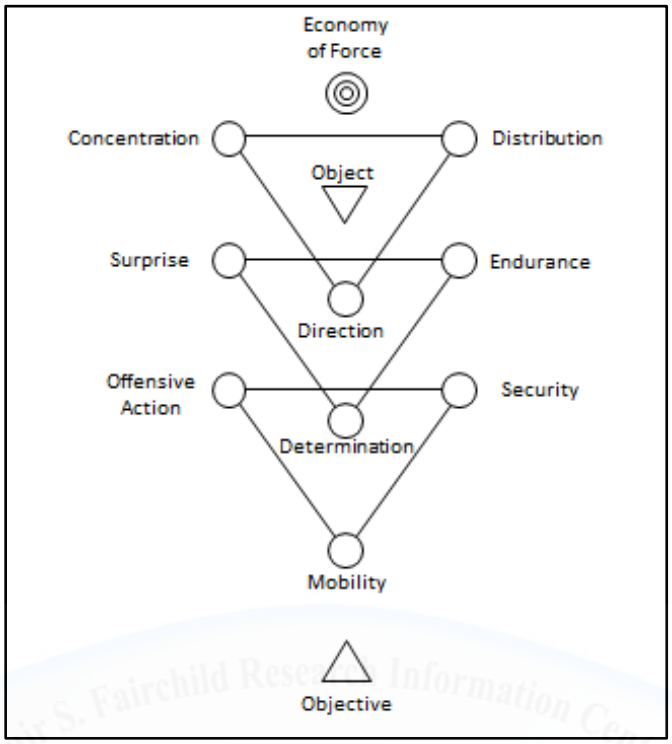

Figure 2: The General Relationship of the Principles of War

Source: Fuller, The Foundations of the Science of War, 222.

For the purposes of maximizing economy of force in a military campaign, Figure 2 displays the relationship between the principles of war from the object, in the mental sphere, through the moral to the physical. With the principles of pressure on the left, the principles of resistance on the right and the principles of control down the center, the interactive principles, like the elements, produce a chain from the object to the ability to attain it the objective.

In order to coerce an adversary, one must ultimately plant the object in the enemy's mind that one desires he pursue by working backward through the principles toward the objective. Planting the object in the mind of the enemy represents the language of violence, thus bringing his policy decisions into

congruence with our own.[5] A strategist or campaign planner must choose the correct operational design that communicates the language in a receivable way for the adversary to choose the desired object. The operational design must employ the principles of control at various levels to influence the adversarial object. Each targeting paradigm attempts to enter the construct at a different level, thereby gaining access to the enemy's decision apparatus. This "influence path" has three levels of entry at the principles of control: mobility, determination, and direction. By entering the influence path at each of these levels, a coercing actor may act on a different corresponding element of cooperation and principles of control. The coercing actor uses the principle of pressure and element of activity at each level against the enemy's principle of resistance and element of stability for that level.

Figure 3 shows how utility targeting employs offensive action (pressure and action) against the enemy's security regime, or protective power (resistance and stability). This action forces the enemy into a state a strategic paralysis by removing his mobility, or movement (control and cooperation). Inhibiting strategic movement indirectly influences the adversary's decision construct and enters the influence path in the physical sphere, farthest from the object.

[5] Refer back to Chapter 1 on the language of violence and the purpose of coercion.

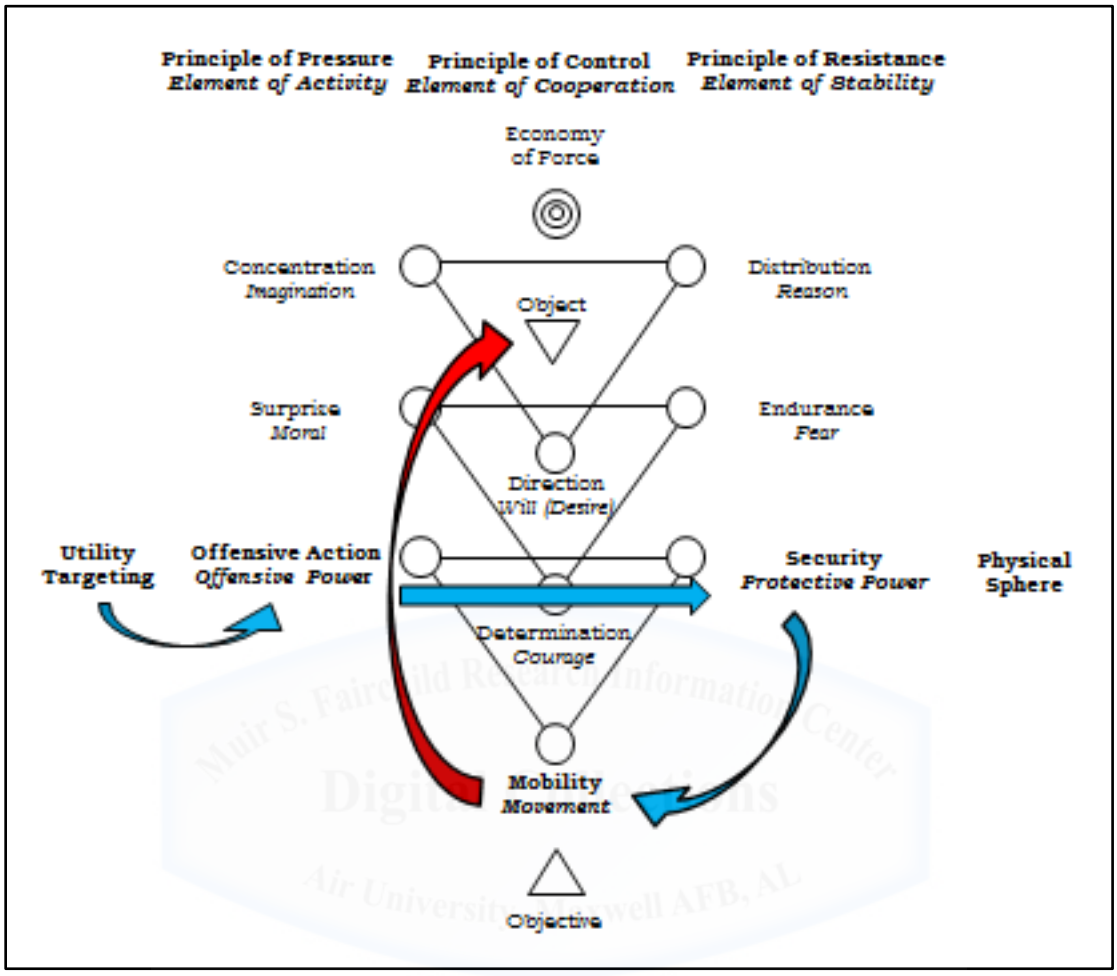

Figure 3: Utility Targeting, The Physical Sphere, and the Influence Path through Mobility

Source: Author derived this relationship be reordering Fuller's general relationship of the elements of war (Fuller, 211) and overlaying them with the general relationship of the principles of war (Fuller, 222).

THEORY OF UTILITY TARGETING: STRATEGIC PARALYSIS

The theory of utility targeting seeks to strike targets that prohibit the enemy leadership from employing military forces. This theory generally recognizes John A. Warden's "five rings" theory to cause the enemy to enter a

state of strategic paralysis, therefore becoming incapable of operating its military forces.

In *Strategic Paralysis: An Airpower Theory for the Present*, Jason Barlow builds on Warden's concepts and describes both the goal of Strategic Paralysis and the specific conditions under which it is most likely to succeed. "The goal of *Strategic Paralysis* is to selectively attack or threaten those targets that most directly support the enemy's ability or will to continue with his current behavior."[6] Barlow suggests by attacking the enemy's National Elements of Value (NEV) – consistent with Clausewitz' "centers of gravity" and Douhet's "vital centers" – it will induce a state of military incapacitation, paralyzing the enemy's ability and possibly his will to continue, thus forcing him to surrender.[7]

Following his experience as a fighter pilot during the Vietnam War, Warden believed the apparent limitations *of* airpower were due to the limits put *upon* airpower by politicians who picked targets from the White House and from graduated intensity "signal-sending" rather than trying to win the war.[8] Because he dismissed the political implications of the war, in deterring Soviet and Chinese intervention, he did not believe in limited war. For him, it was an all-out effort.[9] He saw the enemy as a "system" and focused his attention on those operations he considered to represent B. H. Liddell Hart's indirect approach: the functional disruption, systemic effects, and strategic paralysis resulting from striking the enemy's command, control, and communications

[6] Jason D. Barlow, "Strategic Paralysis: An Airpower Theory for the Present." (Maxwell AFB, AL: School of Advanced Air and Space Studies, 1992), 3, 31.
[7] Barlow, *Strategic Paralysis: An Airpower Theory for the Present*, 5, 23.
[8] John Andreas Olsen, *John Warden and the Renaissance of American Air Power* (Washington D.C.: Potomac Books, Inc, 2007), 22.
[9] Olsen, *John Warden and the Renaissance of American Air Power*, 37.

apparatus.[10] Warden saw strategic bombing as a way to achieve military victory without defeating or even engaging the enemy military forces, namely the army. Liddell Hart had a significant influence on Warden's thinking about paralyzing the enemy. An excerpt from Liddell Hart's *Strategy* reveals the logic.

> It should be the aim of grand strategy to discover and pierce the Achilles' heel of the opposing government's power to make war. And strategy, in turn, should seek to penetrate a joint in the harness of the opposing forces. To apply one's strength where the opponent is strong weakens oneself disproportionately to the effect attained. To strike with strong effect, one must strike at weakness… A strategist should think in terms of paralyzing, not killing… on a higher plane of warfare, the impression made on the mind of the commander can nullify the whole fighting power that his troops can possess. And on a still higher plane, psychological pressure on the government of a country may suffice to cancel all the resources at his command - so that the sword drops from a paralyzed hand.[11]

Additionally, Liddell Hart stated, "To paralyze the enemy's military nerve-system is a more economical form of operation than to pound his flesh."[12] Warden used these principles to build his theory of strategic bombing. His version of paralysis was physical rather than psychological.[13] He sought to limit the ability of the Iraqi military to carry out any action through the focused application of precision air power against targets prioritized into five concentric rings.

The center ring, or command ring, included leadership and its ability to connect to its forces. Attacking this ring severed communications through infrastructure, propaganda, media, and intelligence networks. The second

[10] Olsen, *John Warden and the Renaissance of American Air Power*, 3.
[11] B. H. Liddell Hart, *Strategy,* Second Revised Edition (New York, NY: Meridian Books, Published by the Penguin Group, 1954, 1967), 212.
[12] Liddell Hart, *Strategy*, 219.
[13] David S. Fadok, "John Boyd and John Warden: Air Power's Quest for Strategic Paralysis." (Maxwell AFB, AL: School of Advanced Air and Space Studies, 1995), 25.

ring, immediately surrounding the command ring, comprised such "system essentials" as critical war industry and production centers. The third ring contained the state's infrastructure, with regard to transportation links to include roads, bridges, and railways. The fourth ring targeted the state's population and agricultural production of food. The final, outer ring was the state's fielded military forces. Within each ring, significant centers of gravity (COG), or a collection of COGs represented the hub of power and movement for that particular ring.[14] Warden viewed precision air strikes as the ultimate tool to bypass the enemy's fielded forces in order to attack what he considered the true sources of the enemy's strength.[15]

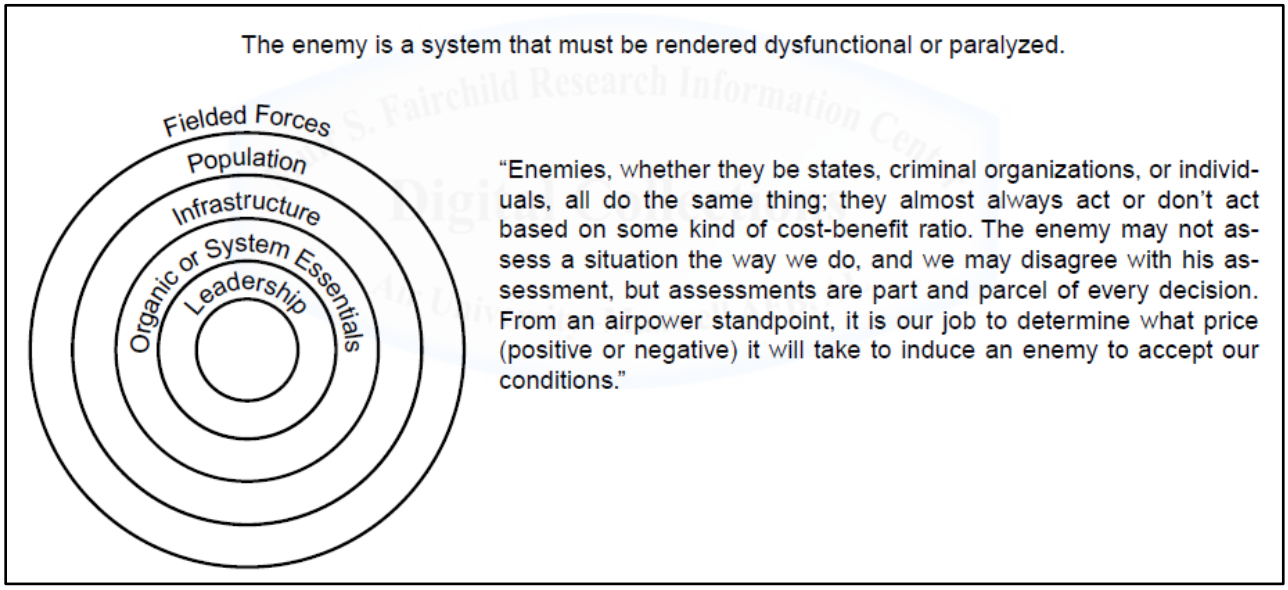

Figure 4: 5-Rings Model: Targeting According to Utility

Source: Lt. Col. Peter W. W. Wijninga, Royal Netherlands Air Force, and Richard Szafranski. "Beyond Utility Targeting, Toward Axiological Air Operations."

[14] Fadok, *John Boyd and John Warden: Air Power's Quest for Strategic Paralysis*, 24.
[15] Global Strategy Outline by John Warden in Olsen, *John Warden and the Renaissance of American Air Power*, 109-110.

Aerospace Power Journal 14, no. 4 (Winter 2000), 45-59. Figure 1. Targeting According to Utility, 49.

The desired outcome from Warden's "five-rings" model, at the operational level, is to "overwhelm the opponent's ability to command and control his forces, denying him the ability to respond to U.S. operations, and forcing him to execute uncoordinated preplanned actions."[16] This overwhelming of the enemy's *ability* to command his forces and denying him the *ability* to respond represents a targeting paradigm designed to oppose an enemy's capabilities rather than his will or intentions. Additionally, it represents a targeting paradigm designed to carry out a decapitation-based coercive air power strategy. Specifically, it is a campaign for leadership and military decapitation, to kill the enemy leader and cut him off from his military forces, rather than create conditions inconsistent with his political objectives. However, inherent within the command ring is the idea that even if the enemy leadership is not available as a target set, one must always attempt to influence the mind of the commander while selecting centers of gravity within the other rings.[17] Theoretically, within these rings lie centers of gravity which, when hit, impose some level of physical paralysis, thereby raising the cost in the mind of the enemy commander.

The idea of inducing physical paralysis supports the claim that utility targeting enters the influence path in the physical sphere at the principle of *mobility*, the physical sphere's principle of control. Operation Desert Storm

[16] Olsen, *John Warden and the Renaissance of American Air Power*, 113.

[17] Warden's terminology seems to indicate he treats government decision making as a process and the product of a unitary rational actor – Allison Model I. See Graham Allison and Philip Zelikow. *Essence of Decision: Explaining the Cuban Missile Crisis*. Second Edition (New York, NY: Longman, 1999). However, he argues that Model I (rational actor), Model II (organizational process), or Model III (governmental politics) all play a role and the strategist must chose centers of gravity that reflect these different models. Interview with John Warden, 17 Feb 1994, by Jason Fadok in Fadok, *John Boyd and John Warden: Air Power's Quest for Strategic Paralysis*, 24, 30.

launched against Iraqi dictator Saddam Hussein, displayed the coalition's attempt to influence his behavior with utility targeting to affect his mobility in order to induce strategic paralysis.

IRAQ: OPERATION DESERT STORM

In April 1990, the Commander-in-Chief of US CENTCOM (CINCCENT), General Norman Schwarzkopf, issued a draft outline for OPLAN 1002-90. This draft provided direction on how the U.S. forces would provide aid to friendly countries on the Arabian Peninsula and ensure the flow of oil from there to the United States and the rest of the global market. The draft plan's three phases included deterrent measures in Phase I; attained air superiority and delayed, disrupted, and destroyed attacking enemy forces in Phase II; and in Phase III centered on a counter-offensive executed upon reaching favorable force ratios from Phase II aerial interdiction.[18] The draft OPLAN identified Iraq as the most likely regional antagonist to attack Kuwait or Saudi Arabia. CENTCOM did not have to wait long to be proven right.

On 2 August 1990, the armed forces of the republic of Iraq invaded, occupied, and annexed the Emirate of Kuwait. In response, President George H. W. Bush issued four general objectives that included immediate, complete and unconditional Iraqi withdrawal from Kuwait, restoration of Kuwait's legitimate government, establishment of security and stability of Persian Gulf, and the protection of lives of U.S. citizens abroad[19]

In Phase II of the draft plan, Gen. Schwarzkopf directed that air power attrit enemy ground forces to the point that force ratios shifted decisively in

[18] Diane Putney, *Airpower Advantage: Planning the Gulf War Air Campaign 1989-1991* (Washington D.C. Air Force History and Museums Program, United States Air Force, 2004), 11.
[19] CENTCOM AIR CAMPAIGN PLAN in Olsen, *John Warden and the Renaissance of American Air Power*, Appendix 2, 295

favor of the offensive land campaign. In doing so, CENTCOM adopted the idea that planning should address a potential enemy's capabilities rather than his intentions.[20] This plan reflects CENTCOM's intent to pursue either a brute-force plan of conquest of Iraq with a land invasion or a coercive air strategy of denial. It also represented the Army doctrine at the time as presented in the Air-Land Battle concept. The CENTCOM air campaign plan called for demonstrating the ability to conduct offensive operations against high-value targets that hold coalition forces at risk, with the option to escalate as required. However, Gen. Schwarzkopf was not content with this plan and sought additional courses of action from the Air Staff, which turned to Col John Warden.

Warden brought his theoretical support to a plan called "Instant Thunder" as an alternative to what he considered a wasteful brute force effort against the Iraqi military. He and his team constructed a strategic bombing plan built on four basic objectives: withdrawal of Iraqi forces from Kuwait, restoration of Kuwaiti sovereignty, the unimpeded flow of oil, and protection of American lives.[21] Warden's objectives matched those of the President. However, his methods for attaining them wildly contradicted the CENTCOM plan. Consistent with his theories, Warden suggested an effects-based air campaign that sought to paralyze the Iraqi regime by isolating its leadership from its forces.[22] Rather than using air power as a supporting arm to the Army's ground campaign, Warden's plan identified air power as the primary instrument of force, to achieve specific effects. It focused on the regime rather than the battlefield.[23]

[20] Putney, *Airpower Advantage*, 11.
[21] Putney, *Airpower Advantage*, 44, and Olsen, *John Warden and the Renaissance of American Air Power*, 148.
[22] Olsen, *John Warden and the Renaissance of American Air Power*, 140.
[23] Olsen, *John Warden and the Renaissance of American Air Power*, 151.

The Desert Storm air campaign would ultimately contain elements of both plans in the first three phases of a four-phase war. Phase I was designated the "strategic" bombing campaign, where most of Warden's plan would reside. The purpose of Phase I was to "isolate and incapacitate the national leadership, destroy critical control centers, and neutralize Iraqi offensive military capabilities to include Iraqi forces in Kuwait and Southern Iraq."[24] "Phase II of the plan, designated 'Kuwait Theater of Operations (KTO) Air superiority,' would destroy autonomous surface-to-air missile (SAM) sites not connected to central IADS control."[25] Phase III, "Preparation of the battlefield," would attain the counter-land attrition requirement represented in early OPLAN drafts.[26] Phase IV would be the ground attack. The air campaign phases merely depicted a shifting level of effort from one target set to another and did not represent sequential significance. In effect, Airmen could conduct the multiple phases of the air campaign simultaneously.

The initial Phase I attacks conformed to Warden's "Instant Thunder" plan. In the early morning hours of 17 January 1991, F-117 Stealth Fighters struck Iraqi air defense control centers, bunkers controlling Iraq's southern air defense sector, and thirteen targets in Baghdad, to include telecommunications, the presidential palace, radio relays, and military sector operating centers.[27] Planners hoped that the damage, disruption, and shock caused by the initial strike aircraft would prepare the airspace for the non-stealthy bulk of aircraft to strike air defenses, airfields and SCUD missiles in western, central and eastern Iraq.[28] In addition to disabling the Baghdad

[24] Putney, *Airpower Advantage*, 188.
[25] Putney, *Airpower Advantage*, 243.
[26] Putney, *Airpower Advantage*, 246.
[27] Richard G. Davis, *On Target: Organizing and Executing the Strategic Air Campaign Against Iraq* (Honolulu, Hawaii: University Press of the Pacific, 2002), 181-186.
[28] Davis, *On Target*, 188.

power grid, B-52Gs carrying conventional cruise missiles struck five communications facilities and three of Iraq's largest electric power plants, one in Al Musayyib and two in Mosul in northern Iraq.[29]

As strikes progressed into the morning daylight hours, coalition aircraft began interdicting rail yards in southern Iraq as well as directly engaging the Iraqi army. Within the first twenty-four hours, coalition air fire simultaneously conducted phases I, II, and III, although they did not officially state that they conducted different phases simultaneously.

The Instant Thunder portion of Phase I did have its theoretical drawbacks. It did not target the Iraqi troops occupying Kuwait or positioned along the Saudi border. "If liberating Kuwait was the fundamental goal, these troops would eventually have to leave. But how would attacking the inner rings of Iraqi power lead to the removal of Iraqi troops from Kuwait?"[30] When pressed about this issue in planning, Warden fell back on the assumption that "the Iraqi regime would be so paralyzed, isolated, and discredited that its forces would have to leave Kuwait."[31]

There are two widely shared concerns about Instant Thunder: first, there was no guarantee that strategic bombing would force an Iraqi withdrawal even if it achieved its objectives; and second, it could leave too much of Iraq's military power intact.[32] Only after a large "left hook" envelopment by the U.S. VII Corps did Saddam Hussein give the order for his forces to withdraw. On February 26, 1991, the Iraqi leadership finally grasped they had no military solution to achieve their territorial objectives. The swift counter-invasion of the

[29] Davis, *On Target*, 196.
[30] Keith L. Shimko, *The Iraq Wars and America's Military Revolution* (New York, NY: Cambridge University Press, 2010), 58.
[31] Shimko, *The Iraq Wars and America's Military Revolution*, 59.
[32] Shimko, *The Iraq Wars and America's Military Revolution*, 59.

coalition forces from the west risked trapping Saddam's ground forces in Kuwait. This risk caused him to issue the order to withdraw.[33] U.S. air power in Desert Storm destroyed ground forces effectively, but it took U.S. ground forces to alter the Iraqi decision calculus and force Iraq's retreat.[34]

When sequenced into an overarching plan to degrade Iraqi resistance, then attrit Iraqi ground forces, and then invade, the utility targeting model seems appropriate against an enemy that could not effectively escalate vertically. However, utility targeting as a strategy for coercion through decapitation is implausible against an enemy that can escalate the conflict into nuclear coercion.

WHY UTILITY TARGETING CANNOT POSITIVELY INFLUENCE ESCALATION

Strategic paralysis assumes that the operations in the physical sphere influence those in the mental sphere. These operations attempt to use utility targeting to influence, indirectly, the psychology of the enemy leadership into a state of paralysis, or inability to respond. Fuller explains that the principle of control, *mobility*, comes from the law of economy of physical force and influences the mind. However, mobility is the farthest path entry from the object in the adversary's mind.

Utility targeting is a targeting paradigm designed to pursue a decapitation-based coercive air power strategy. Utility targeting against a nuclear-armed adversary encourages nuclear escalation because it specifically targets a regime's sources of power and survival. The innermost ring of Warden's model, the command ring, directly targets government and military leaders. Additionally, it targets their ability to communicate to their forces. When faced

[33] Shimko, *The Iraq Wars and America's Military Revolution*, 75.
[34] Olsen, *John Warden and the Renaissance of American Air Power*, 214.

with a threat to regime survival, such as targeting the command ring in the utility targeting model, regimes will logically use, or threaten to use nuclear weapons in their defense. This logic matches the second assumption of this study as described in chapter 2: a conventional air campaign that threatens the regime leadership or its sources of political and economic power invites adversarial nuclear retaliation.

Supporting this assumption, Russian doctrine from Chapter 2 stated Russia reserves the right to use nuclear weapons in response to a conventional attack. The doctrine stated Russia may use nuclear weapons "in response to use against it and (or) its allies of nuclear and other weapons of mass destruction, as well as in the case of aggression against the Russian Federation with use of conventional weapons, when under threat the very existence of the state."[35] The very concept of strategic paralysis is antithetical to de-escalation. From an escalation control standpoint, the inner rings are the most provocative. In an authoritarian or single party state, targeting leadership places the "very existence of the state" at risk and encourages the target regime to escalate its defense posture by threatening nuclear employment.

Additionally, China's nuclear doctrine stated it would lower the nuclear threshold for several reasons that fit a strategy to counter or deter utility targeting:

> when the enemy threatens major strategic targets affecting the security of the lives of broad masses of people; when the enemy threatens to carry on high and medium level conventional attacks against our capital, large and medium sized cities, our political and economic centers; and when conventional war continuously escalates and the strategic situation is

[35] Vladimir Putin, *Military Doctrine of the Russian Federation*, 2014. (Translated into English by U.S. Government, 6.

> extremely disadvantageous to us and the safety and survival of the nation is seriously threatened.[36]

Targeting rings two through four - organic essentials, infrastructure, and population – is also escalatory, given China's statements to respond to strikes against "strategic targets affecting the security of the lives of broad masses of people." Therefore, striking economic production, power supply, agricultural, and transportation targets presumably gives the adversary justification to escalate to nuclear employment.

Utility targeting attempts to force an adversary into a position in which he cannot compete conventionally. However, with a nuclear option available, and the will to continue, it is logical that the enemy will escalate to deescalate the conflict on terms favorable to him. For example, Russia's stated escalate-to-deescalate policy would make targeting by utility against them a gamble. If they chose to employ a nuclear weapon, the most provocative and escalatory reaction, second only to nuclear retaliation by the U.S., would be to target the national command structure in Moscow according to utility and the "five-rings" model. Additionally, China stated that it would consider nuclear coercion with "no good strategy for resistance" against a strong conventional air campaign. Targeting according to utility in the aftermath of an adversary's nuclear employment would only exacerbate hostilities.

Any limited, regional objective the U.S. may pursue using a utility targeting paradigm would be inconsequential compared to the catastrophe of enemy nuclear use against the U.S. or her allies. The message the U.S. would intend to send to the target nuclear regime with utility targeting, in a regional scenario with hopes of de-escalation, would be incongruent with the message

[36] Yu, Jin, *The Science of Second Artillery Campaigns*. Ed. 2004 Beijing: People's Liberation Army Press. Translation of Chapter 10, section 7. Translated by Gregory Kulacki, Union of Concerned Scientists, 19 September, 2014.

the target regime is likely to receive by the provocative nature of a decapitation strategy. Given the assumptions in Chapter 2, utility targeting against a nuclear-armed adversary, therefore, cannot attain limited objectives while deterring enemy escalation. It is not an applicable targeting paradigm if limited objectives and escalation are part of the strategic plan. Planners should not attempt to attain strategic paralysis against an adversary who has no option for military victory other than nuclear employment or threat.

Chapter 4

Axiological Targeting: The Moral Sphere

> *National solidarity is a psychological phenomenon… It is the national will to win which must be broken, consequently, it is this will which forms the basic military objective in war, the object being its conquest… for policy should aim at attaining a more perfect peace than the one unhinged by the outbreak of hostilities… Thus, the national objective is a better peace and the means of attaining it is the conquest of the will of the hostile nation.*
>
> Colonel J. F. C. Fuller

The purpose of this chapter is to critically analyze axiological targeting through Fuller's moral sphere and determine the usefulness in influencing adversarial decisions in a coercion-deterrence scenario.

THE MORAL SPHERE

In the wake of World War I, when Fuller wrote the words in the above quote, nations had reached a point of national, total war in which the continued belligerent pursuit of political objectives was a monolithic, binary decision. Force-on-force warfare had decimated the European population, economy, and landscape. Theorists sought economical methods, to attain a decision in war, rather than bludgeon military forces against one another. This logic inspired Fuller as well as early air power theorists like Giulio Douhet and the so-called prophets of the U.S. Army's Air Corps Tactical School. The goal of breaking the enemy nation's will to fight represented the better military object to attaining the political object, the better peace. Fuller suggests that national solidarity is a psychological phenomenon. However, this analysis counters this idea arguing that the enemy's decision to continue in the mental sphere is influenced indirectly through determination from the moral sphere.

The elements of the moral sphere that correspond to stability, activity, and cooperation are fear, morale, and courage, respectfully. Remember, will acts on the sentiments and causes them to react to fear and morale, resulting in courage.[1] With respect to Fuller's principles, when theorists describe a military action that influences the "will" of a people, they are really advocating military action that strips the people of their *courage* to continue hostilities.

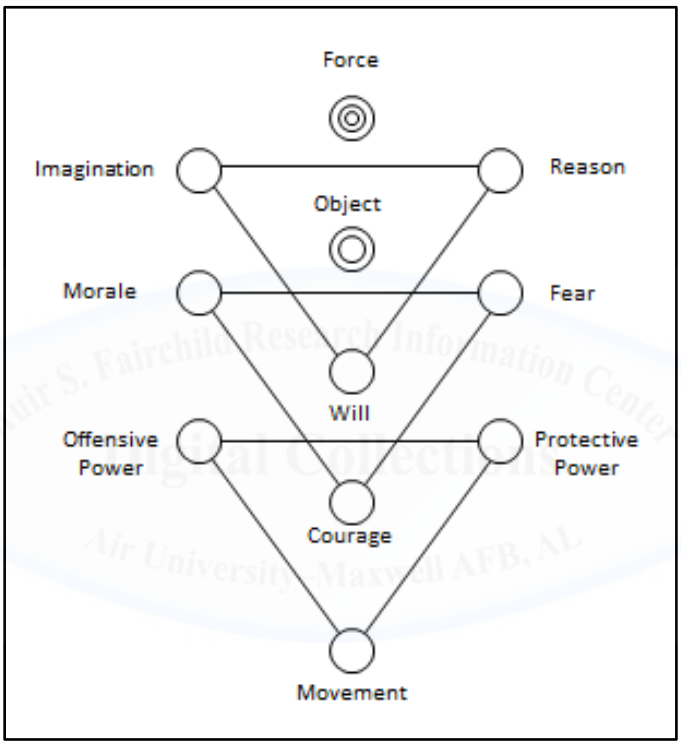

Figure 5: The General Relationship of the Elements of War

Source: The author slightly altered Fuller's Diagram 15 to align the elements of stability and activity on corresponding sides. Fuller, The Foundations of the Science of War, 211.

[1] Colonel J. F. C. Fuller, *The Foundations of the Science of War* (London, England: Hutchinson & Co Publishers, LTD, 1926, Reprint by Books Express Publishing, 2012), 210.

When we evaluate this process through Fuller's scientific order of the elements, we find that an act to remove a national courage to continue hostilities only indirectly influences the placement of the object.

Additionally, when analyzing the interaction of principles of war derived from the economy of moral force, the principles of pressure and resistance, surprise and endurance, interact to influence the principle of control, *determination*. As Fuller states, "The true nature of the attack is to strike at the enemy's determination to continue to resist."[2]

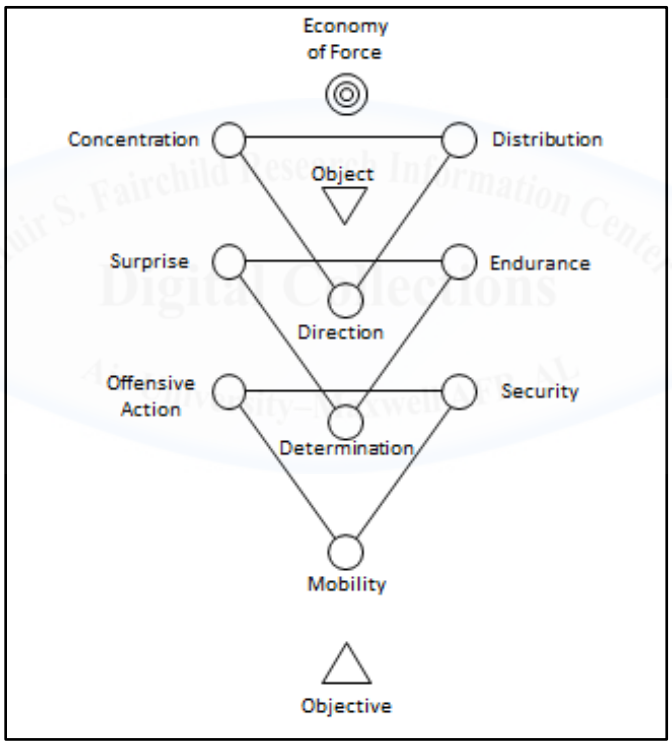

Figure 6: The General Relationship of the Principles of War

Source: Fuller, *The Foundations of the Science of War*, 222.

[2] Fuller, *The Foundations of the Science of War*, 283.

The general relationships of both the elements and the principles convey the idea behind axiological targeting: to execute military operations designed to strip the enemy decision apparatus of the courage or determination to continue to resist.

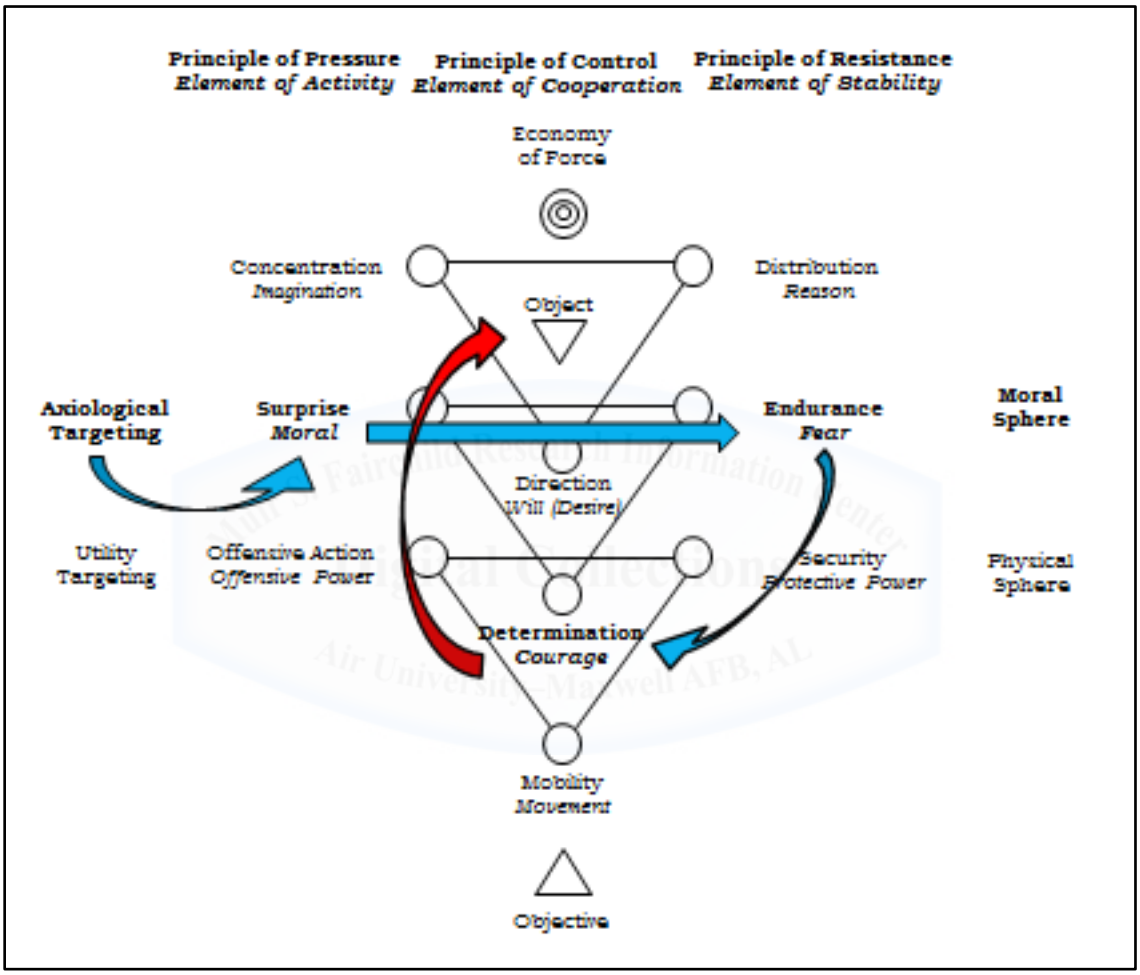

Figure 7: Axiological Targeting, the Moral Sphere, and Influence Path through Determination

Source: Author derived this relationship be reordering Fuller's general relationship of the elements of war (Fuller, 211) and overlaying them with the general relationship of the principles of war (Fuller, 222).

Figure 7 shows how axiological targeting uses surprise and moral (pressure and action) against the enemy's endurance and fear (resistance and stability). This shock to the enemy's sensitivities theoretically forces the enemy into accepting the coercer's demands by removing his determination, or courage to continue (control and cooperation). Removing the enemy's determination and courage indirectly influences the adversary's decision apparatus, and enters the influence path in the moral sphere, still at some distance from the object.

Axiological targeting, therefore, attempts to bypass striking the enemy's capabilities through its mobility and enter the influence path at its middle level, determination, by surprising the enemy with strikes against his sources of endurance.

THEORY OF AXIOLOGICAL TARGETING: BREAKING THE WILL

Axiological targeting is a theory of coercion that holds that airpower is uniquely suited to force an adversary to accept the demands of the attacker.[3] As a theory of coercion, it involves the destruction of certain targets chosen to modify an enemy's behavior or attitude but does not require military conquest or destruction of the enemy's means to resist.

In the Winter 2000 *Aerospace Power Journal*, Lt Col Peter Wijninga of the Royal Netherlands Air Force and Richard Szafranski introduced the theory of axiological targeting in the article "Beyond Utility Targeting: Toward Axiological Air Operations." The word *Axiology* is the combination of two Greek words: *axios* meaning "worthy" or "of like value" and *logos* meaning "reason" or "theory."[4] The article compared the importance of *utility*, as the future

[3] Dr. Paul Rexton Kan, "What Should We Bomb? Axiological Targeting and the Abiding Limits of Airpower Theory." *Air & Space Power Journal* (Spring 2004) 25-32, 2

[4] Lt. Col. Peter W. W. Wijninga, Royal Netherlands Air Force, and Richard Szafranski. "Beyond Utility Targeting, Toward Axiological Air Operations." *Aerospace Power Journal* 14, no. 4 (Winter 2000), 47.

usefulness of objects, with the importance of *value*, which is the relative worth resident in objects. The authors made this comparison to show that affecting a nation's leadership decision calculus required that the targeting of elements of value take priority over the targeting of utility.

Therefore, rather than striking elements of utility necessary for an adversary to mount a military campaign, axiological targeting focuses on striking non-military, counter-value targets that may be centers of gravity.[5] The aim of axiological targeting is to force a behavioral shift in adversarial leadership in the quickest and most economical way.[6] It is a theory of coercive air power based on punishment.[7] Wijninga and Szafranski based the scheme for targeting on Maslow's "hierarchy of needs" and developed their own targeting rings using that hierarchy.

In the center ring, the most basic needs are "physiological needs" such as thirst, hunger, and sex drive. The next ring represents "safety and security" needs or freedom from fear. The third ring represents a need for "belonging and social activity." The fourth ring represents the drive for "esteem and status." The final ring represents the need for "self-realization and fulfillment needs."[8] Because of the hierarchy of needs, leaders must place a higher priority on attaining the lower order needs (food, water, safety) and a lower priority on the higher order needs (fulfillment and wealth). One may only seek higher order needs once he has satisfactorily met low order needs.

[5] Kan, "What Should We Bomb?" 2.
[6] Wijninga and Szafranski, "Beyond Utility Targeting," 53.
[7] Remember from the introductory chapter about coercion: A punishment strategy raises the societal costs of the adversary's continued resistance. Punishment strategies increase adversarial costs by causing civilian suffering and targeting the state's economic power. Daniel L. Byman, Matthew C. Waxman and Eric Larson. *Air Power As A Coercive Instrument*. (Santa Monica, CA: Project Air Force, RAND, 1999),16.
[8] Wijninga and Szafranski, "Beyond Utility Targeting," 50.

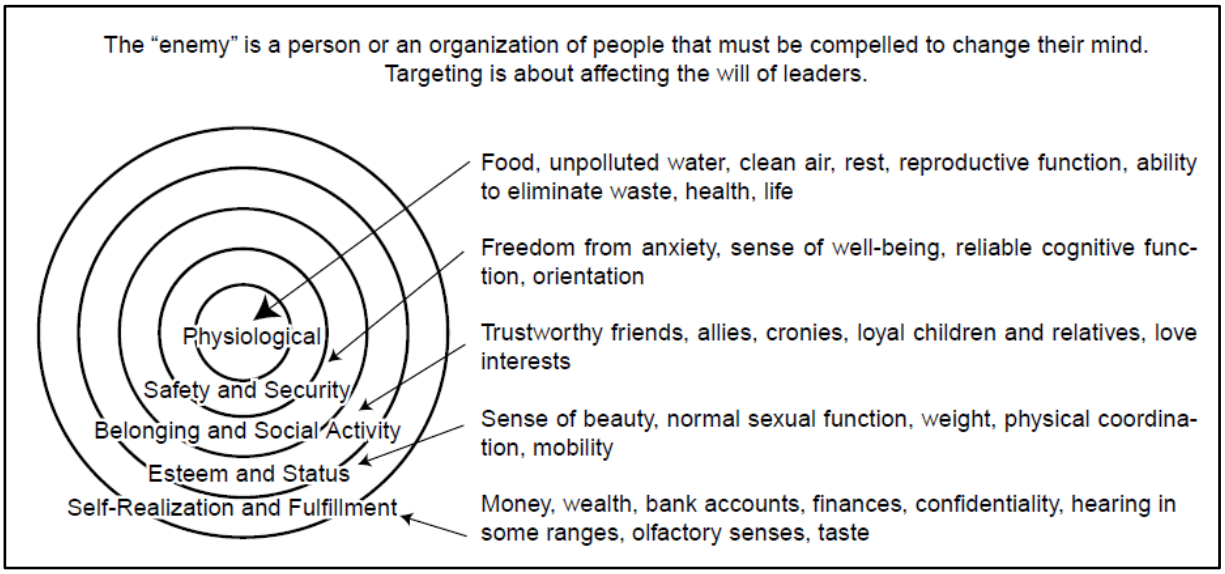

Figure 8: Value Targeting Sets

Source: Wijninga and Szafranski adapted this axiological targeting scheme from Abraham Maslow, Motivation and Personality (New York: Harper and Row, 1954) in Wijninga and Szafranski, "Beyond Utility Targeting," 51.

The authors predict a continued trend of democratic states warring with totalitarian regimes and suggest planners apply this model to the regime leadership and its small circle of "cronies" because they are likely the only citizens able to fulfill the higher-order needs in authoritarian regimes.[9] Therefore, planners must direct all strikes associated with the value-hierarchy against enemy leadership and decision-makers within the utility construct as depicted in Figure 8 and Figure 9.

[9] Wijninga and Szafranski, "Beyond Utility Targeting," 50.

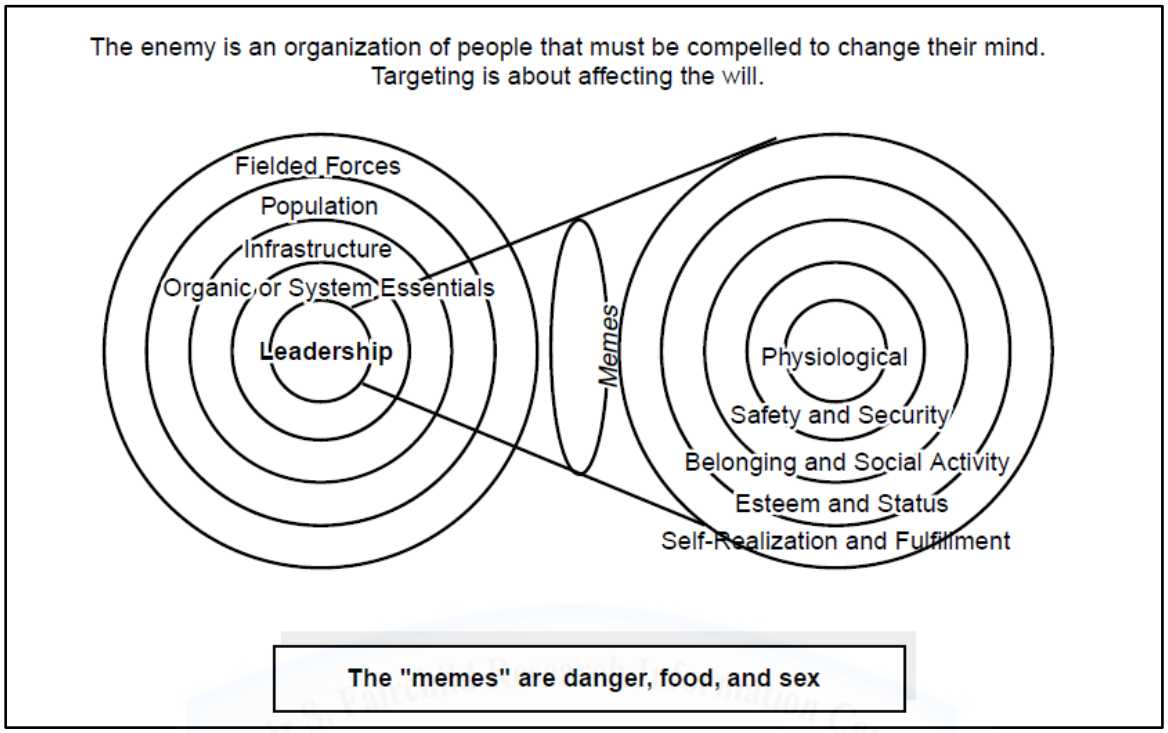

Figure 9: Targeting According to Utility and Value

Source: Wijninga and Szafranski adapted this model from Richard Brodie, Virus of the Mind: The New Science of the meme (Seattle, Washington: Integral Press, 1996. In Wijninga and Szafranski, "Beyond Utility Targeting," 52.

Non-military targets in the axiological targeting scheme might include bank accounts, finances, entertainment elements, sports venues, and recreational facilities used by the senior national leadership. Additionally, targets may include resorts, and factories, plants, and stores that produce and sell luxury items used by the elite. They may also include businesses and assets owned or controlled by the elite.

The effects desired from both utility and axiological targeting are a cessation of hostilities.[10] "Utility targeting engages physical objects, presuming

[10] Wijninga and Szafranski, "Beyond Utility Targeting," 56.

them to be of value to the adversary. Value targeting engages the minds and needs of the leaders at all levels, knowing that they, and not their war-fighting stuff, are the real source of the conflict and its resolution."[11] The object of value or Axiological targeting is to focus attention on the national or group leader at every level of influence and to target, engage, or hold at risk leaders and what they value.[12]

The idea of value targeting supports the claim that axiological targeting enters the influence path in the moral sphere at the principle of *determination*, the moral sphere's principle of control. Operation Allied Force against the Serbian dictator, Slobodan Milosevic, displayed the North Atlantic treaty Organization's (NATO) attempt to influence his behavior with axiological targeting to affect his (and his inner circle's) determination to continue hostilities.

KOSOVO: OPERATION ALLIED FORCE

The fall of the Soviet Union and its communist empire created more problems in Yugoslavia than anywhere else in Europe. Yugoslavia contained the republics of Bosnia-Herzegovina, Croatia, Macedonia, Montenegro, Serbia (which included Kosovo and Vojvodina), and Slovenia. Comprised of diverse ethnic groups and nationalities, Yugoslavia never coalesced into a common identity. After the death of its unifying leader, Josip Broz Tito, in 1980, calls for greater autonomy and even independence from the separate constituent republics increased. Through the 1990's, the strong Serbian leader, Slobodan Milosevic, opposed Slovenian and Croatian independence and fought to keep Bosnia-Herzegovinian within a greater Serbia, resulting in a three-year war,

[11] Wijninga and Szafranski, "Beyond Utility Targeting," 56.
[12] Wijninga and Szafranski, "Beyond Utility Targeting," 52.

including a period on NATO bombing, The conflict ended with conclusion of the Dayton Accords in 1995.[13]

Just prior to signing the Dayton Accords, but after the conclusion of Operation Deliberate Force in 1995, Milosevic told General Wesley Clark "[I]t was your bombs and missiles, your high technology that defeated us."[14] Consequently, politicians turned again to air power to coerce his behavior four years later when he pursued ethnic cleansing and human rights abuses against Kosovar Albanians to crush a move for Kosovo's independence in the spring of 1999.

President Bill Clinton did not intend to put ground troops in Kosovo, relying on air power to coerce the Serbs.[15] Therefore, air power had to achieve the coalition's threefold objectives: first, "to demonstrate the seriousness of NATO's purpose," second, "to deter an even bloodier offensive against innocent civilians," and third "if necessary, to seriously damage the Serbian military's capacity to harm to people of Kosovo."[16] Additionally, after the bombing campaign commenced, NATO members unanimously agreed on a fourth objective: "the withdrawal from Kosovo of military, police, and paramilitary forces."[17]

To accomplish the stated objectives, NATO used a phased approach to the bombing campaign that increased the intensity and volume of bombing

[13] Keith L. Shimko, *The Iraq Wars and America's Military Revolution* (New York, NY: Cambridge University Press, 2010)*, 116.*
[14] Dag Henriksen, *NATOs Gamble: Combining Diplomacy and Airpower in the Kosovo Crisis 1998-1999* (Annapolis, Maryland: Naval Institute Press, 2007), 109.
[15] Henriksen, *NATOs Gamble: Combining Diplomacy and Airpower in the Kosovo Crisis 1998-1999*, 9.
[16] CNN "Bill Clinton Addresses Nation on Yugoslavia Strike." In Robert H. Gregory, *Clean Bombs and Dirty Wars: Air Power in Kosovo and Libya* (Lincoln, Nebraska: Potomac Books, University of Nebraska, 2015), 49.
[17] NATO Statement, 12 April, 1999 in Gregory, *Clean Bombs and Dirty Wars*, 73.

over time to convince Milosevic to change his behavior.[18] Phase I would establish air superiority over Kosovo and degrade Serbian command and control. Phase II would attack Serbian military targets in Kosovo (South of the 44th parallel). Lastly, Phase III would transition strikes north to military and security targets throughout Yugoslavia to include Belgrade.[19]

The war began March 24 and NATO leaders assumed Milosevic would capitulate within days. However, the conflict continued and by the end of Phase II, tenacious Serbian air defenses, a worsening humanitarian crisis, and the capture of a few American soldiers frustrated NATO and its plans to use only air power to coerce Milosevic to shift his behavior. Amid the increasing intensity of NATO operations, Milosevic remained belligerent. This attitude reveals he did not perceive NATO's threats and resolve as credible, thus rendering a key component of NATO's coercive diplomacy largely ineffective.[20] In hopes of saving the alliance's credibility, on April 1, nineteen NATO ambassadors of the North Atlantic Council agreed to expand the target list for Phase III of the plan.[21]

During Phase III from April to June of 1999, NATO increased its sortie rate from fifty to one thousand sorties per day and expanded the target list from 163 to 973.[22] The expanded list included targets designed to punish the military and political elite, thus weakening Milosevic's power base in Serbia. NATO officials began targeting what they considered the four basic pillars of Milosevic's power: the political machine, the media, the security forces, and the

[18] This is indicative of a Risk-based coercive air power strategy with punishment-based targeting logic. Robert A. Pape, *Bombing to Win: Air Power and Coercion in War* (Ithaca, NY: Cornell University Press, 1996), 18-19.
[19] Shimko, *The Iraq Wars and America's Military Revolution, 118.*
[20] Henriksen, *NATOs Gamble: Combining Diplomacy and Airpower in the Kosovo Crisis 1998-1999*, 150.
[21] Gregory, *Clean Bombs and Dirty Wars: Air Power in Kosovo and Libya*, 72.
[22] Gregory, *Clean Bombs and Dirty Wars: Air Power in Kosovo and Libya*, 73.

economic system.[23] For example, strikes against radio and television stations owned by Milosevic's wife and other oligarchy brought the attacks directly to the Serbian elite for the first time. By late May, NATO leaders had given their military commanders authority to attack civilian telephone and computer networks in order to sever communications between Belgrade and Kosovo.[24]

To influence the Serbian economy, NATO planners began to target the businesses of Milosevic's cronies and the oligarchy that they believed were critical to his position of power. Air strikes destroyed a factory in Krujevic, putting 15,000 people out of work, plus 40,000 more employed by the factory's subcontractors.[25] Other expanded target sets included petroleum-related assets, dual-purpose targets such as bridges, and political targets including the Socialist Party headquarters.[26] The results of the risk strategy with economic punishment targets began to stress domestically Milosevic's position of power.

It became clear to Milosevic he had lost the ability to escalate vertically and was in the process of losing his power base due to unrelenting air strikes. The air strikes against these sources of power represent attacks against his moral sphere principle of resistance: his endurance. The result is a weakened element of stability, fear, causing degraded courage to continue. This degraded courage, as the moral sphere element of cooperation, led the principle of control, determination, to have poor effect in sustaining his objective. Refer again to Figure 4.3 for this relationship. However, the air strikes were not the only influencers of Milosevic's decision calculus.

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[23] Benjamin S. Lambeth, *NATO's Air War for Kosovo: A Strategic and Operational Assessment* (Santa Monica, CA: RAND, 2001), 38-39.
[24] Lambeth, *NATOs Air War for Kosovo: A Strategic and Operational Assessment*, 43.
[25] Lambeth, *NATOs Air War for Kosovo: A Strategic and Operational Assessment*, 41.
[26] Ivo H. Daalder and Michael E. O'Hanlon. *Winning Ugly: NATO's War to Save Kosovo* (Washington, D.C.: Brookings Institution Press, 2000), 144.

Any counter-coercive measures Milosevic might pursue lost influence when he lost the support of the Russian president Boris Yeltsin because of a focused diplomatic effort from President Clinton. Milosevic conceded after seventy-eight days of bombing and asked to stop the war. Had he resisted longer militarily, coalition air power had created and sustained the conditions by which his political objectives (and regime survival) were slipping away. This air campaign made coercive diplomacy successful.

WHY AXIOLOGICAL TARGETING CANNOT POSITIVELY INFLUENCE ESCALATION

Much like utility targeting uses the physical realm to influence the mental; modifying the adversary's behavior based on value assumes that operations in the moral sphere can influence the pursuit of an object in the mental sphere. This is the attempt to influence, indirectly, the psychology of the adversary by affecting his determination to continue. *Determination* is Fuller's principle of control derived from the law of economy of moral force.

Axiological targeting is a targeting paradigm designed to pursue a punishment-based coercive air power strategy. Axiological targeting uses coercive airpower to force an adversary to capitulate and accept the demands of the attacker. In conventional conflict against a nuclear-capable opponent, there is no enforcement mechanism to cause this capitulation as long as the enemy's nuclear arsenal still holds friendly targets at risk. The attacker cannot "force" the enemy into, or out of, any behavior with a value-based targeting paradigm without attaining escalation dominance. Therefore, in theory, the enemy can persist indefinitely.

Furthermore, by striking targets that the regime leadership holds at high political, economic, military, or personal value, without the ability to negate a

nuclear or conventional military response, the attacker encourages the target regime to employ potentially dangerous preservation strategies to include nuclear employment. Since the regimes in all potential nuclear-armed adversaries mentioned in this study have powerful single party systems with small groups of people running the entire government, attacks against them constitute conventional attacks that threaten "the very existence of the state."[27]

Value targeting, and therefore axiological targeting, does not necessitate striking targets that affect the will of the people. The attacks are only against those systems of endurance that regimes value because they are the exact economic and political centers that keep the regime in power. If any nuclear-armed regime were in Milosevic's position, there is little chance axiological targeting could have worked without the regime countering with nuclear coercion against the attacker.

Countering, and escalating a crisis, with nuclear coercion is exactly what China has said it will do against this kind of targeting paradigm. Axiological targeting against China is invalid for the same stated reasons as utility targeting. It violates assumption number two from chapter 2, which stated, a conventional air campaign that threatens the regime leadership or its sources of political and economic power invites adversarial nuclear retaliation. In its doctrine, China states it will lower the nuclear coercion threshold when:

> "the enemy threatens to carry on high and medium level conventional attacks against our capital, large and medium sized cities, our political and economic centers; and when conventional war continuously escalates and the strategic situation is extremely disadvantageous to us and the safety and survival of the nation is seriously threatened.[28]

[27] Analysis used language from Russian military Doctrine in Vladimir Putin, *Military Doctrine of the Russian Federation*, 2014. (Translated into English by U.S. Government), 6.

[28] Yu, Jin, *The Science of Second Artillery Campaigns*. Ed. 2004 Beijing: People's Liberation Army Press. Translation of Chapter 10, section 7. Translated by Gregory Kulacki, Union of Concerned Scientists, 19 September, 2014..

The statements concerning attacks against the capital, large cities, and political and economic centers is relatively straightforward. From a Western perspective, it is ambiguous whether value-targeting attacks against a powerful few constitute a situation where the survival of the nation is seriously threatened. However, from the regime's perspective, survival of the regime is survival of the nation. Therefore, as far as the adversarial decision calculus is concerned, targeting the seats of enduring power of any nuclear-armed authoritarian regime will encourage escalatory responses from that regime. This statement is true even in a post nuclear threshold environment. If the adversary choses to escalate-to-deescalate, further use of value targeting against them would encourage further nuclear employment at an equal or higher level of intensity.

Based on this logic, it would be irrational to expect any of the potential nuclear-armed adversaries to restrain their military responses to attacks on their seats of political and economic power with operations using an axiological targeting paradigm. The U.S. could not achieve its intended message to a target nuclear capable regime, to deescalate a conventional crisis, with axiological targeting. The provocative nature of axiological targeting against a regime's sources of economic and political power only encourages adversarial escalation because of this difference in message sender and receiver perspective. Using an air campaign designed with an axiological targeting scheme, according to Russia's perspective, would justify their escalate-to-deescalate strategy. Pursuing an axiological targeting campaign during or after an adversary's use of nuclear weapons as an attack or a demonstration would only exacerbate the hostilities, rather than bring the level of intensity to a lower level.

Furthermore, this analysis finds that using value targeting to influence decisions indirectly through the moral sphere's principle of determination is

actually immoral. Targeting people based on Maslow's hierarchy of needs is inconsistent with Western values and may be a violation of international law, and the Law of Armed Conflict. Wijninga and Szafranski stated in their article first theorizing axiological targeting, "to avoid becoming sociopathological ourselves, only a few well-chosen, adept, sinister, and Machiavellian people need to be engaged in value targeting: constructing the strategies and operational plans aimed at forcing a behavior shift in adversary leaders."[29]

Once again, any limited, regional objective the U.S. may pursue with axiological targeting would not be worth the prospect of the enemy threatening to use or using nuclear weapons against the U.S. or her allies. Assumption number four from chapter 2 stated that avoiding nuclear conflict must take a higher priority than achieving any limited regional conventional goals. Axiological targeting against a nuclear-armed adversary would violate this assumption and, therefore, cannot attain limited objectives while deterring enemy escalation. On the contrary, using an axiological targeting paradigm in an air campaign in an escalating conventional conflict is more likely to exacerbate tensions rather than release them. It has far too much risk of escalation. Planners should not attempt to "force" adversarial behavior change; they should direct it. This idea will be explained fully in the next chapter, Cognitive targeting.

[29] Wijninga and Szafranski, "Beyond Utility Targeting," 55.

Chapter 5

Cognitive Targeting: The Mental Sphere

"…the immemorial lesson [is] that the true aim in war is the mind of the hostile rulers, not the bodies of their troops; that the balance between victory and defeat turns on mental impressions and only indirectly on physical blows."

B. H. Liddell Hart

To a surrounded enemy you must leave a way to escape. Do not press an enemy at bay.

Sun Tzu

The purpose of this chapter is to consider the adversary's thinking power, which Fuller described as the most critical element of the respective realms of influence. The enemy's thinking power directs his staying power and fighting power. As such, this chapter considers thinking power to posit another possible targeting paradigm: cognitive targeting. This is a paradigm designed to affect the adversary's decisions pertaining to military and political options (in the mental sphere) instead of his will or ability (in the moral and physical spheres) to continue fighting. This chapter will critically analyze cognitive targeting through Fuller's mental sphere and determine the usefulness in influencing adversarial decisions in a coercion-deterrence scenario.

THE MENTAL SPHERE

All actions of statecraft and war are ultimately psychological in nature. Every action has a goal of persuading, compelling, enticing, deterring, and manipulating actors to choose courses of policy congruent with the wishes of the influencer. All of these goals reflect the purpose of coercive power

described in chapter 1: to provide the enemy with an incentive to alter his behavior through operations short of a complete military conquest of the regime. Thus, the goal of any coercive action has a psychological purpose: to influence an adversary's decision-making apparatus in one's favor. A logical product of the law of economy of force suggests that the best action can alter the adversary's behavior into favorable policy while following the path of least resistance, with the least expenditure of blood and treasure. Fuller explained this logic when describing the object of war:

> *A military victory is not in itself equivalent to success in war.* What is equivalent to success is a more prosperous peace following the war… War not being an end but a means, the financial situation at its conclusion must be considered coincidentally with the results of military victory in so far as they effect the future well-being of the country. Every man killed means a loss of capital. Every shilling expended is a mortgage of a shilling's worth of production after the war… Therefore:
>
> *A war, to be economical, must enforce acceptance of the policy under dispute with the least possible harm to commercial prosperity*. Accepting these conclusions, the value of military success decreases in proportion to the total expenditure, and from this it follows that there exists a theoretical limit of expenditure, on exceeding which military success ceases to be on the balance profitable; consequently, all operations not contributing directly to a decision shorten the time available in which it may profitably be sought. It follows then that:
>
> *A military decision, to be economical, must attain more profitable results than the depreciation of capital due to its attainment*. From this, it follows that unless each operation contributes to the final victory in proportion to its cost, it shortens the time available and diminishes the value of eventual victory, or hastens defeat.[1]

[1] Colonel J. F. C. Fuller, *The Foundations of the Science of War* (London, England: Hutchinson & Co Publishers, LTD, 1926, Reprint by Books Express Publishing, 2012), 76-77.

Thus, the most skillful statesmen and warriors are those who can maximize efficiency, while maintaining effectiveness, to alter the enemy's behavior.

The most efficient way to influence an actor's psychology is to do so directly within the mental sphere of war, rather than indirectly from the moral or physical spheres. Operations designed to influence an enemy's decisions directly will require less expenditure of force than those designed to influence his decisions indirectly by denying him the ability or will to pursue certain belligerent courses of policy or action.

Fuller's scientific organization categorized reason, imagination, and will as the elements of the mental sphere that correspond to stability, activity, and cooperation. The stability element is reason; the activity element is imagination, and the cooperation element is will. In the context of the mental sphere, will is like desire, rather than the moral implication of will, which is the courage or determination to continue.

The will or desire to pursue a particular military or political option over another is not a position of absolutes like mobility or courage. Either the enemy has the ability through movement to continue hostilities or he does not because of strategic paralysis. Likewise, either the enemy has the courage to continue or he does not.

However, one can influence the enemy's will or desire like the wind affects the direction of a weather vane. The direction it may point is not on or off; it is not a "yes or no," binary entity of absolutes. Rather, the forces acting upon it influence the direction it points. Like the weather vane, the application of force may influence the enemy's will and desire, without producing a critical imbalance.

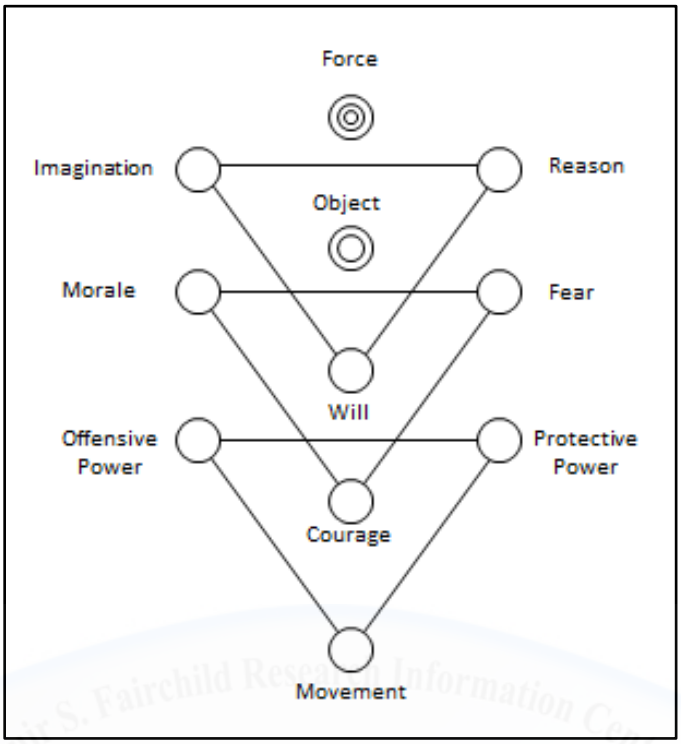

Figure 10: The General Relationship of the Elements of War

Source: The author slightly altered Fuller's Diagram 15 to align the elements of stability and activity on corresponding sides. Fuller, The Foundations of the Science of War, 211.

When analyzing the interaction of principles of war derived from the economy of mental force, the principles of pressure and resistance interact to influence the principle of control. In the case of the mental sphere, the elements *concentration* and *distribution* interact to influence the element of direction. *Direction* is the element of control closest to the object in Fuller's scientific ordering of the principles. Therefore, in order to produce the object in the mind of the adversary with coercive operations in the most efficient manner possible with the least expenditure of national treasure, one must enter the influence path at the principle of direction, within the mental sphere.

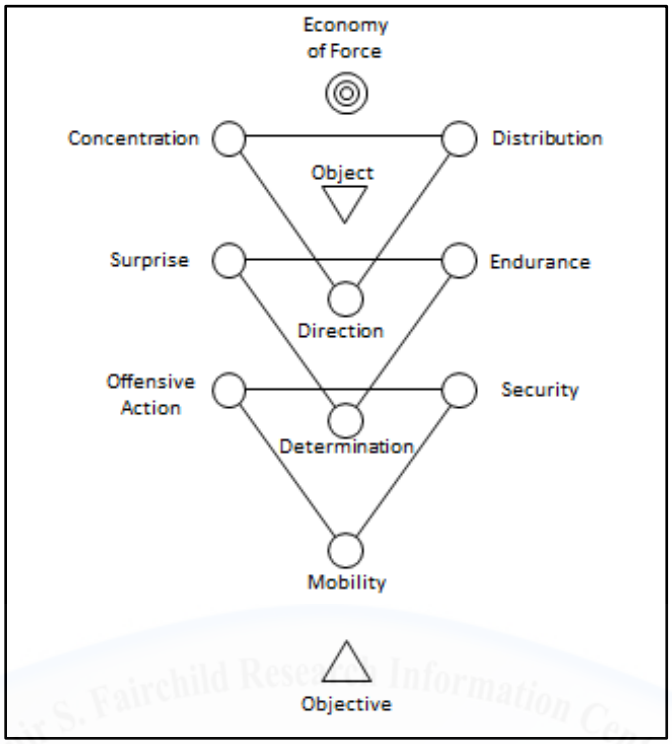

Figure 11: The General Relationship of the Principles of War

Source: Fuller, The Foundations of the Science of War, 222.

In the same method that the general relationships of the elements and principles showed the path of utility and axiological targeting, they also show the path of cognitive targeting. Cognitive targeting represents coercive military operations designed to guide the enemy's decision-making process. Within the influence path of the principles of control, cognitive targeting attempts to bypass striking the enemy's capabilities through its *mobility* and its moral will through *determination*. Instead, cognitive targeting seeks to direct an adversary's decisions by entering the influence path at its highest level at the mental sphere's principle of control, *direction*.

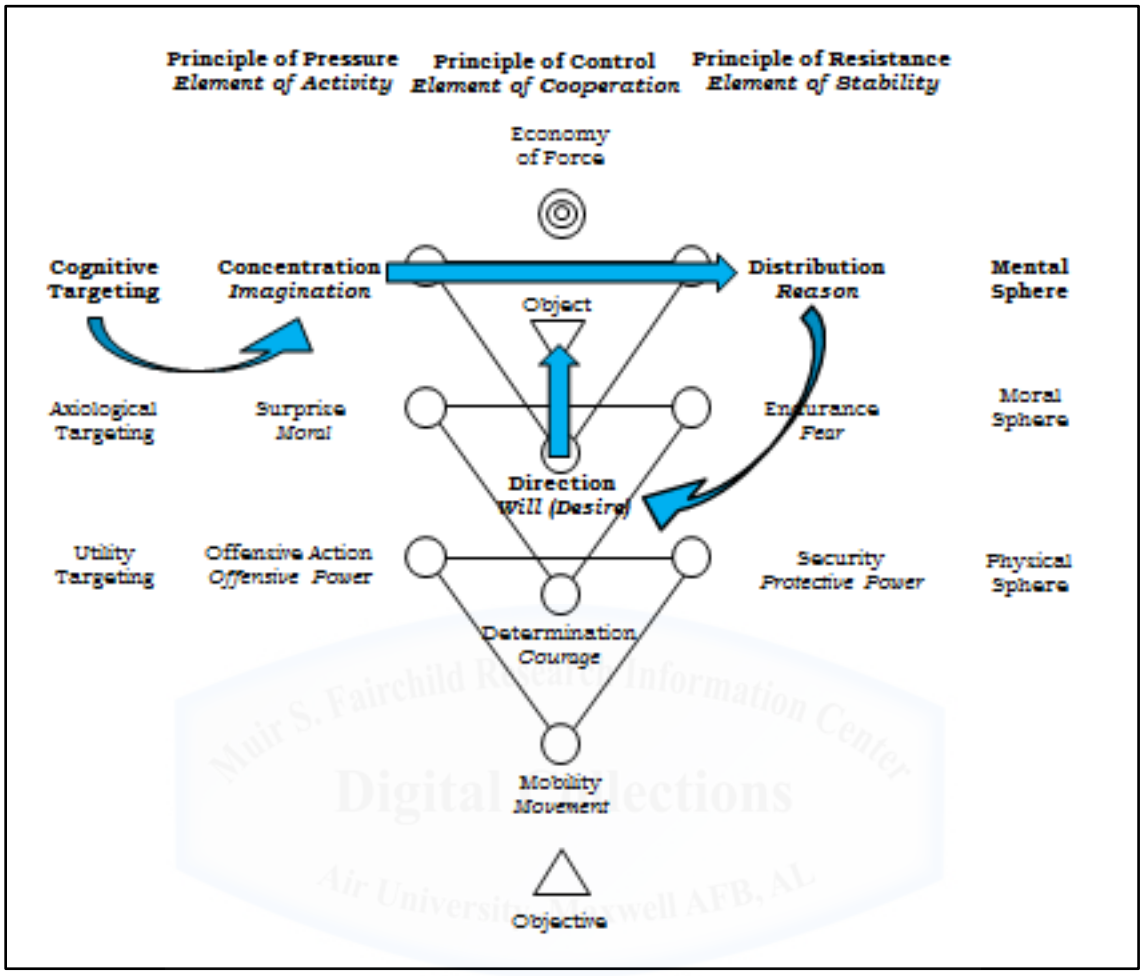

Figure 12: Cognitive Targeting, the Mental Sphere, and the Influence Path through Direction

Source: Author derived this relationship be reordering Fuller's general relationship of the elements of war (Fuller, 211) and overlaying them with the general relationship of the principles of war (Fuller, 222).

Figure 12 shows how cognitive targeting concentrates thought (pressure) against the enemy's distributed decision options (resistance). Additionally, coercers must use imagination (activity) to link their operations specifically to how the enemy reasons (stability). By outmaneuvering the enemy in the cognitive domain of war, in mental space, the coercer can use direction

(control) to vector the enemy's will or desire (cooperation). By directing the enemy's decision space, the coercer may influence the adversary's decision apparatus and enter the influence path in the mental sphere, the closest entry point to the object – making it the most economical and least wasteful expenditure of force.

THEORY OF COGNITIVE TARGETING: DIRECTING OPTIONS

Cognitive targeting is a theory of employing coercive force against an enemy, not to degrade his ability or will to fight, but to guide his thinking and maneuver him in decision space. Rather than employing force against the enemy's entire national capability, or the entirety of his national will, cognitive targeting suggests focused application of force to eliminate non-desired options from the enemy's decision space, thereby directing his decision apparatus.

An enemy's "centers of gravity" or "vital target" is his decision apparatus; that may be a single person, a small group of powerful people, or even a large bureaucratic organization.[2] The state's unique decision-making construct, at a specific point in time, becomes the center of gravity to influence. Each option this decision construct may consider has certain critical elements that enable the enemy to conduct a certain behavior. The critical elements that enable one behavior are not the same as those that enable a different behavior. Each political and military option has unique critical enablers that make that option attractive or viable. To strike those targets that disable a particular option, planners must consider each option as an independent military and political goal, that is, independent from the other options and independent from the national capability and will of the enemy.

[2] Graham Allison and Philip Zelikow. *Essence of Decision: Explaining the Cuban Missile Crisis*. Second Edition (New York, NY: Longman, 1999). General theme. No specific page reference.

The key to cognitive targeting is to determine exactly what elements enable each undesired option. Clausewitz called the center of gravity the "hub of all power and movement, on which everything depends."[3] He claimed the center of gravity is the point against which one should direct all his energies.[4] Therefore, influencing the enemy's decision is the result of directing our effort against the critical enablers of undesired enemy options. If there is a classically identified "strategic" target that does not directly influence the removal of the undesired option, there is no point in striking it. It is a wasteful, extraneous and non-economic expenditure of force.

Targets designated as "strategic," in the cognitive targeting paradigm, are those that directly disable - in the strategic audience's mind – the attractiveness or viability of a non-desired military or political option. Therefore, an option's critical enablers are not limited to the physical military or economic recourses an enemy may need to complete that option. They also include any source of power, which if attacked, will make an option less politically or militarily attractive – in the enemy's mind - to accomplish his strategy.

Attacking the enemy's strategy is Sun Tzu's preferred expenditure of force. "*The supreme excellence in war is to attack the enemy's plans*."[5] This concept implies force application against the enemy's intentions as possible options rather than his belligerent ability or determination. Attacking the enemy's plans represents the removal of undesired options. However, achieving military effects on critical elements that enable undesired options do

[3] Carl von Clausewitz, *On War*, Edited and Translated by Michael Howard and Peter Paret. (Princeton, New Jersey: Princeton University Press, 1976), 596

[4] Clausewitz, *On War*, 596.

[5] Sun Tzu, *The Illustrated Art of War,* The Definitive English Translation by Samuel B. Griffith (New York, NY: Oxford University Press, 2005), 115-6.

not guarantee the mental removal of those options from the enemy's decision construct unless the attacker provides a better path in its place.

Successfully altering enemy behavior requires the existence of mutually acceptable enemy behavior options.[6] This concept optimizes Schelling's bargaining process as described in chapter 1. The language of war to coerce an actor requires that the attacker provides a negotiation with the application of violence. There must be an option for the subject to pursue that is acceptable to both parties as a way to exit the conflict on terms favorable to both parties.

To explain this concept, this analysis turns to a passage from Sun Tzu's chapter of Maneuver from *The Art of War*.

To a surrounded enemy you must leave a way to escape.

> ***Tu Mu:*** *Show him there is a road to safety, and so create in his mind the idea that there is an alternative to death. Then strike.*
>
> ***Ho Yen-hsi:*** *When Ts'ao Ts'ao surrounded Hu Kuan he issued an order. 'When the city is taken, the defenders will be buried.' For month after month it did not fall. Ts'ao Jen said: 'When a city is surrounded it is essential to show the besieged that there is a way to survival. Now, Sir, as you have told them they must fight to the death everyone will fight to save his own skin. The city is strong and has a plentiful supply of food. If we attack them many officers and men will be wounded. If we persevere in this it will take many days. To encamp under the walls of a strong city and attack rebels determined to fight to the death is not a good plan!' Ts'ao Ts'ao followed this advice, and the city submitted.*

Do not press an enemy at bay.

> ***Tu Yu:*** *Prince Fu Ch'ai said: 'Wild beasts, when at bay, fight desperately. How much more is this true of Men! If they know there is no alternative they will fight to the death.*

[6] In describing the requirements for coercion to work, Schelling states, "Coercion by threat of damage also requires that our interests and our opponent's not be absolutely opposed." Thomas C. Schelling, *Arms and Influence*. (New Haven: Yale University Press, 2008. Originally printed in 1966), 4.

During the reign of Emperor Hsuan of the Han, Chao Ch'ung-kuo was suppressing a revolt of the Ch'iang tribe. The Ch'iang tribesman saw his large army, discarded their heavy baggage, and set out to ford the Yellow River. The road was through narrow defiles, and Ch'ung Kuo drove them along in a leisurely manner.

Someone said: 'We are in pursuit of great advantage but proceed slowly.'

Ch'ung Kuo replied: 'They are desperate. I cannot press them. If I do this easily they will go without even looking around. If I press them they will turn on us and fight to the death.'

All the generals said: 'Wonderful'[7]

By providing the enemy with a way to escape, and by "not pressing the enemy when at bay," the ancient Chinese generals successfully coerced their enemies by providing them a mutually acceptable behavior option. Men and wild beasts alike will fight to the death if given no acceptable alternative. Determining which mutually acceptable options the enemy's decision calculus finds attractive will prevent them from fighting to the death.

Cognitive targeting departs from the "rings" models used in the previous two targeting paradigms and replaces them with "strategic decision vanes" modeled from our weather vane analogy. The pictorial representation of an adversary's strategic decision vane keeps the enemy decision apparatus in the center. Each "direction" of the strategic decision vane represents an option the adversary might pursue. Consistent with Fuller's mental sphere, the element of will and the principle of direction, focused application of force directs the enemy to change his thinking toward, and away from, particular options. Figure 13 depicts how the cognitive targeting paradigm may be employed using the strategic decision vane. Political leaders and warriors must think as the

[7] Sun Tzu, *The Art of War*, 168-9. On Maneuver, Chapter VII Verse 31 and 32.

enemy thinks and determine all possible options the enemy might have available and be likely to pursue.

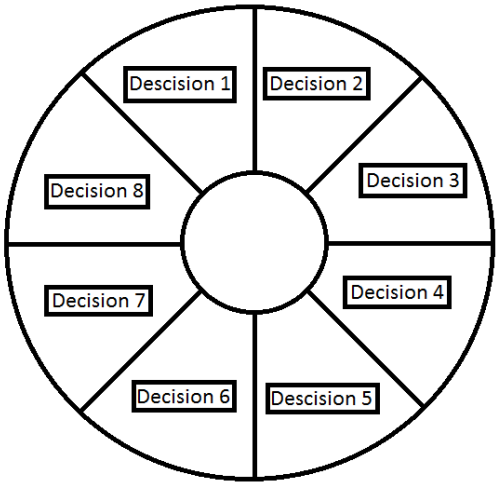

Figure 13: Blank Strategic Decision Vane

Source: Author's Original Work

By separating each military or political decision option into independent target sets, planners may strike critical elements for particular undesired options, thereby removing them from the enemy's decision calculus without threatening escalatory targets of national dependency. Additionally, by independently targeting each decision option, planners may focus their application of force to pursue the most economic influence with the least expenditure of national treasure.

Figure 14 represents a decision vane in which strategists do not desire the enemy pursue nominal options numbered one, two, three, five, and seven. War planners, therefore, must neutralize those options with a cognitive targeting paradigm against the critical elements that enabled the adversary to pursue those options. Theoretically, if planners had explored all possible courses of enemy action, the enemy may now only pursue options four, six, and eight, which represent military and political options acceptable to both

parties. These acceptable options represent pathways that states may agree upon to end a conflict on terms favorable to both parties, thus, de-escalating a crisis. These acceptable options follow Schelling's logic that successful coercion requires that our interests and those of our opponent not be entirely opposed.[8]

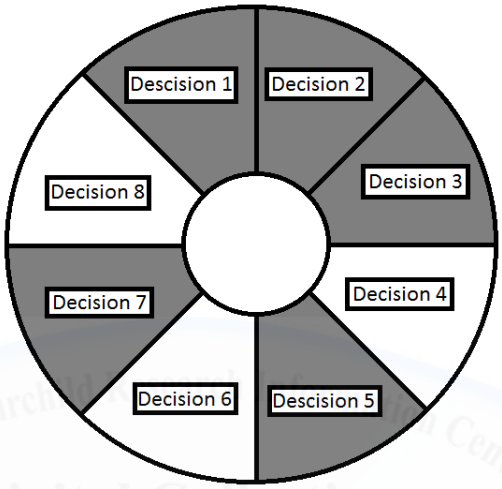

Figure 14: Undesired Options in a Strategic Decision Vane

Source: Author's Original Work

Additionally, by eliminating undesired options, yet providing mutually acceptable ones, cognitive targeting enables Sun Tzu's applicable dictum to leave a way for a surrounded enemy to escape, while not pressing him to fight to the death. Furthermore, cognitive targeting focuses action against the enemy's plans and strategy for achieving his objectives. Therefore, cognitive targeting represents a targeting paradigm designed to carry out a denial-based coercive air power strategy.

[8] Schelling, *Arms and Influence*, 4.

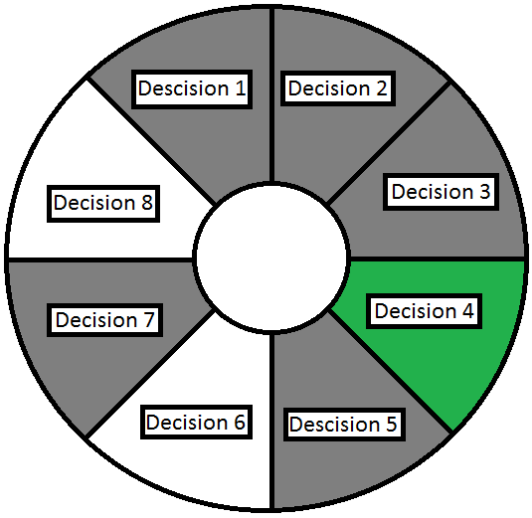

Figure 15: Enemy Coerced to Pursue a Mutually Acceptable Option

Source: Author's Original Work

Figure 15 represents the enemy taking decision option number four because the campaign, using cognitive targeting, disabled the other options he may have pursued.

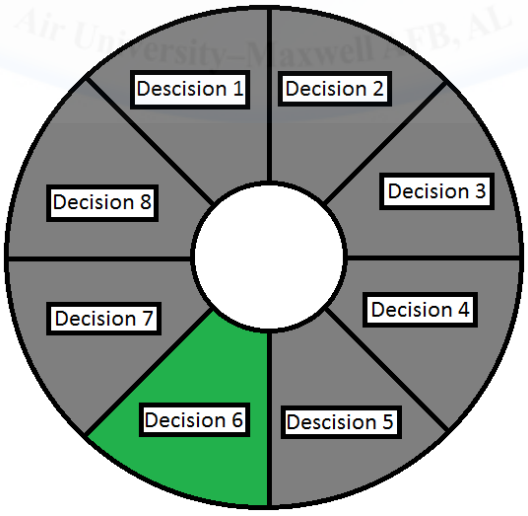

Figure 16: Enemy Coerced to Pursue a Limited Range of Options

Source: Author's Original Work

If planners do not want to leave certain options open and wish to place extreme limits on the path the enemy may take, more options must be neutralized. In the case depicted in Figure 16, if the coalition wanted the enemy to pursue option six, and only option six, they would have to neutralize all critical elements that enable him to choose any other option.

The limiting factor of Cognitive targeting is the ability to construct an accurate strategic decision vane of a particular adversary's decision apparatus at a given point in time during a crisis. Liddell Hart espoused the importance of understanding the enemy's decision construct. "It is wise in war not to underestimate your opponents. It is equally important to understand his methods, and how his mind works. Such understanding is the necessary foundation of a successful effort to foresee and forestall his moves."[9] Recognizing how the enemy's mind works is more complicated than simply studying the psychology of the head of state. It requires a complete analysis of the adversarial state's decision apparatus.

In *Essence of Decision: Explaining the Cuban Missile Crisis*, Graham Allison and Phillip Zelikow explored how the U.S. and the Soviet Union made decisions during the greatest escalating nuclear-related crisis during the Cold War. Their findings produced three general models for analyzing a nation's decision-making apparatus. Model I recognized the state as a singular, rational actor; Model II illustrates the organizational construct and procedural routines that produce information, options, and action; and Model III focused on the individuals who comprise a government and the internal politics by which their competing perceptions and preferences are combined.[10]

[9] B. H. Liddell Hart, *Strategy,* Second Revised Edition (New York, NY: Meridian Books, Published by the Penguin Group, 1954, 1967), 207.
[10] Allison and Zelikow, *Essence of Decision*, 392.

In a 2009study, Mark Pye went a step further and applied Allison and Zelikow's three models to integrate decision theory and the enemy's cognitive perspective within a coercive framework.

> In order to more effectively coercive an adversary to bend to one's will, the strategist must not only understand the mechanics of how adversaries make decisions but must also account for their cognitive perspective which colors and shapes the choices they make. A comprehensive approach utilizing both Allison's decision theory and political psychology will better illuminate the various elements within an adversary's strategic calculus to more effectively shape threats and marshal the instruments of power to overcome the adversary's will.[11]

Pye's examination of the cognitive perspective in coercive campaigns led him to theorize three general ways a coercer may influence the adversarial perspective using his integrated model.

> First, the model assists the strategist in determining the appropriate mechanism combination using a holistic approach. Without such an approach, the strategist might find himself relying more on luck in the duel for coercive success. The most effective technique comes from the sum of coercive pressure emanating from several mechanisms working simultaneously. Strategists should focus on determining and evaluating mechanisms, the heart of coercion, rather than the alluring but fruitless discussion of the decisive (versus effective) instrument.
>
> Second, strategists should use the adversary's viewpoint to determine how to deny the adversary's strategy both militarily and politically. This must be done through military prowess and diplomatic acumen to think and act ahead of the adversary. The integrated model provides the necessary focus to enable that kind of strategy.
>
> Finally, and perhaps most critically, the model can provide an understanding of how the adversary is distorting the situation.[12]

[11] Mark Pye, "The Enemy is Always Right: Integrating the Cognitive Perspective into Coercion Strategy," (Maxwell AFB, AL: School of Advanced Air and Space Studies, 2009), 63.
[12] Pye, "The Enemy is Always Right," 80.

Pye's integrated approach to strategic calculus combined the dynamic context of a crisis, multiple instruments of national power, and inputs from multiple decision models (Models I, II, and III) to produce an adversarial decision feedback loop depicted in Figure 17.

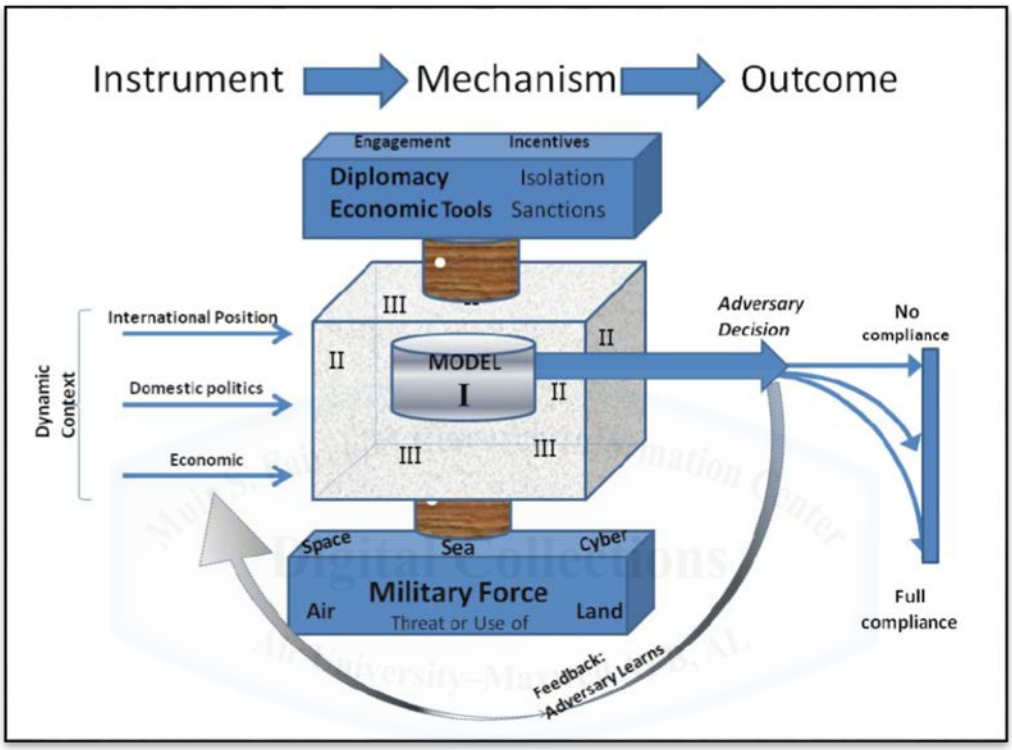

Figure 17: Integrated Approach to the Strategic Calculus

Source: Pye's Integration of concepts from Allison and Zelikow, Byman and Waxman, and SAASS Faculty. Pye, "The Enemy is Always Right," 65.

Building on Allison, Zelikow, and Pye's ideas about the enemy's decision apparatus construct, this theory suggests that in order to implement a cognitive targeting campaign, strategists must first understand how the specific construct of the adversary's decision apparatus affects its output. Remember, according to the ordering of the elements in the mental sphere, the cognitive targeting planner must use imagination (the element of activity) against the

enemy's reason (his element of stability). Strategists must conceptualize - from the enemy's perspective - how enemy strategists might import and export information to and from his decision construct and how that flow is distorting the decision output from realistic goals. Lastly, the strategist implementing a cognitive targeting campaign must think ahead of the adversary, and build a plan that cognitively out-maneuvers the enemy with action against his possible strategy options before he implements them. This outmaneuvering once again represents how the coercer must properly use the elements and principles: imagination against reason and mental concentration against decision distribution.

The goal to influence an adversary's strategic calculus, manipulating his decision space, supports cognitive targeting's objective to enter the influence path in the mental sphere at the principle of *direction*, the mental sphere's principle of control. The Indian air campaign during the 1999 Kargil War, against invading Pakistani forces, displayed India's attempt to influence Pakistani behavior by inadvertently employing an operational design that conforms to the theory of cognitive targeting: to direct decision options without escalating to nuclear coercion. This study suggests it was inadvertent because the Indian Army and Air Force did not purposefully use a cognitive targeting campaign. However, they utilized a denial-based coercive air and land campaign that did not conform to any pre-existing targeting paradigm because they knew those methods would be escalatory.

KARGIL WAR: 1999

The background of the Kargil War presents a long and rich history extending hundreds of years. For the purposes of this study, the post-WWII decolonization of India, Pakistan, and the princely states represents an

acceptable beginning. In 1947, Jammu and Kashmir was one of the largest of 562 princely states in the Indian subcontinent.[13] The province is politically, ethnically, and religiously charged, with a socially privileged Hindu elite favoring an Indian alliance and a Muslim majority (77 percent) favoring the Pakistani polity.[14]

Internal civil conflict and external demography-based political claims to the area by both India and Pakistan led to the signing of the Simla Agreement, 3 July 1972. Among its articles, this agreement stipulated that India and Pakistan would: "settle their differences by peaceful means through bilateral negotiations; respect each other's national unity, territorial integrity, political independence and sovereign equality; and refrain from the threat or use of force against the territorial integrity or political independence of each other."[15]

Additionally, specifically regarding the Jammu and Kashmir line of control, the agreement stated, "In Jammu and Kashmir, the line of control, resulting from the cease-fire of December 17, 1971, shall be respected by both sides without prejudice to the recognized position of either side. Neither side shall seek to alter it unilaterally, irrespective of mutual differences and legal interpretations. Both sides further undertake to refrain from the threat or the use of force in violation of this line."[16]

Further complicating and intensifying the geopolitical landscape was the pursuit and acquisition of nuclear fission bomb capability, tested in 1974 by India and in 1983 by Pakistan.[17] Both India and Pakistan declared themselves

[13] Samuntra Bose, *Kashmir: Roots of Conflict, Paths to Peace* (Cambridge Massachusetts: Harvard University Press, 2003), 14.
[14] Bose, *Kashmir: Roots of Conflict, Paths to Peace*, 16, 31.
[15] Simla Agreement, 3 July 1972 in Turkkaya Ataov, *Kashmir and Neighbors: Tale, Terror, Truce* (Burlington, U.S.A. Ashgate Publishing Limited, 2001), 219.
[16] Simla Agreement, 3 July 1972 in Ataov, *Kashmir and Neighbours: Tale, Terror, Truce*, 220.
[17] Ataov, *Kashmir and Neighbours: Tale, Terror, Truce*, 157.

nuclear weapon states in May 1999. Now with the overt nuclear status of both parties, a full-scale war between the two was unrealistic, but there was still political and military capacity for limited war. Pakistan assumed that the acquisition of nuclear weapons would allow action without risks. This assumption provided the pretext for their incursion into Indian-controlled territory in the Kargil conflict.[18]

In March through-April 1999, in violation of the Simla Agreement, Pakistani Army regulars and mercenaries from multiple terrorist organizations crossed the line of control (LOC) into the Drass-Kargil-Batalik sector in Ladakh.[19] They penetrated as far as six miles into Indian-administered territory. The focal point of the fighting was the mountain peaks west of the town of Kargil overlooking the only warm-weather supply highway, NH-1A, for Indian forces north of the Siachian Glacier.[20] The invasion captured approximately 500 square kilometers of Indian-controlled territory across the LOC in the Kargil sector.

Islamabad insisted these forces were Kashmiri freedom fighters. However, New Delhi insisted Pakistan drew the forces almost entirely from its Northern Light Infantry (NLI) under the Force Commander Northern Areas (FCNA). Because Pakistan used the NLI instead of heavier troop contingents, they were able to move quickly and achieve both strategic and tactical surprise.[21] It was early May before the Indian Army began to comprehend the

[18] Ataov, *Kashmir and Neighbours: Tale, Terror, Truce*, 157.
[19] Ataov, *Kashmir and Neighbours: Tale, Terror, Truce*, 156.
[20] Robert G. Wirsing, *Kashmir in the Shadow of War: Regional Rivalries in a Nuclear Age* (Armonk, New York: M. E. Sharp, Inc, 2003), 36. Other sources place this invasion in May. Regardless of the date the LOC was crossed, the plan and mobilization began in these earlier months.
[21] Benjamin S. Lambeth, "Airpower at 18,000': The Indian Air Force in the Kargil War," *Carnegie Endowment for International Peace* (Washington, D.C., Carnegie, 2012) 8.

full extent of the incursion.[22] Even then, Indian Army commanders grossly underestimated and, accordingly, misreported the full magnitude of the situation. India finally mobilized five infantry divisions, five independent brigades, and 44 battalions, deploying then from the Kashmir Valley to the Kargil sector – some 200,000 Indian troops in all.[23]

Initial Indian Army attacks to retake outposts at Tololing, Tiger Hill, and Dras failed as unprepared infantry battalions conducted uphill assaults during daylight.[24] Internal bureaucracy and rivalry between India's military services delayed the introduction of units of the Indian Air Force (IAF). The targets were in areas between 16,000 and 18,000 feet. This significantly limited (and in some cases excluded) the role India's helicopters and close-air-support aircraft could play.[25] The Russian-made Mi-35 HIND helicopter was too heavy to fly at these altitudes. When initially discussing the role of fixed-wing air support, Air Chief Marshal Anil Tipnis expressed concern over escalation in using airpower so close to the LOC. He felt the chances of major escalation were very high if India were to commit airpower to the planned counter-offensive.[26] His concern did not stop him from seeking permission to interdict supply routes on the Pakistan-controlled side of the LOC. The high terrain, disadvantaged fighting positions, and extent of the incursion led Chief of Army Staff General V.P. Malik and Prime Minister Atal Bihari Vajpayee to agree that the Indian Air

[22] It was common practice to abandon military outposts for the winter and then reoccupy them in the spring. The Pakistani invasion forces occupied many Indian controlled outposts prior to the Indian spring return. The Indian Army, therefore, had no pre-existing forces in the area or the outposts and getting a full comprehension of the totality of the invasion proved difficult.

[23] Lambeth, "Airpower at 18,000'," 8.

[24] Marcus K. Acosta, "The Kargil Conflict: Waging War in the Himalayas," *Small War and Insurgencies*, 18:3 (September 2007, 397-415), 403-4.

[25] Acosta, "The Kargil Conflict: Waging War in the Himalayas," 405.

[26] Benjamin S. Lambeth, "Airpower in India's 1999 Kargil War," *Journal of Strategic Studies*, 35:3 (June 2012, 289-316), 296.

Force must begin the next morning to accelerate the operation. However, Prime Minister Vajpayee gave no authority to the IAF to cross the LOC.[27]

The stated and inferred objectives for the air and land campaigns were therefore geographically contained to the Indian-administered side of the LOC. The stated objective was simply the limited strategic objective of restoring the line of control in Operation *Vijay* (Victory), a ground campaign designed to clear Pakistani forces from the heights above Kargil.[28]

The Indian Prime Minister's prohibition on operations across the LOC, along with his limited political objectives (to merely restore the 1971 cease-fire line), dictated a relatively conservative approach to the air campaign. Specifically, it restricted targeting to support only a denial-based coercive air campaign. The potential to widen or intensify the conflict, therefore, permitted no provocative or escalatory measures. Thus, the IAF could not use any air campaign plan that supported strategies for punishment, decapitation, and risk. The volatile situation restricted the implied air campaign objectives to a few simple and limited tasks.

The inferred air objectives in the resulting Operation *Safed Sagar* (White Sea), set to begin on 26 May, were to provide support to the ground counter-offensive to retake lost ground; provide air support to the ground offensive to re-open the supply line to northern military posts along the NH-1A highway; and attrit enemy forces to produce favorable force ratios for the Indian counter-offensive.

To accomplish these objectives, the IAF focused their targeting on the enemy's fielded forces in dug-in high ground positions, enemy artillery on the

[27] Lambeth, "Airpower at 18,000'," 13.
[28] Acosta, "The Kargil Conflict: Waging War in the Himalayas," 397.

ridges and peaks overlooking the Kargil valley, logistics lines at Munto Dhalo, and the tactical command bunkers on Tiger Hill supporting artillery fire.

Early efforts with MiG-21s, MiG-23s, and MiG-27s proved unfruitful, as daylight attacks with poor precision did little to dislodge a resilient and entrenched enemy. However, IAF pilots soon developed innovative techniques to cause avalanches above fixed NLI logistics sites covering the Pakistani supply lines.[29] The addition of the Mirage 2000 brought precision capability. In June, Mirage pilots destroyed the two main Pakistani supply sites at Mantho Dalo in the Batalik sector north of Kargil, and Point 4388 in Dras. They employed 1,000-pound general-purpose bombs delivered in high-angle attacks using the aircraft's computer assisted weapons-aiming capability.[30] In the most "spectacular of air strikes," the attack had crippling effects on the Pakistani war effort as it caused nearly 300 casualties in just minutes.

Air coordination with ground operations began to increase during the second attack on Tiger Hill, witnessing a more precise application of airpower. This choice allowed Indian Mirage pilots to destroy the NLI battalion headquarters.[31] The attack on Tiger Hill represented the first-ever combat use of laser-guided bombs by the IAF.[32] The victory at Tiger Hill coupled with an innovative night attack victory at Tololing by the 2 Rajputana Rifles, the IAF, and *jawan* fighters (Indian freedom fighters) began to turn the conflict in India's favor.

During the conflict, especially as it looked like Indian victory, Air Marshall Patney, Operation Vijay's Air Component Commander, placed greater emphasis on combat air patrols. "I was working on a much larger canvas… I

[29] Acosta, "The Kargil Conflict: Waging War in the Himalayas," 407.
[30] Lambeth, "Airpower at 18,000'," 20.
[31] Acosta, "The Kargil Conflict: Waging War in the Himalayas," 407.
[32] Lambeth, "Airpower at 18,000'," 20.

was fully conscious that as we hit and killed enemy soldiers, there was every possibility for escalation, possibly outside the immediate combat area, and it was my job to be ready with adequate remaining resources for that eventuality."[33] Pakistani Air Force (PAF) F-16s typically stayed 10-20 miles away on the Pakistani side of the LOC. If the Pakistani political and military elite briefly considered employing air-to-air fighters against the IAF, they knew the same thing Air Marshall Patney knew: as long as the Indian fighter-bombers stayed on their own side of the LOC, any Pakistani incursion to suppress the Indian asymmetric airpower advantage would be an extremely provocative step toward full-scale war. This possibility for escalation proved too high a cost, and both sides used caution so as not to "lock-on" to each other.

Pakistan's political situation deteriorated rapidly. The Kargil conflict was overshadowed by NATO's air war against Kosovo. Additionally, American diplomatic pressure (based on Pakistan's violation of international agreements) along with China's neutrality in the matter, limited Islamabad's political maneuver options and hastened Pakistan abandoning its objectives.[34] With India eliminating the critical elements necessary for Pakistan's de facto takeover in the Kargil valley in Jammu and Kashmir, Pakistan had no choice but to accept a retreat.

The war lasted seventy-four days and on 26 July, India reported that Pakistani-backed forces had completely withdrawn from the territory on the Indian side of the LOC.[35] The Indian counter-offensive facilitated by IAF airpower retook the Kargil ridgelines and by 26 July the Indian Army had

[33] Lambeth, "Airpower at 18,000'," 17.
[34] Ataov, *Kashmir and Neighbours: Tale, Terror, Truce*, 157.
[35] Wirsing, *Kashmir in the Shadow of War: Regional Rivalries in a Nuclear Age*, 37.

retaken most of the outposts seized by the Pakistanis. There was significant international support for the restraint India showed, particularly the decision by the political leadership not to let its armed forces cross the LOC or at other places drop the international border, thereby averting a full-blown war.[36]

The Indian government successfully coerced a nuclear-armed adversary to change its behavior against its will, bringing its policy into congruence with Indian objectives. Additionally, the Indian Army and Air Force were able to employ forces in this coercive denial strategy in a way that did not escalate the conflict to the brink of nuclear war. They were able to pursue both coercion and deterrence because they used a targeting paradigm that limited and directed the adversarial options in decision space rather than attempt a targeting paradigm designed to erode the enemy's mobility or determination.

WHY COGNITIVE TARGETING CAN POSITIVELY INFLUENCE ESCALATION

Cognitive targeting, unlike utility and axiological targeting, does not attempt to influence the adversary's ability or will to resist. Instead, cognitive targeting directly influences the adversary's decisions - or military and political options - through Fuller's principle of control derived from the law of economy of mental force: *Direction*.

Cognitive targeting is a targeting paradigm designed to pursue a denial-based coercive air power strategy. Cognitive, or influence targeting in Fuller's mental sphere, is a possible solution in that it utilizes decision-based influencers to direct the adversary toward a mutually beneficial, deescalated situation.

[36] Sumit Ganguly, *The Kashmir Question: Retrospect and Prospect* (London, England: Frank Cass and Company Limited, 2003), 23.

A nation seeking to coerce a modern nuclear-armed adversary may use cognitive targeting because it does not hold at risk, or attack, any of the provocative targets the potential U.S. adversaries have listed in their doctrine or policy as described in chapter two. A strategist may use cognitive targeting to keep a peripheral conflict at a low level of intensity without placing the ordeal in existential terms for the intended target party.

Logically, the possibility of hegemonic war between nuclear powers dictates restraint in conflict resolution. The Kargil conflict represents the type of low-intensity border skirmish between India and Pakistan, and possibly India and China, which could recur in the next decade. The limiting effect of nuclear weapons decreases the likelihood of protracted, higher-intensity conflicts and tests of strength.[37]

Likewise, in a crisis in the South China Sea, if the U.S. intercedes on behalf of Vietnam or the Philippines against an aggressive Chinese PLAF or PLAN operation, it is highly unlikely that the U.S. would want to pursue an escalating targeting strategy that directs fires toward Beijing's leadership, communications, or hierarchical needs of the party elite. Similarly, any operational targeting plan that supports a punishment or decapitation strategy against Moscow in response to a NATO Article V breach is unlikely to have much support in Washington.

Like the Indian Vajpayee government in 1999, political and military leadership today cannot justify horizontal or vertical escalation to accomplish regional objectives. This statement supports this study's fourth assumption from chapter two, which stated:

> …in the given conflict, avoiding nuclear war should be the primary goal of any national policy, strategy, and targeting paradigm. Therefore, the U.S. defensive, negative objective to prevent adversarial nuclear

[37] Lambeth, "Airpower at 18,000'," 17.

> employment against the U.S. and her allies is a more important political objective than the offensive, positive object to attain any particular regional policy congruence from the enemy.

This assumption leads to one main caveat in any operation involving nuclear powers; in order for the coercer and the coerced to arrive upon a mutually acceptable, conflict-terminating political outcome, avoiding nuclear war must be the highest priority of both actors. In Cold War terms, both government decision structures must be rational. However, this rationality does not mean they must conform to a Rational Actor Model in Allison and Zelikow's Model I terminology. It means they must amalgamate the input and output from all three models (Model II: Organizational Behavior Model; and Model III: Governmental Politics Model) to produce a decision output measuring the cost of nuclear war to be higher for both parties than any benefit gained by one party from escalating the crisis.

This assumption underwrites the logic explaining why cognitive targeting can work. By providing acceptable alternatives that do not threaten the survival of the decision apparatus, or the well-being of the state, the enemy has no need to consider vertically escalating the conflict. By directing enemy behavior through the elimination of decision options, the coercer can maintain escalation control with operations at a low relative level of intensity. The IAF's ability to adapt to the Vajpayee government's operational limitations and ban against crossing the LOC may have been the determining factor in keeping the PAF out of the fighting.[38] By accepting the operational limitations for strategic and political calculations, the IAF eliminated the critical elements upon which Pakistan needed to justify escalation. It also followed the logic of the cognitive

[38] Lambeth, "Airpower in India's 1999 Kargil War," 307.

targeting that helped India maintain escalation control throughout the 74-day war.

Even after an adversary escalates in order to deescalate, with the military employment, political threat, or demonstration of nuclear weapons, using the cognitive targeting model can work to deescalate a conflict that has crossed the nuclear threshold because it decouples limited positive objectives from the survival of the opposing regime. It does so with restraint in both vertical and horizontal escalation. By limiting intensity, not only may operational planners use cognitive targeting to forestall crossing a nuclear threshold, but they may also bring the intensity level back down to a manageable conventional context in a post-nuclear environment.

If Russia, China, or North Korea chose to employ a nuclear weapon to attain escalation dominance and control the negotiating terms, Western campaign planners could use the cognitive targeting model with positive military results as well as political results.

Militarily, targeting cognitively enables the focused and efficient application of force to show resolve in bringing closure with very specific and limited objectives to the conflict on favorable terms. Politically, targeting cognitively reduces the military's role in responding to an enemy's nuclear threshold and increases the diplomat's role of isolating the adversary. While simultaneously pursuing a campaign of political blow-back against the nuclear crossing regime, targeting according to a cognitive decision construct enables the U.S. to employ military power consistent with the UN charter, the desires of the international community, the moral high ground, and U.S. national values. The consistent message through the appropriate use of war as a language and the diplomatic isolation of the nuclear crossing regime would disable their

achievement of their political aims. By doing so, it would significantly reduce the likelihood of nuclear employment by on-looking nuclear powers.

The success of this model is contingent upon the tightly coordinated, consistent, and complimentary efforts along multiple instruments of national power. It requires a strong denouncement against the nuclear aggressor as well as the sustained and focused application of military power according to the enemy's decision options in the regional context as well as his greater national geopolitical position.

Cognitive targeting is a targeting paradigm capable of achieving limited regional objectives while preserving a low ceiling on vertical escalation and tight walls on horizontal escalation, thereby deterring nuclear employment. Additionally, should that deterrent fail due to an adversary's escalate-to-deescalate strategy, the cognitive targeting paradigm is capable of attaining the conflict's military objectives in a manner consistent with national political goals. This consistency reflects a positive statement with the language of violence that the U.S. can deny the enemy from achieving its goals without resorting to nuclear retaliation. By limiting the violence specific to an adversary's decision options, and pursuing a complimentary diplomatic effort to denounce the enemy's first use of nuclear weapons, the U.S. can create the conditions by which diplomatic dominance trumps the enemy's attempts to attain escalation dominance.

Chapter 6

Conclusion

If the instrument is controlled by one man, soldier or politician, then we should analyze his mental characteristics; if by a group of men, then we should discover the predominating will of this group, for when war breaks out, in all probability this will will exert itself. We must examine the headquarter organization of the military instrument; is it controlled by one organ or three organs, and, if by three, which is the predominating partner?

Colonel J. F. C. Fuller

A nation either submits to the will of one man or to a body of men directed by one man; thus, a political control is established which regulates the relationship between the body and soul of a nation.

Colonel J. F. C. Fuller

The purpose of this chapter is to summarize the main points of each chapter's argument and compare the three targeting paradigms against their ability to answer the research question.

COERCION AND THE LANGUAGE OF WAR

If we treat limited war (short of complete annihilation of the enemy) as a language to express our intent, preferences, desires, and resolve, then we must pursue operational designs that accurately communicate the strategic message we intend the enemy to receive. The various coercive air power strategies and the air campaign targeting paradigms that support them may use the same amount and intensity of force, but also send very different messages to the intended strategic audience.

In an age in which Russia re-exerts its influence in Eastern Europe, China continues to test its growing strength in the Pacific, and rogue nations increasingly seek nuclear deterrence for regime survival, our coercion strategies, operational designs and messages in the language of war have significant influence in attaining a mutually acceptable political outcome.

In terms of Schelling's "bargaining process," we must pursue operations with the dialog of violence that encourage de-escalation by providing the enemy with an acceptable end state. We must afford them the same "out" the general's in Sun Tzu's examples used to provide the enemy a way of escape - by not pressing them to a point they believe they must fight to the death.

THE TARGETING SOLUTION

The purpose of this study was to give critical analysis to air campaign targeting paradigms and their ability to influence escalation by deterring a nuclear-armed adversary from employing nuclear weapons, while achieving regional political objectives using a coercive, conventional air campaign.

Therefore, the primary research question of this study was as follows: How can the United States wage a conventional conflict against a nuclear-armed opponent, which accomplishes limited (and/or acceptable) political objectives while discouraging adversarial escalation to use or threat of use of nuclear weapons?

To answer this question, this study used J.F.C. Fuller's three spheres of war to order, scientifically, three targeting paradigms according to their qualitative values. The purpose of this ordering was to think more intelligently about the science behind the art of operational air campaign design. In doing so, this study has reordered and combined Fuller's models of the elements and principles of war into a model that not only explains the relationship between

the elements and principles; it explains the scientific ordering of the targeting paradigms themselves and explains why they work directly or indirectly on the object.

The first targeting paradigm is a capabilities-based targeting paradigm (CBTP): utility targeting. This targeting approach views the enemy as a system by prioritizing target sets within five concentric rings with the enemy leadership and communications as the highest priority in the center of the model. This study has shown that utility targeting indirectly influences an adversarial object because it enters the influence path in the physical sphere. By using offensive power against the enemy's protective security apparatus, the coercer hopes to influence the enemy's mobility, causing strategic paralysis, thereby indirectly influencing the object.

Utility targeting is an operational model designed to employ a decapitation-based coercive air power strategy. In Operation Desert Storm, John Warden and the air planners used utility targeting to accomplish elements of military and leadership decapitation to influence Saddam Hussein's behavior. Unfortunately, their methods were not entirely congruent with their objectives. Their goal was to liberate Kuwait and expel the Iraqi invaders. The strategic message the air campaign sent to Saddam (that the coalition would kill him and his family in order to force his retreat) differed from the intended strategic message to persuade him to reverse the invasion.

Utility targeting places the enemy in a position in which he must make an existential choice – either personal or regime. He must choose between capitulating and accepting the demands of the coercer, or face personal death or regime change in a leadership decapitation scheme or isolation from his forces in a military decapitation scheme. Against a nuclear-armed adversary, the message this method sends in the language of war is one that encourages

the enemy to use or threaten a nuclear attack. Therefore, utility targeting cannot attain limited objectives while deterring enemy escalation. It is not an applicable targeting paradigm to use in an escalating conventional crisis against a nuclear-armed adversary.

The second targeting paradigm is the will-based targeting paradigm (WBTP): axiological targeting. This targeting approach excludes the population and only seeks to influence the enemy leadership by targeting according to Maslow's hierarchy of needs with value targeting. This study showed that axiological targeting indirectly influences an adversarial object because it enters the influence path in the moral sphere. By using surprise and shock tactics against the enemy's sources of endurance, the coercer hopes to produce fear, influencing the enemy's courage to continue belligerence. This shock degrades his determination, indirectly influencing the object.

Axiological targeting is an operational air campaign-targeting paradigm designed to support a punishment-based coercive air power strategy. In Operation Allied Force, NATO planners used axiological targeting to pursue a punishment strategy against Slobodan Milosevic's power base by intensified bombing of political and economic resources of his cronies and oligarchy. In this case, the message of NATO resolve and prowess – along with eroding political support for Milosevic – caused him to abandon the genocide of Kosovar Albanians. NATO was only able to accomplish this strategy due to their early attainment of escalation dominance.

Axiological targeting against a nuclear-armed adversary will not work because it attacks the specific sources of regime power that they value the most. By pursuing value targeting against a regime that has openly stated it will consider nuclear retaliation for such methods, the coercer would take an unnecessary risk incommensurate with his goals. Avoiding nuclear war must

take a higher priority than achieving any regional political objective with risky and immoral methods. Therefore, Axiological Targeting against a potential nuclear-armed adversary cannot achieve limited objectives while deterring escalation. It is not an applicable targeting paradigm to use in an escalating conventional crisis with a nuclear opponent.

The third, and new, targeting paradigm is the decision-based targeting paradigm (DBTP): cognitive targeting. This model seeks to direct enemy thinking in terms of decision options rather than degrade his ability or will to continue hostilities. By placing each possible decision option as its own unique target set, the coercer may strike those elements critical to the enemy achieving that option. This study showed that cognitive targeting directly influences an adversary's object because it enters the influence path in the mental sphere. By concentrating imaginative thought against the enemy's reason and distributed decision options, the coercer may influence the enemy's direction of his will or desire. This approach leads to a direct influence on the enemy's object, providing the most economical coercive action on the influence path based on this study's ordered elements and principles.

Cognitive targeting is an operational model designed to execute a denial-based coercive air power strategy against a nuclear capable opponent. In the Kargil War between India and Pakistan over the Jammu and Kashmir territory in 1999, the Indian Air Force (IAF) employed very limited a restrained air operations conforming to the principles of cognitive targeting to deny the Pakistani Northern Light Infantry (NLI) from achieving its territorial objectives with an early spring invasion into the Kargil Valley.

The Indian Vajpayee government clearly expressed the message that it intended to send to Islamabad with this restricted use of airpower. This message in the language of violence prevented full-scale war because the

operational design of the land and air campaigns matched the intended goals with no provocative or escalatory crossing of the Line of Control (LOC). The IAF and Indian Army were able to direct Pakistani decision options with concentrated force against the critical element that enabled Pakistan's annex in Kargil.

Cognitive targeting can clearly work against a nuclear-armed adversary. Both India and Pakistan possessed declared nuclear capability at the outbreak of the Kargil Conflict. Additionally, against one of the potential adversaries in this study, Cognitive targeting would achieve limited regional objectives while deterring nuclear escalation because it breaks the options into unique and individual target sets. As such, planners using this model would not attempt to strike any of the stated target sets that would cause adversarial nuclear retaliation or "lowering of the nuclear threshold." Cognitive targeting, therefore, can attain limited regional objectives while deterring escalation in a conventional crisis against a nuclear-armed adversary.

Table 4: A Place for Cognitive Targeting Paradigm

Coercion Strategy	Influence mechanism	Sphere of War	Targeting Paradigm
Decapitation/ Denial (Force)	Strategic Paralysis (Mobility)	Physical	Utility Targeting
Punishment/Risk	Break Will (Determination)	Moral	Axiological Targeting
Denial (Strategy)	Direct Options (Direction)	Mental	**Cognitive Targeting**

Source: Author's Original Work

In the introduction of this study, Table 1.1, Missing Targeting Paradigm depicted the need for a tool that operational planners could use to implement a denial-based coercion strategy using direction as an influence mechanism. This study has placed the cognitive targeting paradigm in that place.

CONCLUSION

This theory suggests the key problem is the current targeting paradigms in a conventional conflict create an existential threat to the adversary's regime and do not afford the adversarial decision construct the luxury of limiting its use of force in response. The message adversaries receive with the 'language of war' in the current targeting paradigms incentivizes them to use coercion by punishment or risk in order to force the U.S. to question its resolve, intent, and ability to pursue continued action. These approaches are antithetical to escalation management when the adversary has nuclear response capabilities.

In order to limit escalation while attaining mutually acceptable outcomes, this analysis suggests planners should seek to influence adversarial thinking, rather than his will or capability. Against a nuclear-armed adversary, the U.S. must depart from utility and axiological targeting ideologies to accomplish strategic paralysis and break the adversary's will with punishment.

Instead, the U.S. should target cognitively to influence adversary political and military decision space: this means an option/decision-based targeting paradigm (DBTP) instead of a capabilities-based targeting paradigm (CBTP) or a will-based targeting paradigm (WBTP). This decision-based paradigm suggests battling in the cognitive domain, thus influencing potential decisions due to circumstances, and gaining a strategic assessment of the adversarial decision-making construct.

In order to target a nuclear weapons capable adversary's potential options effectively, planners must learn how foreign governments make decisions. As Fuller suggested in the opening quote to this chapter, "*If the instrument is controlled by one man, soldier or politician, then we should analyze his mental characteristics; if by a group of men, then we should discover the predominating will of this group… We must examine the headquarter organization of the military instrument; is it controlled by one organ or three organs, and, if by three, which is the predominating partner?*"[1] This idea supports the logical continuation of studying the adversarial decision construct advocated by Allison, Zelikow, and Pye.

In order to accurately direct the enemy's thinking with the principle of control, *direction*, one must first accurately use the mental element of action, *imagination*, against the enemy's mental element of stability, *reason*. By doing so, this knowledge will guide the strategist's concentration of force against the enemy's distributed decision options. These statements simply mean planners must think as the enemy thinks in order to know how to outmaneuver his strategy in decision-space and transfer those advantages into the physical world of violence.

This approach, in turn, suggests a more deliberate method of coercion, synchronizing military operations to desired political ends through focused messages in the language of war that produce limited objectives and acceptable decision space rather than bombing for regime change, strategic paralysis or based on the hierarchy of needs. These approaches, in a coercion-deterrence scenario, lead to terrible messages in the language of war that support

[1] Colonel J. F. C. Fuller, *The Foundations of the Science of War* (London, England: Hutchinson & Co Publishers, LTD, 1926, Reprint by Books Express Publishing, 2012), 91.

punishment and decapitation-based strategies. Sending the right message through a denial strategy will succeed. The only targeting paradigm for this message is cognitive targeting.

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