

Rattling the Nuclear Saber: Rethinking Escalate-to-Deescalate Strikes

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Submitted to the Graduate Faculty of the
Graduate School of Public and International Affairs in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy

University of Pittsburgh

2022

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2022

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University of Pittsburgh, 2022

Would a low-yield nuclear escalate-to-deescalate strike achieve its desired end of capitulation? Would the strike adequately demonstrate the willingness and ability of the escalator to impose greater compelling violence, “thereby giving the adversary pause for thought,” or would such a strike result in unintended consequences like continued fighting or counter-escalation (Freedman & Michaels, 2019, p. 667)? The answer to this question is critically important today with Russia’s invasion of Ukraine and Russian leaders’ overt and implied threats of nuclear use. Such events are especially concerning when combined with published Russian strategic doctrine, nuclear investments, messaging, and military exercises exemplifying their low-yield nuclear weapon escalate-to-deescalate concept. Despite the importance of this issue, current research on escalate-to-deescalate strikes does not address the conditions necessary to obtain the desired result of capitulation. This dissertation offers a new look at escalate-to-deescalate strikes throughout history to identify the requisite conditions to achieve capitulation and avoid the unintended responses of continued fighting or, even worse, counter-escalation. I argue that a victim’s response to an escalate-to-deescalate strike is the result of three variables: 1) its danger situation, 2) the value of the target struck, and 3) the damage sustained by the target, *ex ante*. Utilizing near-history case studies involving escalate-to-deescalate strikes to test this claim, I find that only a narrow set of conditions exist that are likely to result in the desired result of capitulation. Significantly, the results of these case studies also underscore both the high probability and the stark reality of failure of escalate-to-deescalate strikes.

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Acknowledgements

Crafting a dissertation is known to be a long, lonely, and arduous undertaking – especially when combined with a global pandemic, a military move, and working at a new job in a new city while researching and drafting chapters. Thankfully, I was able to rely on family, friends, work- and classmates to maintain both sanity and the desire to complete the task. As such, I would be remiss not to acknowledge their assistance and my gratitude. There are several family members, advisors, mentors, and friends – including the time and funding provided by the Army’s Nuclear and Counter Weapons of Mass Destruction Functional Area – who supported this research product and encouraged me throughout the process. Without this collective assistance, I would certainly still be staring at a blank screen.

Foremost, I offer sincere and heartfelt thanks to my amazing and wonderful wife – for her incredible patience and support, across multiple PCS moves, relocations, and disruptions to her plans. Her support with this project, her recommendations, her shoulder to cry on, her voice of reason, and steadfast encouragement to continue the slog was instrumental to my ability to see this project through to fruition. Thank you, I love you.

This process would not have gotten off the ground without the love and support of my family. My goofy boy brought me countless, but needed, laughs and joy... and distractions. My new daughter increased the impetus to complete this project. My loving parents and sister, in similar fashion cheered me on, offering insight, recommendations, countless edits – and hope. My amazing, and deeply missed, grandparents, encouraged, fostered, and embodied a spirit of lifelong learning.

I would like to offer my sincere thanks and gratitude for the professionalism, wisdom, guidance, patience, and support from my dissertation committee at the University of Pittsburgh. My extraordinary chair, Ryan Grauer, continually offered much needed focus and honest critique of my incomplete, and often abstract, thoughts and attempts to pen them to paper. I am truly grateful for his meticulous edits and assistance with the many, many revisions. His guidance and thought-provoking comments throughout the process were invaluable. Throughout my coursework and many office calls, the remaining members of my dissertation committee offered tremendous support, valued expert insight, and sound recommendations. Professors Phil Williams, Michael Poznansky, and William Spaniel provided timely and invaluable feedback that furthered and strengthened the argument in the pages that follow. I am truly grateful and appreciative for their continued contribution and guidance.

A number of other scholars, practitioners, mentors, and friends played a critical role in shaping my thinking and research approach. A big thank you to Bill Dunn, Michael Kenney, Jeff McIlwain, Eric Frost, Dave Lowe, Ken Haglan, Kostas Tsilianos, Clint Shelby, Cory Lamblin, Cheyenne Illingworth, my fellow Graduate School of Public and International Affairs (GSPIA) cohorts, and the amazing Team at RAW! Finally, a heartfelt note of appreciation to every librarian everywhere – the passionate and eager-to-share gatekeepers to the world’s stories.

The Explosive Ordnance Disposal (EOD) community, writ large, shaped who and what I am today. To the dedicated professionals who made the ultimate sacrifice, taking the long and lonely walk to defuse danger – **We Remember**.

Any faults, omissions, mistakes, and the like are solely my own.

Lastly, the obligatory disclaimer, the views, opinions, and conclusions expressed herein are solely those of the individual student author and do not purport to reflect the position of the

Department of the Army, the Department of Defense, or any other governmental agency. The facts, figures, and statements herein are derived from open-source materials. References to this study should include the foregoing statement.

1.0 Low-Yield Nuclear Employment as a Strategy of Escalate-to-Deescalate

On 3 January 2022, the leaders from the People’s Republic of China, the French Republic, the Russian Federation, the United Kingdom of Great Britain and Northern Ireland, and the United States of America, representing the five nuclear weapons states officially recognized in the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), published the following joint statement:

We affirm that a nuclear war cannot be won and must never be fought. As nuclear use would have far-reaching consequences, we also affirm that nuclear weapons – for as long as they continue to exist – should serve defensive purposes, deter aggression, and prevent war. We believe strongly that the further spread of such weapons must be prevented (Bugos & Masterson, 2022, p. 21).¹

The next month, on 24 February 2022, the same Russian Federation that signed onto the statement invaded the sovereign country of Ukraine and openly threatened the use of nuclear weapons. The Russian invasion of Ukraine “jolted the world back into an uncomfortable consciousness of the nuclear threat” (Wright, 2022, np). Of concern for many world and military leaders with this invasion and rhetoric is the purported Russian doctrine of escalate-to-deescalate.² Specifically, the doctrine calls for employing a low-yield nuclear strike in a conflict to compel the opposing state to capitulate.³

¹ The proclamation that “a nuclear war cannot be won and must never be fought” was first affirmed by Soviet Leader Mikhail Gorbachev and US President Ronald Reagan in 1985 and subsequently reaffirmed by US President Joe Biden and Russian President Vladimir Putin at a June 2021 summit in Geneva (Bugos & Masterson, 2022, p. 21).

² Former Deputy Assistant Secretary of Defense for Nuclear and Missile Defense Policy, Brad Roberts, spoke at a conference ahead of the 2016 Warsaw NATO Summit citing multiple references to an escalate-to-deescalate strategy in Russian military literature and exercises. Roberts argued the core concept behind such a strategy is to demonstrate to the US or NATO that Russia considered the interests in the conflict as *vital*, whereas NATO’s interests, and that of the US, would only be considered *important*, and therefore not worth the continued blood equity, risk, and investment of national treasure (Roberts, 2016, p. 4). The distinction between vital and important is key here, as it indicates and lends credence to the level of sacrifice a state is willing to make in order to secure the interest.

³ Low-yield or tactical nuclear weapons differ from strategic nuclear weapons in that they are envisaged to be used in fighting and winning a war, as opposed to strategic nuclear weapons, which are used to deter conflict. Although, the decision to detonate any type of nuclear device is a strategic one, the intended effects are different. According to the

This escalate-to-deescalate concept is not new. In 2015, Deputy Secretary of Defense Robert Work, and Vice Chairman of the Joint Chiefs of Staff Admiral James Winnefeld, testified before The House Committee on Armed Services that, “Russian military doctrine includes what some have called an “escalate to deescalate” strategy – a strategy that purportedly seeks to deescalate a conventional conflict through coercive threats, including limited nuclear use” (Work & Winnefeld, 2015, p. 4). In February 2018, the Donald J. Trump administration published its Nuclear Posture Review (NPR), which specifically highlighted the escalate-to-deescalate tactic espoused by Russia’s military strategy and their burgeoning nuclear capability. The same year, in June 2018, Secretary of Defense James Mattis requested funding from Senate Majority Leader Mitch McConnell for additional low-yield nuclear weapons to increase the United States’ deterrence capacity, stating that “potential adversaries have openly discussed the benefits of limited nuclear employment” (Mattis, 2018, p. 1). American concerns about low-yield nuclear escalate-to-deescalate strikes as part of potential Russian nuclear doctrine helped incentivize the funding and development of new low-yield nuclear weapons, including the W76-2, the W80-4, and the B61-12 (NNSA, 2019, 2020, 2022).⁴ The argued requirement for the US to develop and field these new low-yield nuclear weapons was to counter potential adversarial concepts of nuclear escalate-to-deescalate strategies. The contemporary surge in low-yield nuclear weapons globally,

US Defense Department’s *Nuclear Matters Handbook*, “Non-strategic or tactical nuclear weapons refer to nuclear weapons designed to be used on a battlefield in military situations. This is opposed to strategic nuclear weapons, which are designed to be used against enemy cities, factories, and other larger-area targets to damage the enemy’s ability to wage war” (DoD, 2016, p. 17).

⁴ The United States justified the development and fielding of the low-yield W76-2 nuclear warhead and W80-4 future nuclear warhead as critical for deterring Russia from engaging in an escalate-to-deescalate tactic. See the 2018 NPR, General John Hyten’s (2018) statement to the National Defense University, and Defense Secretary Mattis’ (2018) letter to the US Senate. Former Defense Secretary Ashton Carter claims this renewed investment by the US in low-yield nuclear weapons corrects decades of underinvestment that was driving the US nuclear triad into obsolescence. He claims these improvements are not aggressive moves but rather, “defensive moves intended to shore up the system of deterrence that has kept the world’s nuclear peace for more than seven decades” (Carter, 2019, p. 288).

and the follow-on potential for their use in escalate-to-deescalate strikes during wartime, provides the impetus for this dissertation.

1.1 Defining Escalate-to-Deescalate

Escalate-to-deescalate is a strategy in which an actor engaged in a war intentionally escalates violence in scope or intensity across some recognized threshold in order to influence another actor to acquiesce to its demands. In essence, the actor intentionally crosses an existing threshold to communicate to the other that it values the issue at hand and is willing to raise the stakes in order to achieve it. In the nuclear context, the deescalation of conflict is brought about by escalating a war through the actual detonation of one or more low-yield nuclear weapons to demonstrate the attacker's superior resolve and compel capitulation. The act of capitulation, as defined here, is not necessarily the act of abject surrender, or strategic capitulation. Rather, the objective with this concept aligns with tactical capitulation. In practice, the Russian concept of escalation has acceptable objectives of capitulation including: "managing escalation at existing levels, keeping the conflict bounded, deterring additional participants from joining, and reducing the cohesion of opposing coalitions" (Kofman, Fink, & Edmonds, 2020, p. 76). The 2018 NPR notes that several states have formalized and embraced a new policy of this sort, predicated upon the ability to detonate low-yield nuclear weapons over a small nonstrategic target or empty land or ocean as a demonstrative tactic, with the purpose of bringing the opposing side to the bargaining

table.⁵ In other words, this strategy is a manifestation of persuasion by offensive logic, or compellence (Schelling, 1966; George & Simons, 1994).

To date, there is no direct evidence that a low-yield nuclear escalate-to-deescalate strike would achieve its intended result. As such, it is unclear whether concerns about potential escalate-to-deescalate strikes using low-yield nuclear weapons like those noted above are justified. Will such a strike, carried out in the context of war with the intent of causing the targeted state to capitulate, actually work? In this dissertation, I lay out an argument and present evidence that suggest that extremely specific, and rare, conditions are necessary for a low-yield nuclear escalate-to-deescalate strike to achieve its intended response of capitulation.

1.2 Why Study Low-Yield Nuclear Escalate-to-Deescalate Effectiveness?

While Russia is often noted as the primary threat actor by US policymakers, military officers, and analysts worried about the potential use of nuclear escalate-to-deescalate strikes, it is not the only country that could plausibly employ low-yield nuclear weapons in such a fashion. If any of the actors that are technically capable of doing so detonated a low-yield nuclear weapon for the purpose of escalating a conflict to a level their opponent is presumed not to go, would that escalatory attempt achieve the desired result of capitulation? Or, would the victim of a nuclear escalate-to-deescalate strike continue fighting, or even counter-escalate, in response to the breach of existing combat norms? While it is plausible a state may use low-yield nuclear weapons in this manner, it has not yet happened; that such use is a low-probability but high-consequence event

⁵ While a demonstrative attack is certainly an escalate-to-deescalate tactic, escalate-to-deescalate strategies are not limited to such strikes.

means that the need for scholarly research into the myriad possibilities is urgent if we are to identify and advocate for policy approaches that are appropriate for such contexts.

1.2.1 Nuclear Weapon Developments

In a broad sense, every nuclear weapon state is improving, modernizing, and/or developing its nuclear weapons, delivery mechanisms, infrastructure, components, and nuclear command, control, and communications (NC3) architecture. In a reversal from the post-Cold War trend, the existing nuclear-armed states are developing new nuclear weapons and expanding the role of nuclear weapons across their military doctrines. The potential for actual use seems to be heightened in recent years, however, by the development and incorporation of low-yield nuclear weapons into national arsenals, and leader rhetoric threatening such use. Of the nine nuclear weapon states, only two – China and India – have a formalized policy of no first use; the remaining seven (including the US) reserve the right to employ nuclear weapons first, preemptively, as part of a deterrence strategy.⁶ As Ankit Panda notes, “Nearly all nuclear weapon states, as a matter of policy, remain ready to use their weapons without having first suffered a nuclear attack” (Panda, 2018, np). It is readily apparent that Russia, China, and North Korea “surveyed the geopolitical environment, assessed the prospects of a future armed conflict with the United States... and fundamentally rejected the premise that nuclear forces are fading from geopolitical prominence or declining in

⁶ Several political scientists and regional experts question the viability of these no first use assertions by China and India. China, for instance, has reportedly developed strategies employing nuclear weapons in response to an attempted or perceived regime change or a conflict threatening China’s vital interests. See, for instance, Talmadge (2017) *Would China Go Nuclear?: Assessing the Risk of Chinese Nuclear Escalation in a Conventional War with the United States*. Additionally, India’s Defense Minister Rajnath Singh publicly stated on 16 August 2019, that while “India is firmly committed to the doctrine of ‘no first use’ for nuclear weapons, what happens in future depends on the circumstances” (Krepon, 2019, np).

military utility” (Peters, Anderson, & Menke, 2018, p. 16). I briefly highlight several open-source examples of recent nuclear developments and modernization efforts below.

Jacob Kipp, in “Russian Doctrine on Tactical Nuclear Weapons: Contexts, Prisms, and Connections” (2012), portrays both how Russian nuclear strategy has evolved in response to the changing global landscape and how the new frameworks developed respond to Western conceptions of the generations of warfare. Kipp highlights Russian scholar Alexei Fenenko’s influential 2004 article advocating the use of “a new generation of nuclear weapons with low-yields and very high accuracy that could be used for counterforce and counter-elite warfare without the risk of crossing the threshold leading to the use of strategic nuclear weapons” (Kipp, 2012, p. 131). Kipp claims Russian nuclear strategists questioned Western beliefs regarding mutually assured destruction, as the modernization of nuclear weapon systems, and specifically low-yield nuclear weapons, enables the crossing of the nuclear threshold, under certain circumstances and for limited objectives, to deescalate a local war (Kipp, 2012). Similarly, speaking on Russia’s low-yield nuclear weapons and its escalate-to-deescalate strategy, Lieutenant General Richard Clark recently stated, “It is very clear in their doctrine and in the capability, the non-strategic nuclear weapons that they have amassed over the years, it’s evident that that’s in their planning, that’s in their strategy and their thought process” (Clark, 2020, np). Russia, according to Kipp (2012), Mark Schneider (2008, 2017, 2020), Maggie Tennis (2017), James Ragland (2020), and Stephen Blank (2020), among others, has incorporated nuclear warfighting scenarios into its large-scale military exercises in Europe as in *Zapad* (Western Front) and in Asia in the *Vostok* (Eastern front) exercises. The *Zapad* exercises of 1999, 2017, and 2019 all utilized limited nuclear strikes to deescalate the mock conflict on terms favorable to Russia (Kipp, 2012; Schneider, 2020; Kofman, 2021). Schneider notes that “Russian expatriate Nikolai Sokov reported that ‘all large-scale military

exercises that Russia conducted beginning in 2000 featured simulations of limited nuclear strikes” (Schneider, 2020, p. 160).⁷ Finally, the Defense Intelligence Agency’s Director, Lieutenant General Vincent Stewart, affirmed in 2017 that Russia “has this concept of escalate to terminate or escalate-to-deescalate [and] they do have that built into their operational concept. We have seen them exercise that idea” (Schneider, 2018, p. 2).

The People’s Republic of China (PRC) is also modernizing its nuclear arsenal and doctrine. China’s nuclear arsenal, posture, and force structure has undergone an unprecedented shift, with a dramatic growth and diversification of weapons, including the Dong Feng-26 (DF-26) intermediate range missile postured for tactical use (Long, 2020). China recently overtook France as the third largest nuclear weapon country, expanding its nuclear forces into a true triad (Kristensen, 2020).⁸ A 2008 RAND study on escalation found a longtime cornerstone idea of Chinese nuclear doctrine called *zhongdian fanji*, which calls for deescalation through the use of nuclear counterstrikes for war-termination purposes (Morgan, F., et. al., 2008). The US Department of Defense’s 2018, 2020, and 2021 versions of the *China Military Power Report* all cite a growing body of evidence that China’s modernization includes nuclear counterattack missions. Lieutenant General Clark (2020) highlighted China’s nuclear arsenal alongside Russia’s in his statement, noting that China recognizes the US’s conventional superiority and is upgrading or modernizing weapon systems and policies that may bring low-yield nuclear weapons into a conventional fight. In congressional testimony to the Senate Strategic Forces Subcommittee,

⁷ At the conclusion of one *Zapad* exercise, Russia’s Defense Minister Marshal Sergeyev stated, “Our Army was forced to launch nuclear strikes first which enabled it to achieve a breakthrough in the theater situation” (Schneider, 2017, p. 1).

⁸ According to the Stockholm International Peace Research Institute’s (SIPRI) 51st edition of the SIPRI Yearbook (2020), China has an estimated 320 nuclear warheads while France has an estimated 290 total warheads. Additionally, while France has decreased its nuclear arsenal from 300 in 2019, China actually increased from 290 in 2019 to its current 320 nuclear warheads. See <https://www.sipri.org/media/press-release/2020/nuclear-weapon-modernization-continues-outlook-arms-control-bleak-new-sipri-yearbook-out-now>.

Assistant Secretary Dr. John Plumb noted China is using its sophisticated intelligence systems to increase the precision and accuracy of its theater-range and dual capable missiles. Many of these missiles “are intended to deter and counter US forward presence, force projection, and operations, especially in the Western Pacific region and give China the ability to further intimidate and threaten its neighbors” (Plumb, 2022, p. 2). The Defense Intelligence Agency (DIA) noted in 2018 that, “China launched more ballistic missiles for testing and training than the rest of the world combined” (Ashley, 2019, np). Finally, the 2021 *China Military Power Report* to Congress notes that Chinese military writings on the subject of low-yield nuclear weapons suggest that “PRC nuclear thinkers could be reconsidering their long-standing view that nuclear war is uncontrollable” (DoD, 2021, p. 93).

North Korea also appears to be developing doctrines to use nuclear weapons in a conventional war. According to Olli Heinonen, a Distinguished Fellow at the Stimson Center and former Deputy Director General of the IAEA, North Korea is pursuing “the development of miniaturized nuclear warheads, tactical nuclear weapons, multiple independently-targetable reentry vehicles (MIRVs), solid-fuel ballistic missiles of varying ranges, nuclear propulsion systems for submarines, and hypersonic boost-glide vehicles” (Heinonen, 2021, np). In a recent military parade and congress, North Korean leader Kim Jong Un announced plans to develop more sophisticated military assets, including long-range missiles, improved tactical nuclear weapons, nuclear-powered submarines, spy satellites, and even hypersonic weapons (Tong-Hyung, 2021). North Korea has tested at least thirty intermediate or intercontinental ballistic missiles in the first half of 2022 and appears to be readying for a seventh underground nuclear weapons test (DeTrani, 2022).⁹

⁹ By comparison, North Korea conducted eight ballistic missile tests in 2021 and only four in 2020 (DeTrani, 2022).

Currently, the US has at least three low-yield nuclear warhead options for the President to consider: the B61-12, the W80-1, and the new W76-2 (Hersman, Rodgers, & Farabaugh, 2020). Variations of the B61 were deployed in NATO Europe – [REDACTED] [REDACTED] – for decades, with a variable yield [REDACTED] (Kristensen & Norris, 2015). The Nuclear Sea-Launched Cruise Missile (SLCM-N) with a low-yield nuclear warhead, proposed in the 2018 NPR, was reportedly rejected by the Biden administration. However, senior defense individuals including the Chairman of the Joint Chiefs of Staff, General Mark Milley, the Commander of US Strategic Command, Admiral Charles Anthony “Chas” Richard, and the Vice Chairman of the Joint Chiefs of Staff, Admiral Christopher W. Grady, recently broke with the Biden administration by publicly supporting both the SLCM-N and the fielding of low-yield nuclear warheads (Insinna, 2022). Citing the ongoing conflict in Ukraine, current defense leadership argues that once improbable scenarios materialized and the SLCM-N and other low-yield nuclear warheads offer a means to close the deterrence and assurance gap (Insinna, 2022).¹⁰

Russia, China, North Korea, and the US are only the most prominent of the nuclear powers to possess the means, and perhaps the willingness, to carry out escalate-to-deescalate strikes with low-yield nuclear weapons. **Table 1.1** below reports the respective capabilities and policies of all of the nuclear weapon states.

¹⁰ The 2018 NPR highlights the perceived need for these low-yield nuclear warheads, stating, “Expanding flexible US nuclear options now, to include low-yield options, is important for the preservation of credible deterrence against regional aggression. It will raise the nuclear threshold and help ensure that potential adversaries perceive no possible advantage in limited nuclear escalation, making nuclear employment less likely” (DoD, 2018, p. XII).

Table 1.1 : Capabilities and Policies

	Modernizing	Low-Yield Weapons	First Use Policy	Escalate-to-Deescalate
United States	Yes	Yes	Yes	No
Russia	Yes	Yes	Yes	Yes
United Kingdom	Yes	Yes	Yes	No
France	Yes	Yes	CA	No
China	Yes	Yes	No	Yes
India	Yes	Yes	No	No
Pakistan	Yes	Yes	CA	Yes
Israel*	Yes?	Yes?	CA	?
North Korea	Yes	Yes	Yes**	Yes

CA: Calculated Ambiguity

* Israel does not publicly acknowledge its possession of nuclear weapons.

** In September 2022, North Korea adopted a first use policy citing continued US hostility.

1.2.2 Nuclear Escalate-to-Deescalate Literature

The nuclear capabilities and escalate-to-deescalate rhetoric noted above only highlight that states have the means to utilize low-yield nuclear escalate-to-deescalate strikes if they are inclined to do so. It does not imply or guarantee success in carrying out such attacks. To gain a better understanding of the likelihood that such strikes, if carried out, would achieve their intended ends, further analysis is required. Existing scholarship on the question, however, is limited, and does not provide clear guidance on the use and effects of nuclear escalate-to-deescalate strikes. As there are no historical examples of a low-yield nuclear escalate-to-deescalate strike, there is no empirical scholarship on such attacks and very little theoretical scholarly literature directly on point. In general, existing literature on the subject falls in one of three categories. One strand argues that any nuclear weapon use will result in escalation, potentially resulting in a world of Mutually

Assured Destruction (MAD).¹¹ Another set of scholars argues that a taboo exists, preventing nuclear use. Finally, there are those who argue nuclear weapons can be used in a limited fashion and question the MAD concept. For instance, the Commissioner of the Atomic Energy Commission, Thomas Murray, argued that “there is no warrant for concluding that the leaders of the nuclear powers are going to go berserk the first time that tactical atomic weapons are used on military targets” (Murray, 1960, p. 67).¹² It is this set of scholarship that is potentially most useful but, as noted below and in the next chapter, it is still insufficient to answer the question posed in this dissertation. In the remainder of this section, I briefly review some of these works and explain why this study on the concept of low-yield nuclear escalate-to-deescalate strikes offers a perspective missing in the current literature.¹³ The second chapter provides more specifics on the actual question of escalate-to-deescalate.

1.2.2.1 The MAD Theory

The primary theories of nuclear weapon use were largely developed in the mid-1950s, when scholars and analysts were coming to grips with the devastating power of thermonuclear weapons (Freedman & Michaels, 2019). The unprecedented destructive power of “the bomb” brought new risk to states embroiled in conflict, as “nuclear war threatened to destroy both

¹¹ Noted defense analyst Donald Brennan defined the concept of MAD in an article in the 1972 *National Review* in which he argued that a major nuclear war could happen: “The concept of mutual assured destruction provides one of the few instances in which the obvious acronym for something yields at once the appropriate description; for it, that is, a Mutual Assured Destruction Posture as a goal is, almost literally, mad. MAD” (Bundy, 1988, p. 552).

¹² Common perceptions indicate that nuclear weapons are uncontrollably destructive; however, nuclear weapon designers produced a wide range of nuclear weapons with varying yields and employment tactics. A 2013 Lieber and Press report provides the example that “the largest yield weapon in the current US arsenal releases [REDACTED]; the smallest US nuclear weapon can be set to detonate with only roughly [REDACTED]” (Lieber & Press, 2013, p. 14).

¹³ The literature on the subject of nuclear weapons and policy is, in a word, prolific. As the literature would overwhelm any researcher, this is not a comprehensive assessment of the vast number of tomes that have been produced and some influential thinkers may not get the attention some readers believe they deserve.

vanquished and victor alike” (Baylis & Garnett, 1991, p. 1). This recognition of total annihilation is the underlying logic behind deterrence and the proffered reason why the US and the Soviet Union did not engage in a nuclear exchange throughout the Cold War. The culmination of the deterrence logic, MAD, arose as a result of the ever-increasing yield associated with each rapidly expanding power’s nuclear arsenal; the would-be combatants reached a point at which, no matter what either did, they both possessed the power to destroy the other and the world.¹⁴ The vast majority of the nuclear strategy literature centers around deterrence theory espoused by, among others, Basil Liddell Hart (1960), Glenn Snyder (1961) and John Mearsheimer (1983). It manifests in rational actor models, including those about nuclear posturing, targeting strategies, and usage issues, all of which are of little use in addressing low-yield nuclear escalate-to-deescalate attempts. The lack of utility stems from the assumption that use of nuclear weapons will trigger nuclear responses, as it is the threatened nuclear response that keeps the first strike from occurring. Snyder, for instance, recognizes the concept of winning – something inherent to escalate-to-deescalate logic – is obsolete in the minds of any survivors, as they are overwhelmed “by the immense destruction and the problems of reconstruction and survival” (Snyder, 1961, p. 64). The underlying proposition in all of these models and analyses is thus that nuclear weapons are not useful in an escalate-to-deescalate situation, as any use will bring about reciprocal nuclear reprisals. This

¹⁴ Yield refers to the amount of explosive energy a nuclear weapon produces. It is common practice to measure the yield in relation to the quantity of TNT that would generate the same amount of explosive energy. For instance, a “1-kiloton nuclear weapon is one which produces the same amount of energy in an explosion as does 1 kiloton (or 1,000 tons) of TNT. Similarly, a 1-megaton weapon would have the energy equivalent of 1 million tons (or 1,000 kilotons) of TNT” (Glasstone, 1977, p. 1.20). The nuclear weapons detonated over Hiroshima and Nagasaki in August 1945 were yields of approximately 15 and 20 kilotons TNT, respectively. The weapons in current world inventories are so powerful that it is possible to use Hiroshima as a unit of measurement. The largest nuclear explosion in human history, the 50 megaton Soviet Tsar Bomba, detonated with a force of 3,333 Hiroshimas. The largest nuclear weapon in the US arsenal, the ██████████ B83 bomb, produces a mushroom cloud higher than most commercial airlines fly, at roughly 30,000 meters (Chan 2016). See also *The Terrifying True Scale of Nuclear Weapons* at https://www.youtube.com/watch?v=fs1CIrwg5zU&feature=emb_logo. The concept of nuclear winter results from multiple nuclear detonations of this size blocking out the sun, as clouds they form would be well above wind currents.

literature largely presumes nuclear weapon use involves striking multiple targets through saturation. The question posed in this dissertation is different; it is about low-yield nuclear weapons. As Stansfield Turner notes, “Almost all discussions of nuclear arms simply ignore tactical [low-yield] nuclear weapons” (Turner, 2003, p. vii).

1.2.2.2 Nuclear Taboos

A second group of scholars has in some ways internalized the logic of MAD and taken it a step further, arguing that the theoretical horror and empirical absence of nuclear use has created universal constraints on states resulting in a nuclear taboo that prevents any such use in the modern world (Tannenwald, 1999, 2007; Paul, 2010; Smetana & Wunderlich, 2021).¹⁵ The yield of the weapon, they argue, is now immaterial, as the global system “has stigmatized nuclear weapons as unacceptable weapons of mass destruction” (Tannenwald, 1999, p. 433).¹⁶ Henry Kissinger broadly spoke of this concept, noting the power associated with nuclear weapons essentially “brought about a tacit nonaggression treaty” (Kissinger, 1957, p. 2). There are some who doubt the strength of a taboo, however. George Quester (2014) contends that a nuclear taboo *may* exist between the US and Russia, but that history of non-use does not extend to other nuclear weapon states such as India and Pakistan, North Korea, or potentially Iran (Quester, 2014). Perhaps more

¹⁵ A separate argument is that nuclear weapons are vastly different from conventional weapons, and therefore considered special, implying nonuse. Nuclear weapons are arguably considered the crown jewels of the state, given the significant national treasure invested to obtain them. There are significant financial costs as well as bureaucratic or domestic hurdles associated with the entirety of the nuclear life cycle. These direct and indirect costs include the acquisition process of mining and milling, conversion and enrichment, weaponization, storage, maintenance, development of delivery platforms, and the associated personnel with the required expertise (as well as opportunity costs) to carry out each portion of the process from cradle to grave. See, for instance, Peter Zimmerman (1993), Stephen Schwartz (1998), Erik Gartzke and Matthew Kroenig (2009), Matthew Fuhrmann (2012), Keir Lieber and Daryl Press (2013), and William Spaniel (2019), among others.

¹⁶ Nina Tannenwald notes that nuclear weapon states “are not free to resort to nuclear weapons without incurring moral opprobrium or political costs. National leaders are forced to seek alternative technologies for use in war or defense or else risk being classified as outside the bounds of ‘civilized’ international society” (Tannenwald, 1999, p. 463).

troublingly from the perspective of taboo proponents, Richard Price's study of chemical weapons notes the taboo surrounding chemical weapons – bolstered by international treaties outlawing their use – was continually breached in several conflicts, including World War I, the Second Sino-Japanese War, and the Iran-Iraq war (Price, 1997).¹⁷ The world has also witnessed the use of chemical weapons in the ongoing Syrian civil war. The principal concern raised by these doubters is that “the proposition of a nuclear taboo is both plausible and attractive [yet] it is perilously flawed in a way that is likely to set damaging ambushes for those who have been imprudently optimistic” (Gray, 1999, p. 103). Taboos do not carry the force of law, and as such, “one should not presume a causal connection between nuclear nonuse and a nuclear taboo” (Gray, 1999, p. 104). Whichever side is correct in the debate about the existence of a taboo, this subset of literature cannot inform considerations about the efficacy of escalate-to-deescalate strikes; such uses are considered to be either impossible or possible, depending on the perspective of the author, not effective or ineffective.

1.2.2.3 Limited Nuclear War

The subset of existing literature that comes closest to addressing the question at hand is work on the feasibility of limited nuclear war by individuals like Sir Anthony Buzzard (1956, 1957), Robert Osgood (1957, 1979), Bernard Brodie (1959, 1966, 1978), Thomas Schelling (1960, 1966), Morton Halperin (1963), Herman Kahn (1965a, 1965b, 1984), and Kissinger (1965), among

¹⁷ For further historical accounts of chemical and biological use throughout history see, for instance, Amos Fries (1921) *Chemical Warfare*, Judith Miller, Stephen Engelberg, & William Broad (2001) *Germs: Biological Weapons and America's Secret War*, Adrienne Mayor (2003) *Greek Fire, Poison Arrows & Scorpion Bombs: Biological and Chemical Warfare in the Ancient World*, and Jonathan Tucker (2006) *War of Nerves: Chemical Warfare From World War I to Al-Qaeda*.

others.¹⁸ Scholars and practitioners like Edward Teller, a prominent scientist in the Manhattan Project, argued for the use of low-yield nuclear weapons in a conflict, as they provide the ability “to fight our opponent’s war-machine while sparing the innocent bystanders” (Teller, 1958, p. 204). Teller (1958, 1961, 1962) argued that low-yield nuclear weapons allow for belligerents to conduct limited war, as the use of low-yield nuclear weapons does not necessarily indicate the conflict will escalate since, “in most cases the targets in a limited war will not warrant the use of big nuclear explosions,” (Teller, 1961, p. 133). Buzzard highlighted the importance of “establish[ing] a clear distinction between the tactical and strategic use of nuclear weapons, so that we can use our atomic weapons tactically without provoking the strategic use of hydrogen weapons” (Buzzard, Slessor, & Lowenthal, 1956, p. 148).

Paul Nitze advocated for a system of graduated deterrence that included the use of limited nuclear strikes as a method for both countering Soviet aggression and keeping conflicts constrained in scope and aim.¹⁹ A principal architect of National Security Council (NSC) 68, Nitze argued for the rapid buildup of US conventional and nuclear weapons in order to contain the perceived Soviet expansion and to “check and roll back the Kremlin’s drive for world domination” (NSC, 1950, 58).²⁰ Brodie contributed to this line of thinking, stating that the US should demonstrate credibility and capability across a wide range of potential conflict scenarios (Brodie, 1966). With the outbreak of the Korean War, Nitze proposed the employment of tactical nuclear weapons against specific

¹⁸ Bernard Brodie and Henry Kissinger noted that, after further nuclear developments and study, they lost confidence in recommendations about whether and how to fight limited nuclear wars and returned to focus on conventional deterrence (Freedman, 1991).

¹⁹ Anthony Buzzard (1956) is attributed with developing the initial concept of graduated deterrence as an alternative to massive retaliation, an approach that theoretically allows a state to wage war while simultaneously providing latitude for simultaneous diplomatic efforts.

²⁰ National Security Council (NSC) policy paper 68 was a 66-page top-secret report to President Truman written in 1950 that outlined the underlying crisis between the US and the Soviet Union and the adversary’s respective capabilities from military, economic, political, and psychological standpoints.

military targets resulting in minimal civilian damage (Nitze, 1989).²¹ US political and military leaders contemplated the use of low-yield nuclear weapons in conflict. President Dwight D. Eisenhower, for instance, reportedly “observed that in a local war the tactical use of atomic weapons against military targets would be no more likely to trigger off a big war than the use of twenty-ton block busters” (Freedman & Michaels, 2019, p. 144).

Notably, this literature focuses primarily on the use of low-yield nuclear weapons to force, rather than compel, the opponent to capitulate during a conflict. Apart from a top-secret, unpublished, and purportedly buried military report in 1951 called *Project Vista* (of which Teller was a participant) that supposedly argued for the use of theater nuclear weapons against tactical targets to offset Soviet armies, I am unaware of any detailed analysis on the limited use of low-yield nuclear weapons in combat for the purposes of forcing deescalation (Elliot, 1986).²² The scholarship on escalation, compellence, brinkmanship, and limited nuclear war offers important clues about the viability and utility of low-yield nuclear weapon strikes in an escalate-to-deescalate strategy but, for a variety of reasons I elaborate upon further in the next chapter, cannot fully answer the question my dissertation investigates.

²¹ President Truman had even authorized General Matthew Ridgway “to use nuclear weapons [against specific military targets] if the situation arose” under the presupposition it would force Korean capitulation (Pape, 1996, p. 146). General Matthew Ridgway, as the commander of UN forces in Korea, is credited with helping to keep the Korean War from going nuclear, as President Truman reportedly allowed nine nuclear bombs with fissile cores to be transferred into Air Force custody and transported to Okinawa under Ridgway’s operational control. See Posey (2015) *How the Korean War Almost Went Nuclear* and Dark Docs (2020) *When America’s Generals Tried to Nuke North Korea*.

²² Project Vista, named for the hotel Vista del Arroyo in California, was a top-secret study conducted by the DoD involving more than one hundred senior military officers, scientists, nuclear physicists, and prominent academics from the California Institute of Technology, Massachusetts Institute of Technology, and Lincoln Labs to address the Korean War in particular and the Cold War at large. It was an attempt by the military to problem-solve issues through technology and focused primarily on the role of tactical nuclear weapons as a means of avoiding the notion of massive retaliation and a huge conventional military buildup. It apparently caused significant consternation between proponents of air power and ground troops. See David Elliot’s (1986) *Project Vista and Nuclear Weapons in Europe*, Patrick McCray’s (2004) *Project Vista, Caltech, and the Dilemmas of Lee DuBridge*, and Alex Wellerstein’s (2015) *Oppenheimer, Unredacted-Reading the Lost Transcripts*.

We are thus left in an uncomfortable position: nuclear weapons states are increasingly developing the tools and doctrine for nuclear escalate-to-deescalate strikes but existing work by nuclear scholars and theorists do not fully address the question of whether or not such attacks are likely to work as states appear to assume, and, if so, under what circumstances. This is true, even though this lacuna in the literature has been observed in the past. As Tom Nichols, Douglas Stuart, and Jeffrey McCausland note in their *Tactical Nuclear Weapons and NATO* (2012), the potential employment of low-yield nuclear weapons and their respective strategies, such as escalate-to-deescalate, is understudied, both within and outside of government. The authors note, “Tactical nuclear weapons, although less awesome than their strategic siblings, carry significant security and political risks, and they have not received the attention that is commensurate with their importance” (Nichols, Stuart, & McCausland, 2012, p. 507). This dissertation, by focusing precisely on these issues, will thus help fill a crucial theoretical void and address an increasingly pressing policy and security issue. As Herman Kahn noted, “Terrible as nuclear weapons are, they exist and therefore may be used” (Kahn, 1984, p. 91). The prospect of states using a low-yield nuclear weapon cannot be dismissed, and thus an investigation into how such weapons might be employed, and to what effect, is required.

1.3 Main Argument and Findings

I argue that there are specific conditions necessary for a low-yield nuclear escalate-to-deescalate strike to result in the desired response of capitulation. In particular, I contend that three variables – a targeted state’s danger situation, the value of the target struck, and the damage inflicted – collectively condition how a victim will respond to an escalate-to-deescalate strike. The

targeted state, primarily informed by its own danger status in the wake of a strike, can gain a sense of the credibility of the escalator's threat of future violence by considering the particular target struck and the damage inflicted; different kinds of targets and different levels of damage send different signals. The combination of the targeted state's danger situation and the credibility of the escalator's compelling threat then determines whether the victim responds with either capitulation, continued fighting, or counter-escalation. I argue, and the evidence presented in this dissertation demonstrates, that there are specific, albeit rare, conditions required to produce the desired outcome of capitulation. **Table 1.2** below portrays the variance in combinations and the anticipated outcomes, listing first, the combinations most likely to result in capitulation. Divergence from these conditions is likely to result in an escalate-to-deescalate failure, and a targeted state responding to such a strike with continued fighting or counter-escalation. As such, leaders of would-be escalating states and potential victims should both take note of the former's capacity to execute an escalate-to-deescalate strike, the latter's potential mitigation strategies, and both sides' consequence management approaches.

Table 1.2: Combinations Likely Resulting in Capitulation

Danger Situation	Target Value	Target Damage	Response
High	Low	High	Capitulation
Low	High	High	Capitulation
Low	Low	High	Capitulation
High	High	High	Counter-Escalation
High	High	Low	Continued Fighting or Counter-Escalation
High	Low	Low	Continued Fighting or Counter-Escalation
Low	High	Low	Counter-Escalation
Low	Low	Low	Continued Fighting

Throughout the subsequent chapters, I examine historical instances of conflict in which an escalate-to-deescalate strike was attempted for the purposes of obtaining capitulation. As there are zero examples of low-yield nuclear escalate-to-deescalate attempts, I consider evidence about the use of this potential tactic from the realm of conventional conflict, albeit often when the use of unconventional weapons is involved. Methodologically, I performed a qualitative analysis of near-history cases in which an escalator crossed a threshold, intentionally, for the purpose of demonstrating that it possessed both a will and an ability to inflict greater levels of harm if the opposing side did not back down. The results of this study reveal the intended response of capitulation only occurred in two of my considered historical instances. The remaining escalate-to-deescalate strikes all resulted in failure, as the struck state continued fighting or, even worse, counter-escalated in response. The rarity of success should serve as a stark warning for states contemplating an escalate-to-deescalate strike.

For scholarly researchers, this dissertation addresses a gap in the literature by focusing on historical instances of escalate-to-deescalate strikes. Opportunities are ripe for further research into escalation dynamics, low-yield nuclear weapons, and conflict resolution. For political and military leaders, this study annotates the specific conditions necessary for an escalate-to-deescalate strike to succeed – and provides clearer guidance than currently exists on a crucial question. Further, it identifies those conditions in which an escalate-to-deescalate strike is likely to fail.

1.4 Outline of this Dissertation

The remainder of this dissertation is organized as follows: Chapter 2 proposes three variables (State Danger Situation, Target Value, and Target Damage) that are likely to drive potential responses by states attacked in escalate-to-deescalate strikes and lays out how they interact to incentivize capitulation (escalate-to-deescalate success), continued fighting (escalate-to-deescalate failure), or counter-escalation (escalate-to-deescalate failure). It also details the research methodology I use to test my argument and introduces the selected case studies.

Chapters 3 through 6 empirically test my claim in historical case studies in which a state crossed a firebreak as part of an escalate-to-deescalate strike. Chapter 3 investigates the 1938 Battle of Wuhan, in which Japan's escalate-to-deescalate attempt succeeded in causing China's capitulation. Chapter 4 investigates the United States' 1968 Operation Rolling Thunder-5, carried out against North Vietnam, which failed to compel capitulation. Chapter 5 investigates the United States' 1945 Operation Meetinghouse strike against Japan, which also failed in its escalate-to-deescalate intent. Chapter 6 provides four additional brief case studies that capture additional dynamics outlined in my theoretical framework. Finally, in Chapter 7, I summarize and extend my

analysis of the case studies, discussing the generalizability and limitations of my claims. Given the pressing theoretical and policy need for additional investigation of the efficacy of escalate-to-deescalate strikes, I also discuss implications of my findings for scholars, policy makers, and military leaders.

2.0 The Success and Failure of Escalate-to-Deescalate Strikes

This chapter explains what escalate-to-deescalate strikes are and under what conditions they are likely to succeed and fail when utilized by states in combat. Broadly, an escalate-to-deescalate strike during an ongoing war or conflict is an attacker's attempt to violently *signal* to its foe in the midst of combat that it is willing to cross a threshold and impose further serious punishment if the attacked state does not back down. Said differently, an escalate-to-deescalate strike is a compellent attempt, through the application of violence, to credibly signal to the attacked state that it will suffer further (potentially devastating) violence if it does not alter its behavior in ways the attacker prefers. Credibility is central to the success of compellent threat, but it is difficult to establish through the use of military force during combat. An attacker must thus strive to ensure that its escalate-to-deescalate strike not only places the target in an undesirable strategic position in the moment, but also convinces the target state that it has both the will and means to employ further violence. These are high hurdles to cross and, at the broadest level, I contend that escalate-to-deescalate strikes are only likely to succeed under specific, generalizable conditions that turn on the attacked state's danger situation, the value of the target attacked, and the damage inflicted on the target.

After discussing the underlying logic of escalation theory in more detail, I lay out in this chapter a generalizable theory of conditions required for an escalate-to-deescalate strike to succeed. In doing so, I identify the range of responses available to an attacked state and operationalize the independent variables that impact the attacked state's response selection, the dependent variable. I use my theory to generate a typology of combat conditions and the likely success or failure of escalate-to-deescalate strikes in each. This chapter concludes with a

discussion of the methodology utilized in the subsequent chapters to evaluate the validity of my claim.

2.1 Escalating to Deescalate

A common thread linking contemporary thought on nuclear warfighting is the potential use of such weapons for escalatory purposes.²³ There is a resurgence in thinking about nuclear escalation and the potential for nuclear weapons use today. Brad Roberts, the director of the Center for Global Security Research at Lawrence Livermore National Laboratory, notes that, in such an environment, there is a need for renewed scholarly investigation into the dynamics of escalation and, among practitioners, a need for the various nuclear camps to entertain the arguments from across the aisle to recognize US inadequacy in understanding and responding to nuclear issues in the current complex geopolitical environment (Roberts, 2016).²⁴ Roberts was one of the first high-level officials to identify Russia's integration of nuclear weapons into its conventional war plans, or Conventional Nuclear Integration (CNI), and highlight its strategy of escalate-to-deescalate, potentially through the use of low-yield nuclear weapons. He argues that policy makers in the US need to reevaluate American assumptions of what an opposing state may do, including the potential to resort to "nuclear coercion and blackmail [as], in extremis, they could resort to nuclear

²³ The basis of the 2018 Nuclear Posture Review, for example, is predicated upon the possibility that a nuclear-armed state, such as Russia, might utilize a low-yield nuclear weapon for the exact purpose of escalating-to-deescalate. See also, Katarzyna Zysk's (2017) *Nonstrategic Nuclear Weapons in Russia's Evolving Military Doctrine*.

²⁴ Brad Roberts' (2016) nuclear camps include: 1) those who see the risk of nuclear terrorism as high, seek the abolition of nuclear weapons, and advocate for US nuclear reduction; 2) those who accept nuclear weapons as necessary and useful, recognize risks from state and nonstate actors, and argue for retention of US nuclear weapons for military and political purposes; and 3) a necessary, but nonexistent, balanced approach that focuses on creating conditions that allow nuclear weapon states to reduce the role and number of weapons but recognizes a need to develop a deterrence model suited for the 21st century (p. 1-4).

employment and escape conflict with the United States with some of their main interests intact” (Roberts, 2016, p. 6). To assess the validity of these concerns, and begin answering the questions arising from these developments in contemporary nuclear strategizing, it is necessary to think more seriously about escalation, escalate-to-deescalate strikes, and when they are likely to achieve their objectives. It is to that task that I now turn.

Considering first the concept of escalation, a RAND report, *Dangerous Thresholds: Managing Escalation in the 21st Century*, defines the term “as an increase in the intensity or scope of conflict that crosses threshold(s) considered significant by one or more of the participants” (Morgan, et. al., 2008, p. xi). Escalation is an interactive phenomenon between two parties that can result deliberately, inadvertently, or accidentally from several factors, including mistrust, leading to what Robert Jervis (1976) identified as a spiral model.²⁵ The concept of escalation addressed here is that of deliberate escalation where an actor intentionally crosses a threshold. Once a conflict has begun, it has the “potential of widening in geographic scope and involving additional nations (sometimes called *horizontal* escalation) or of becoming more intense in the tempo of events and the violence of weapons employed (*vertical* escalation)” (Smoke, 1977, p. viii).²⁶ Forrest Morgan, et. al., offer a third dimension of escalation – political escalation – during which leaders “relax or abandon behavioral constraints or rules of engagement” to achieve a desired outcome (Morgan, et. al., 2008, p. 20). That is to say, “escalation could result by invading additional territory, attacking new states or an ally or client of the opponent, or quantitatively

²⁵ Glenn Snyder and Paul Diesing, in their (1977) *Conflict Among Nations: Bargaining, Decision Making, and System Structure in International Crises*, recognize the concept of a ‘fear spiral’ resulting from the emotion of fear that distorts a decision maker’s calculating process and perceptions resulting in overreaction (p. 26).

²⁶ Some scholars refer to escalation as either explosion or expansion. Escalation of conflict can result in *explosion*, a sudden transformation from a limited war into total war between the two belligerents or an *expansion* of the conflict, potentially involving adjacent states, additional allies, or foes, resulting from a gradual increase in the level of military force employed (Halperin, 1963; Kahn, 1965a).

increasing the intensity of the conflict by using more equipment or even new types of weapons” (Lauren, 1994, p. 36). In this regard, this contemporary understanding of escalation echoes long-standing strategic historical thought. Carl von Clausewitz recognized the dual nature of conflict, with its simultaneous tendencies of escalation and limitation in order to achieve “the ultimate aim of contemporary warfare, the political object” (Clausewitz, 1984 [1874], p. 227).²⁷ Indeed, some contemporary thinking does more than echo classical understandings. Writing in the *Nonproliferation Review* on the Indian-Pakistan conflict, Director-General of Military Operations of the Indian Army, V.R. Raghavan recognizes the potential of escalation between the two nuclear-armed countries in particular and could be paraphrasing Clausewitz, stating, “War by its nature favors escalation... Escalation is inherent in war both because [of] the desire to win, and the need not to lose” (Raghavan, 2001, p. 96).

The model of escalation, as understood in this dissertation, is akin to that of Herman Kahn’s (1965) metaphor of a ladder, which assumes states possess the ability to move up or down the rungs in a conflict. It assumes actions undertaken in a conflict is a result of utilitarian calculation (Schelling, 1960; Kahn, 1965a, 1965b; Lebow, 1981). While escalation of this sort and in this fashion can happen for multiple reasons and in multiple ways, I focus on a particular form: the intentional expansion in the use of force to shape an adversary’s behavior. In the abstract, such intentional escalation could take two forms: *escalate-to-win* and *escalate-to-deescalate*. In the former, the escalator seeks to emerge victorious as a direct result of rapidly increasing violence during a war to render the opposing state unable to continue the fight. *Escalate-to-win* involves

²⁷ Clausewitz also recognizes that while the pure intent of war is to overcome and disarm the enemy through destroying its military forces, occupying its territory, and breaking its will to continue, these objectives are not true requirements. Clausewitz finds that demonstrating to the enemy “an improbability of victory,” and demonstrating an unacceptable cost” to do so can achieve the desired victory (Clausewitz, 1989 [1874], p. 90-91).

striking an opponent with (intended) overwhelming violence anticipated to be sufficient to remove any ability for the struck state to continue or strike back. The concept is essentially forcing the weak to suffer what they must, as noted by the Athenians at Melos (Thucydides, 1982). In the latter, the escalator seeks to achieve its objectives by escalating violence to the point that the opposing side is placed in a position where it *chooses* to stop fighting, even if it has the means to continue engaging in combat. The outcomes may appear the same, with the escalator emerging victorious, but the intervening logics are vastly different. With escalate-to-deescalate strikes, the escalating state demonstrates its credible latent violence, leaving the choice for the struck state to climb up or down the escalatory ladder. To paraphrase Sparta's King Archidamus, the concept of escalate-to-deescalate allows the opponent to see the escalator's actual strength is in line with its messaging. In this manner, a struck state is "inclined to give way... thinking of the advantages which they still possess and which have not yet been destroyed" (Thucydides, 1982, p. 58). The concept of escalate-to-deescalate is therefore predicated upon the notion that there is a variety of outcomes between the abject surrender and the total annihilation of a state (Kahn, 1965a). The focus of nuclear powers' emergent thinking on nuclear warfighting, and therefore my investigation, focuses on the dynamics of the latter.

Escalate-to-deescalate is thus the intentional increase of violence in a manner that is intended to communicate some signal to the opposing actor in the hope of ending the existing conflict on favorable terms.²⁸ It is a tactic whereby a state "calculates that, by escalating to the use

²⁸ Herman Kahn highlighted the potential use of low-yield nuclear weapons noting that, "the first use of nuclear weapons - even if against military targets - is likely to be less for the purpose of destroying the other's military forces or handicapping its operations, than for redress, warning, bargaining, punitive, fining, or deterrence purposes. For example, one side could drop a nuclear bomb or two in order to show the other side that, unless it backed down or accepted a reasonable compromise, more bombs would be likely to follow" (Kahn, 1965a, p. 138). Succinctly, an escalator could employ, as a violent communique, a low-yield nuclear weapon to demonstrate resolve.

of additional types of weapons, the less constrained use of force, or the widening of the war, it stands to improve its fortunes” (Morgan, et. al., 2008, p. 21). More specifically, it is intended to communicate the attacking state’s willingness and ability to continue using, and even increase, violence if the attacked state does not alter its course. Escalate-to-deescalate sends such a signal through the crossing of a *firebreak*.²⁹ In this deliberate, strategic move, the escalator decides to raise the stakes of an ongoing war by crossing a firebreak and moving to a new rung on the escalation ladder that the adversary is assumed to not be willing to go (Kahn, 1965a). The escalating actor’s intentional firebreaking demonstrates (or is at least intended to demonstrate) to the opposing side that the initiator values the contested issue more than the target and is willing to engage in further conflict (raising the ante) in order to acquire it.³⁰

²⁹ In 1965, Assistant Secretary of Defense Alain Enthoven declared that there is “an important distinction, a ‘firebreak’ if you like, between nuclear and non-nuclear war, a recognizable qualitative distinction that combatants can recognize and agree upon” (Enthoven, 1965, p. 124). Herman Kahn acknowledges that “there are very large and very clear ‘firebreaks’ between nuclear and conventional war,” but that, “in some circumstances, some kinds of limited nuclear war are clearly possible” (Kahn, 1984, p. 29). While a nuclear tradition of non-use has existed since 1945 despite numerous conflicts between nuclear-armed states, there is no empirical data to calculate the durability of this norm or firebreak in the future (Klare, 1985).

³⁰ Rebecca Hersman (2020, 2021) utilizes the term “firebreaking” to signify the crossing of a clearly established threshold, or firebreak during a conflict. She argues that intentional firebreaking has largely gone away as we are now no longer able to identify a clear firebreak as a result of the integration of new technology, dual-capable platforms, integrated command and control networks, and sub-conventional influence. She argues that firebreaks are very ladder oriented and not a viable framework for thinking about escalation today. From her perspective, near-nuclear conventional weapons afford belligerents opportunities to escalate the conflict in a manner similar to, or akin to nuclear weapons. These weapons include a new generation of highly lethal high-tech weapons, ranging from smart-bombs and penetrators capable of attacking hardened or deeply buried facilities, to cluster munitions with new explosive mixtures and fragmentation effects capable of saturating the battlefield and rendering entire areas uninhabitable. Modern great powers continue technological advancements of these weapons in an effort to maintain escalation dominance. At the same time, third-world countries are increasingly in possession of these same conventional weapons that hinder a powerful state from dominating the battlefield and identifying a feasible firebreak (Klare, 1985). While Hersman offers a valid descriptive point, I think it is still important to recognize the ladder-like aspect of escalation with the ability of the state to utilize a wide variety of tactics in crossing the firebreak and acknowledging that it is possible to skip rungs entirely – much like Kahn’s (1965a) elevator metaphor that allows for the skipping of floors. Further, while firebreaking is generally associated with nuclear weapons, it is also possible to cross this threshold with conventional ordnance, as Hersman identified. In this concept, a firebreak is akin to a ‘focal point’ which is different from the status quo conflict specifically because it is ‘different.’ Thomas Schelling (1966) highlights this concept during the Korean War as an event similar to the crossing of a line of latitude on the map or crossing a prominent geographical terrain feature such as the Yalu river.

Framed slightly differently, escalate-to-deescalate, at the broadest level, is a tool of coercion. Coercion, a concept dating back at least to the fourth century BCE, is “based on the power to hurt” (Schelling, 1966, p. 5).³¹ Coercion is “the use of threatened force, and at times the limited use of actual force to back up the threat, to induce an adversary to change its behavior” (Byman & Waxman, 2002, p. 1). Coercion is not aimed at the destruction of the opposing side; rather, it is the threat of conditional violence coupled with the demonstrated ability and willingness to change an undesired behavior if compliance is not forthcoming (Schelling, 1966; Byman & Waxman, 2002).³²

Narrowing the focus further, escalate-to-deescalate is a particular form of coercion: compellence.³³ Compellence generally is the threat of the initiation and sustainment of punishment until the targeted actor changes its behavior to align with the preferences of the threatener; as Schelling notes, it takes “the form of delivered damage, not just verbal threats of damage;” and “communicates the threat by progressive fulfillment” (Schelling, 1966, p. 175). Escalate-to-deescalate in these terms is the use of violence in the context of an ongoing conflict to communicate to the targeted actor that the escalator possesses the willingness and ability to impose and continue imposing ever-greater costs until its demands are met.³⁴ It is akin to hurting as a

³¹ See, for instance, Plato’s *Laws* and Aristotle’s *Nicomachean Ethics*. Alan Wertheimer’s (1988) *Coercion* develops a theory of coercion that is rooted in legal theory and social and political philosophy. Wertheimer addresses the distinctions between *persuasion* and *manipulation*, and their utilization by an actor to threaten another actor to achieve a desired outcome. See also, Denis Arnold (2001) *Coercion and Moral Responsibility* and Phil Haun (2015) *Coercion, Survival, and War: Why Weak States Resist the United States*.

³² Albert Wohlstetter’s (1958) *The Delicate Balance of Terror* introduces the concept of ‘credibility’ to be as important as capability in legitimizing deterrent threats.

³³ Compellence is similar to what Alexander George and William Simons (1994) term *coercive diplomacy*. George and Simons argue the primary goal of coercive diplomacy “is to persuade the opponent to stop or to undo encroachment instead of bludgeoning him into doing so or physically preventing him from continuing” (p. 11). The *bludgeoning* aspect is akin to an escalate-to-win concept as it removes the ability of the attacked state to respond.

³⁴ This escalate-to-deescalate concept is not *brinkmanship*, as defined by Schelling (1960, 1966), as there is no shared risk between the two belligerents, nor is the situation ever deliberately “somewhat out of hand” (Schelling, 1960, p. 200). The escalator is utilizing or applying a requisite amount of violence which it believes will result in capitulation. The escalator has no desire to bring the conflict to a precipice in which it is tied to the opponent.

military tactic of punitive action. A good example of this logic is aerial bombardment. Air power theorists such as Giulio Douhet, Curtis LeMay, and William ‘Billy’ Mitchell argue that the bombing of enemy homelands imposes destructive costs upon the targeted nation, thereby encouraging it to either capitulate or face continued bombardment (Lofgren, 2002).³⁵

Escalate-to-deescalate is thus diplomacy; “vicious diplomacy, but diplomacy,” nonetheless (Schelling, 1966, p. 2). Crucially, because it is diplomacy, both parties have agency. In particular, the coercer issues the threat, but the success of the threat “requires a decision by the actor being coerced” that the interaction be resolved, “thus placing the outcome in the [threatened] *actor’s* hands” (Biddle, 2020, p. 97-98, emphasis in original).

Under what conditions are victims of escalate-to-deescalate strikes likely to decide to be coerced? Two factors matter, and they both stem from what Schelling refers to as “violence held in reserve” (Schelling, 1966, p. 130). First, the attacker must use enough of its violent potential that it places the target in an undesirable situation. Without such placement, the target is relatively unlikely to believe that the attacker can make good on its threat. Second, the attacker must credibly communicate that it will continue, or even escalate, the punishment inflicted if the target does not choose to alter its behavior. Often, an attacker employing an escalate-to-deescalate strike will pair it with “appropriate communications,” including “the signaling, bargaining, and negotiating that are built into the conceptualization and conduct of any military alerts, deployments, or actions” (George & Simons, 1994, p. 10). Such words and actions can easily be regarded as “cheap talk” regarding the attacker’s violence held in reserve, however, claims and assertions do not necessarily send reliable signals about the willingness and ability of the attacker to make good on its threat

³⁵ Bernard Brodie (1959) also addresses this concept of targeting cities and the civilian population as a method of deteriorating the military and the overall war effort. Clausewitz (1989 [1874]) finds demonstrating unacceptable costs, through increasing the enemy’s suffering, can impact the enemy’s willingness to continue fighting.

(Kydd, 2003).³⁶ The effects of the escalate-to-deescalate strike therefore assume special significance in establishing credibility: the attacked state will consider the damage, including whether it is repairable and bearable or irreparable and unbearable, and will use it to assist in inferring the capacity of the attacker to inflict additional future harm (Roberts, 2016).

When attackers using escalate-to-deescalate strikes are able to both put the target in an undesirable position and credibly threaten the continued use of violence held in reserve, attacked states are likely to be coerced – to *capitulate*. Capitulation, as used in this study, refers to the deliberate act of submission, retreat, or concession to the demands of the attacking state.³⁷ The escalate-to-deescalate strike, in this instance, is intended to initiate actions that could become “off-ramps or negotiations that may result in a termination of the conflict on terms favorable” (Kofman, Fink, & Edmonds, 2020, p. 18). Crucially, capitulation thus does not necessarily equate to abandoning the war or even the initiation of conflict resolution mechanisms such as negotiation, arbitration, and institution building. Capitulation during a battle, for example, can involve simply ceding the field in the hope of gaining an opportunity for continued fighting elsewhere or at a later date. Successful capitulation, for the purpose of this study, is defined as the decision of the struck state to initiate conflict termination efforts, such as climbing down an escalation ladder – although

³⁶ Vincent Crawford and Joel Sobel (1982), Joseph Farrell and Matthew Rabin (1996), and Andrew Kydd (2003) study strategic communication in which a sender attempts to provide credible, yet private, information to a receiver as the two sides generally have divergent understandings of what each side prefers and even about what is available. See also, Robert Jervis (1976), Jervis, Richard Ned Lebow, and Janice Stein (1985), James Fearon (1995), and James Morrow (1994), among others, on signaling and conflict, as “signals that seem clear to the sender are *missed* or *misinterpreted* by the receiver; actions meant to convey one impression often leave quite a different one” (Jervis, Lebow, & Stein, 1985, p. 1, emphasis added).

³⁷ I recognize that, in many instances of capitulation, the attacked state’s military forces will continue to engage in combat across the battlefield, executing the orders they were tasked to undertake, as it takes time for the ceasefire order to trickle down this is still capitulation. For example, at the conclusion of World War One, over 3,000 soldiers on both sides were killed and over 8,000 were wounded between the time the Armistice was signed – around 0500 the morning of 11 November 1918 – and when the ceasefire went into effect at 1100 as bitter fighting continued. See the Naval History and Heritage Command at: <https://www.history.navy.mil/browse-by-topic/wars-conflicts-and-operations/world-war-i.html>.

this can also simply be the act of trading space for time. As noted, it is not the unequivocal order of surrender.

The response of capitulation following an escalate-to-deescalate strike is not a given; as Lawrence Freedman and Jeffrey Michaels note, “The opponent has the choice of making the situation more dangerous or less so” (Freedman & Michaels, 2019, p. 315). When attackers fail to put attacked states in undesirable positions and credibly threaten future punishment through the use of escalate-to-deescalate strikes, the latter may respond in one of two ways: *continued fighting* or *counter-escalation*. Continued fighting involves rejecting the demands of the attacker by not only executing existing military orders, but also continuing to provide additional orders and battleplans for the combatants to carry out in the current engagement. Continued fighting, as a response to an escalate-to-deescalate strike, is the decision of the attacked state to ignore the signals provided in the attack, and to remain in close battlefield contact where the exchanging of arms, ammunition, and explosives takes place. Counter-escalation is the attacked state’s overt act of retaliation against the escalating state, accepting that the conflict has risen to a higher level and raising it again. In responding to escalate-to-deescalate strikes, attacked states employing counter-escalation may explicitly target cities, resort to larger weapons (accepting the additional risk of collateral damage), or utilize previously restricted weapons such as cluster munitions, thermobaric ordnance, or chemical weapons.

For an attacker employing an escalate-to-deescalate strike, failure to coerce the attacked state into capitulation and instead provoking either continued fighting or counter-escalation is a dangerous proposition. In such cases, “either a stalemate must be reached or one side or the other must abandon its effort[s],” as the “risk of total war [may become] excessive in a conflict that is

not ‘worth it’” (King, 1957, p. 245). Accordingly, anticipating the likely result of any escalate-to-deescalate strike is essential.

Anticipating which response will be adopted by an attacked state is fraught with uncertainty, but, by assuming that belligerents are broadly rational, it is possible to develop a probabilistic framework for predicting the most-likely outcome of an escalate-to-deescalate attempt. I make such an assumption here. Specifically, I assume that states on the receiving end of an escalate-to-deescalate strike are rational actors that prefer at least three things, in descending order of importance: survival, victory in war, and minimizing costs.³⁸ The initial focus of a state, post-strike, is in ensuring its own survival. The state, already engaged in the conflict, will want to ensure its continued existence. Satisfying that initial requirement, the state, engaged in a war, will then desire to succeed by ending the conflict on terms preferable to it. Lastly, the state will seek to minimize the costs required to survive and succeed.

This assumption is useful insofar as it facilitates analysis of escalate-to-deescalate dynamics, but it also aligns with how scholars and analysts typically approach the study of war and coercion. Some are explicit in this regard: Schelling (1960), for instance, argues such an assumption is necessary to allow for consistency in analyzing state-participant actions across a broad range of conflicts.³⁹ Others implicitly rest their analyses on assumptions of rationality:

³⁸ Charles Glaser (2010) notes states are rational, regardless of sometimes failing to act rationally, as states consider motives, material, and information in determining strategies of engagement with other states.

³⁹ In this, Schelling reflects a widespread tendency across disciplines. To be sure, there are qualifications made to rational actor assumptions: research has discovered individuals attempt to maximize utility by satisficing or utilizing bounded rationality to muddle through current situations and the potential outcomes as there are limits to thinking capacity, an availability of information, and time. Nevertheless, assuming that actors generally behave in broadly rational ways remains a common and useful assumption. See, for instance, Herbert Simon (1978, 1979, 1985) and Charles Lindblom (1979).

Clausewitz, for example, holds that states in the purposeful act of war as a logical extension of politics when attempting to bend adversaries to their will (Clausewitz, 1989 [1874]).⁴⁰

To assert that assuming attacked states are rational facilitates development of a framework for anticipating their responses to escalate-to-deescalate strikes is not to claim that such an effort is simple or straightforward. In existing scholarship, metaphors of ladders or elevators are often used to describe coercive escalation and the responses it engenders as a linear path, with the progression of steps from relative peace (or status quo) through crisis, conflict, and war (Kahn, 1965a). Similarly, games of chicken or a union strike are often highlighted in game theory models to demonstrate how escalation is used to directly achieve intended outcomes. However, like all simplifications and analogies, these games can mislead, as they tend not to account for the entire spectrum of pressures acting upon attacked states, the outcomes that may result from attacked states' choices, or how such factors may interact. Put differently, such simple frameworks and games attempt to impose linear dynamics on an inherently non-linear process (Hersman, 2020). Accounting for non-linearity in wartime dynamics is essential. Even Clausewitz acknowledges, in the first book of *On War* with his focus on the “paradoxical trinity,” that conflict “is inherently a nonlinear phenomenon” (Clausewitz, 1989 [1874], p. 89; Beyerchen, 1992, p. 61).⁴¹ Without accounting for non-linearity, if states do attempt to forecast the likely success or failure of an escalate-to-deescalate strike, they will often do so poorly.

The more sophisticated model for anticipating attacked states' responses to escalate-to-deescalate strikes that I propose accounts for the interaction of multiple variables that affect such

⁴⁰ Additionally, scholars like Bruce Bueno de Mesquita (1981), in his study of causes of war recognizes a rational leader will align, or tie, their interests to that of the state and would therefore not start or continue fighting in a conflict if that leader perceived the net results to be less than maintaining the peace or capitulating to the opposing state.

⁴¹ Clausewitz's trinity is composed of the concerns of the people, the commander and his army, and the government (Clausewitz, 1984 [1874]).

actors' decisions to capitulate, continue fighting, or counter-escalate. Specifically, I argue in this dissertation that understanding the conditions under which escalate-to-deescalate strikes are likely to succeed or fail may be gained by considering three variables: the danger the attacked state faces as a consequence of the escalate-to-deescalate strike, which speaks to the relative undesirability of the situation confronted; the value of the particular target struck, which indicates an adversary's willingness to engage in future violence; and the damage inflicted in the escalate-to-deescalate strike, which speaks to the attacker's ability to continue to employ its violence currently held in reserve if capitulation is not forthcoming. These three crucial variables, and their interaction, are discussed in detail in the next three sections.

2.2 An Undesirable Situation: Regime Danger

During a war, the two belligerent sides strive to obtain, secure, or successfully defend the issue of the conflict, whether that be disputed territory; valuable resources; cultural, ideological, or religious values; or economic considerations. During a war, a state may attempt, for the reasons delineated above, an escalate-to-deescalate strike to end the conflict on preferable terms. The responses available to a state reacting to an escalating state are to *capitulate* to the escalator's demands, to maintain the status quo through *continued fighting*, or to *counter-escalate* in an effort to punish the transgressor and attempt to control the escalation in order to resolve the conflict on preferable terms. The attacked state's relative danger situation in the wake of an escalate-to-deescalate strike will powerfully condition how it responds to the attempt.

The relative danger faced by an attacked state in the wake of an escalate-to-deescalate strike can range from extreme to virtually nil. The extreme end of the spectrum is the most trying

for an attacked state. At the extreme end, such an actor may find itself in a *high-danger* situation as the result of facing one or more of three possibilities: 1) losing control over the military, such as through a military overthrow of the government, much like the 1962 Burmese coup d'état; 2) losing control over the civilian populace, such as an insurrection in which the populace revolts against the constituted government and places a new leader in charge, as occurred during the Iranian Revolution of 1978-1979; and, 3) losing control over its ability to govern as a result of conquest, such as the occupation of Czechoslovakia by Germany at the outset of WWII.⁴² By contrast, an attacked state faces a *low-danger* situation if it does not face the prospect of losing control of the military or its populace, or of being conquered by the opposing state as a result of the escalate-to-deescalate strike.

High- and low-danger situations incentivize different responses by attacked states. Considering first states that find themselves in low-danger situations after an escalate-to-deescalate strike, all else being equal, such actors are reasonably safe from loss to the command and control of the state through a coup, insurrection, or foreign invasion as such, will be less likely to fear the consequences of capitulation. They will thus be more likely to entertain the possibility of giving in to avoid further loss in the immediate term. The low-danger state, in its relatively secure position, is less likely to continue fighting or to counter-escalate, especially when the escalate-to-deescalate strike credibly signals the attacker is holding meaningful violence in reserve and is willing to use it. The state has the strategic flexibility to make concessions now, with the knowledge that capitulation affords it the time and space to rebuild or reallocate strength to strike

⁴² Schelling notes that a state may employ force to “repel and expel, penetrate and occupy, seize, exterminate, disarm and disable, confine, deny access, and directly frustrate intrusion or attack” dependent on the relative strength the state has over its opponent (Schelling, 1996, p. 1). Schelling’s argument on latent violence is that it can potentially be more potent than the initial punishment itself.

back at a more propitious moment. It is particularly unlikely that a state in a low-danger situation would counter-escalate in response to an escalate-to-deescalate strike, provided the attacking state has communicated it possesses both the means to inflict additional future violence and the willingness to capitalize on its “power to hurt” (Schelling, 1966, p. xiii).⁴³ In such instances, the attacked state is more likely to seek to avoid the possibility of turning the conflict into an existential crisis and view capitulation in the moment as better serving its overarching war strategy.

To reiterate, capitulation, in this instance, does not necessarily equate to abandoning the war. Rather, it is the submission, retreat, or concession of a particular object, demand, or piece of territory. It may involve the process of negotiation, arbitration, and institution-building often associated with conflict resolution, but does not need to. In many cases, capitulation in the current instance allows for the continued fighting in other arenas or locales later in the war. The act of capitulation, whether it be relinquishing contested territory or an agreement to meet for negotiations may only be “a tactical interlude, a breather for rest and rearmament,” without any true intent of forgoing the attacked state’s overall strategic objectives (Zartman, 2000, p. 227). The attacked state’s capitulation, in such cases, is merely a gamble that will allow it, ideally, to remain intact and in control, with a possibility of fighting again another day. Such acts of capitulation offer the attacked state the option of losing the battle with hopes of winning the larger war – as exemplified by the Soviet Union’s response to Germany’s conquering crusade in 1941 with Operation Barbarossa. Operation Barbarossa was a massive military undertaking by Adolf Hitler’s

⁴³ As noted earlier, the escalate-to-deescalate attempts studied here are akin to a limited sanction. As Robert Powell states in *Nuclear Deterrence Theory: The Search for Credibility*, “The crucial difference between a limited sanction and an unlimited sanction is that if a state imposes the former on an adversary, the adversary still has something left to lose, and the fear of losing what is left may constrain its retaliation. Imposing an unlimited sanction, however, leaves an adversary with nothing more to lose and little, if any, incentive to restrain its retaliation” (Powell, 1990, p. 148).

Wehrmacht that, at first, seemed like an invincible and unstoppable force of nature pitting the two sides against one another across a 1,000-mile front (Mitcham, 2009). Although not in response to an escalate-to-deescalate attempt, the Soviets capitulated to the German attacks multiple times, surrendering land, equipment, and soldiers, trading space for time (Clodfelter, 2008). The Soviet act of capitulation in response to German attacks allowed for the resumption of battle at a later date, at which time the Soviet state was able to overcome the German onslaught.

While the incentives faced by an attacked state in a low-danger situation will *generally* lead it to be more willing to capitulate and avoid significant risk in light of that escalate-to-deescalate attempt, not all such actors will give in. The credibility of the escalating state's implicit threat to employ more violence is essential here. If the escalate-to-deescalate strike does not demonstrate the escalator's willingness and ability to strike additional targets, even a state in a low-danger situation will have few incentives to capitulate. In such instances, continued fighting and even counter-escalation may be attractive options to some attacked states in low-danger situations. While the driving factor behind the tendency of low-danger states to capitulate is the expectation it could reverse the situation at a future, more propitious moment, the state may not believe it needs to trade such space for time if there is little reason to think the escalator possesses *both* the will and ability to use violence held in reserve. Continued fighting allows the attacked state to continue engaging and depleting the enemy's fighting capabilities in hopes of obtaining an outcome preferable to the attacked state. An attacked state in a low-danger situation may attempt this response if the escalate-to-deescalate strike fails to convince it that the escalator can or will make good on its threat. Counter-escalation could allow a low-danger attacked state to mete out a reprisal in the event it doubts the escalatory abilities of the opposing state. In either case, this

deviation of a low-danger attacked state from its general tendency to capitulate results from its lack of fear of the attacker's violence being held in reserve.

An attacked state in a high-danger situation, by contrast, will *generally* be more willing to run significant risks to extricate itself from the current situation. This willingness to run risks makes both counter-escalation and continued fighting attractive options in response to an escalate-to-deescalate strike as, per the demonstrated ability of the escalator, the attacked state may not have another opportunity to turn the tide of the battle. Counter-escalation offers an attacked state the opportunity to retaliate in kind and, in doing so, demonstrate to its populace that it is firmly in control of its armed forces and can prevent or diminish the possibility of their launching a military coup. The need to demonstrate the state's control over the situation can overwhelm policymakers' fears of the threat of the attacking state's violence being held in reserve and, as such, incentivize a forceful response. Similarly, continued fighting can offer attacked states in high-danger situations a plausible path forward. Like counter-escalation, continued fighting offers the state an opportunity to maintain the appearance of pushing back while attriting the attacking state's blood and treasure in the hope that *its adversary's* populace or military will pressure the state to forego further escalatory actions.

The logic of an attacked state's response when facing great peril is observed at work in the American Civil War. The US Confederacy, and the youngest of the Confederate full generals, John Bell Hood, was in a high-danger situation after suffering a series of escalate-to-deescalate attacks by Union General William T. Sherman during the 1864 Atlanta Campaign. Sherman practiced destructive warfare, or hard war, which included the violent acquisition of war materials, food stuffs, and the burning or destroying of anything of potential value to the Confederates in an

attempt to end the Civil War as rapidly as possible.⁴⁴ During one of the concluding battles of the US Civil War, Hood faced a high-danger situation and attempted to counter-escalate and take the fight to Sherman's forces on the outskirts of Atlanta. Hood's fighting style followed a direct and aggressive structure that sought to engage Sherman's Federal forces head-on in a series of brave, yet reckless, frontal assaults (McPherson, 1988). Hood perceived the immediate high-danger situation to his forces and attempted to take the fight to the enemy in hopes of breaking Federal momentum. In this particular instance, the high-danger situation Hood perceived was the direct threat to his continued position as a leading force for the South, his position of esteem as a high-ranking military commander, and even the viability of the Confederacy going forward. As a result, Hood attempted to take the fight to Sherman through counter-escalation to rectify the situation and secure his position and the potential existence of the South.

As is true with states in low-danger situations, there are circumstances in which attacked states facing high levels of danger may be incentivized to act against their dominant type. Capitulation is less attractive for an attacked state in a high-danger situation, as it requires the leadership to submit, either in part or in entirety, to the demands of the attacking state. This can result in the attacked state's leadership coming under even greater pressure and, in extreme cases, being exiled or even executed. However, if there is an absence of fear of the violence being held in reserve, as would result from the escalator's failure to adequately communicate its willingness and ability to employ future violence, the state may be willing to respond to an escalate-to-deescalate strike with capitulation, provided the requirements of said capitulation do not further

⁴⁴ Some have claimed Sherman practiced an early form of 'total war' that employed scorched earth tactics utilizing the power of terror and psychological warfare to break the enemy's will to resist. See, for instance, Groce's (2014) *Rethinking Sherman's March*, Davis' (2012) *What the Yankees Did to Us: Sherman's Bombardment and Wrecking of Atlanta*, Neely's (2004) *Was the Civil War a Total War?*, and Evans' (1962) *Confederate Military History: A Library Of Confederate States History*, Vol. 6.

jeopardize the existence of the state. Such a response would allow the attacked state the time and space necessary to resolve the danger situation it faces, then reassert itself on the battlefield.

In sum, following an escalate-to-deescalate strike, the danger situation faced by the attacked state is likely to powerfully condition such actors' responses. An attacked state facing a low-danger situation faces an array of incentives that make capitulation relatively attractive, while the incentives of an attacked state facing a high-danger situation make counter-escalation or continued fighting appealing. These tendencies are not absolutes, however, and, as described, there are circumstances under which an attacked state may deviate from their dominant inclinations. Specifically, a state may respond counter to its baseline tendency if it does not fear the escalator's violence being held in reserve – if the escalator fails to deliver a credible threat through the communication of its willingness and ability to inflict future violence.

Because focusing on the danger situation begins to suggest an answer to the question of the likely success or failure of an escalate-to-deescalate strike, but cannot on its own fully anticipate attacked states' responses, an additional variable must be considered. It is necessary to systemically account for the credibility of the attacker's inherent threat to continue inflicting punishment on its foe to understand when attacked states are unlikely to fear violence held in reserve and therefore act against type and capitulate, continue fighting, or counter-escalate in response to an escalate-to-deescalate strike.

2.3 Credible Threats: Target Value and Target Damage

The attacked state, regardless of its danger situation, must determine the credibility of the escalator to employ its reserved violence to make its decision about how to respond. As Glaser

(2010) notes, such credibility can be assessed through a state's willingness to send costly signals. Two such signals exist in the execution of escalate-to-deescalate strikes, and help attacked states in their assessments of escalators' credibility: the *value* of the target struck and the *damage* sustained by that target. Target value provides an indicator of the escalator's willingness to continue inflicting additional violence while the damage inflicted upon the target demonstrates the escalator's ability to successfully degrade or destroy additional targets. A strike against a high-value target demonstrates the escalator is likely willing to continue punishing its foe while a strike against a low-value target is more ambiguous on the point. An escalatory strike that results in high damage implies the escalating state has the ability to inflict harm against additional targets, if it chooses to do so. A strike resulting in low damage to the target may raise doubts about the escalator's ability to make good on its compelling threat. The combination of these two variables can thus provide the attacked state with important insight into the overall credibility of the escalator's implicit threat to employ its reserves of violence.

2.3.1 The Value of a Target

In war, when clear communication is difficult, the target of an escalate-to-deescalate strike, as noted above, serves as an indicator to the attacked state of the escalator's willingness to continue hitting additional targets if capitulation is not forthcoming. Consistent with the discussion of escalate-to-deescalate above, I assume escalating states knowingly and intentionally select specific targets for the purpose of maximizing the success of their strike, including establishing the credibility of their threat to continue hitting similar or even more important targets in the future. Even so, escalators are likely to find it difficult to reliably communicate their willingness to carry out strikes against future targets. As Schelling notes, "The hardest part is communicating our own

intentions. War at best is ugly, costly, and dangerous, and at worst disastrous. Nations have been known to bluff..." (Schelling, 1966, p. 35).⁴⁵ The message sent will inevitably be noisy and messy, but some communication can be achieved by striking particularly high- or particularly low-value targets.

Intrinsic to an escalate-to-deescalate strike is the target struck by the escalator to compel its foe. A target, as defined by the US Joint Targeting School, "is an entity (person, place, or thing) considered for possible engagement or action to alter or neutralize the function it performs for the adversary" (DoD, 2017b, p. 29). The document elaborates on targets further, stating that a target may include the following: a facility, an entity, individuals, equipment, or an organization such as a military unit (DoD, 2017b).⁴⁶ Intuitively, some targets are worth more to attacked states than others. In the messiness and noisiness of war, such targets are also valuable to attackers, as they provide the opportunity to communicate more, and more efficiently, than others.

There have been many attempts to define value by scholars from various scholarly disciplines, including economics, psychology, sociology, and ethics.⁴⁷ Most are far too nuanced to be useful to attacking and attacked states attempting to communicate through the application of violence on the battlefield. Some relatively straightforward measure of value is required. One potential such way to discriminate between targets in this regard is by looking to how leaders in

⁴⁵ As Daryl Press notes, "In every competitive environment – sports, gambling, chess, warfare – competitors use feints and bluffs to tremendous advantage" (Press, 2005, p. 7).

⁴⁶ The document includes virtual targets found in cyberspace including websites, financial accounts, or online personas; however, this type of target is not addressed in this study, as it only focuses on the kinetic effects of striking a target.

⁴⁷ See, for instance, Aristotle's *Nicomachean Ethics*, Karl Marx (1954), John Stuart Mill (1864), and Piero Sraffa (1960) who determine value in relation to labor, time and capital. Many theorists see the value of goods as the "transformation of natural assets through labor" (Beckert & Aspers, 2011, p. 4). Jens Beckert develops a typology of value that centers around physical, symbolic, imaginative, and positional value (Beckert, 2011, p. 111). Francesco Orsi (2015) studies value in judgements of value which can vary from individual to individual and builds upon loss aversion theories of Amos Tversky and Daniel Kahneman (1992).

attacked states themselves valued targets hit during an escalate-to-deescalate strike. This approach is difficult in practice, however, for two reasons. First, leaders do not often explicitly talk about the value of a target until after it is attacked, making *ex ante* valuations rare. Second, assessments of value made after an attack are much more common, but cannot always be taken at face value, as they may be twisted to justify states' responses. Another potential way to sort targets by value is to focus on loss of life or infrastructure. This is also a difficult measure to employ, as assigning a monetary value to a human life across eras and countries is problematic – especially as different societies and governments have different values for the cost of a human life.⁴⁸ For the purposes of this dissertation, I instead adopt a military operational perspective in assessing value and, for purposes of parsimony, I utilize the bimodal categorization of *high-value* or *low-value* in describing targets. Targets such as sovereign territory and strategically important locations or resources – the loss of which would result in either a significant military advantage for the escalating state or considerable loss of civilian life for the attacked state as high-value. These strategically important targets are akin to what Clausewitz (1984 [1874]) refers to as a center of gravity. They are “the hub of power and movement on which everything depends” (Clausewitz, 1984 [1874], p. 595-596).⁴⁹ In instances where the target is only tactically important, results in

⁴⁸ Policy analysts in the US often use the value of a statistical life (VSL) of \$4 Million USD to monetize fatality risks in benefit-cost analyses and to make recommendations for policy makers. However, different countries have vastly different values of their population, making it difficult to use VSL as a metric for determining target value. Additionally, the US military only pays out \$600K in death gratuity – significantly less than the VSL, but arguably more than any other countries' military death gratuity. See, for instance, James Broughela (2020) and Kip Viscusi and Clayton Masterman (2017). In addition to different countries utilizing differing VSLs, Benjamin Valentino, Paul Huth, and Sarah Croco (2010) find that democratic leaders value the lives of their citizens differently than nondemocratic leaders.

⁴⁹ There is significant dispute on the salience of Clausewitz's center of gravity and its applicability to modern combat, including insurgencies. Centers of gravity, as defined by Clausewitz, are conceptual ideas, not a precise definition or location. See, for instance, David Undeland (2001), Milan Vego (2007), Mark Krieger (2007), and Shayla Potter (2013), among other studies on centers of gravity and the concept of *Schwerpunkt*. Clausewitz's Book Eight (1984 [1874], p. 577-616) describes instances in which decisive factors brought about the conclusion of a conflict, demonstrating that total occupation of the enemy's territory or defeat of the military is not always necessary; rather,

small loss of military life, or represents an inconsequential loss of infrastructure, I code the value as low.

The difference between these two extremes is important, as the value of the target struck implies a level of credibility to the escalator's future willingness to strike additional targets. In particular, an escalatory strike against a high-value target is likely to be especially informative. By specifically aiming for a high-value target, an attacking state is engaging in significant escalation, even in the context of an escalate-to-deescalate strike, and suggesting its determination to see the conflict through to a successful conclusion on its preferred terms, at greater levels of violence if necessary. The attacked state is accordingly provided with a credible signal that the escalator is likely willing to strike additional targets in the near future. By contrast, an escalate-to-deescalate strike that hits a low-value target is unlikely to send a clear signal to the attacked state regarding the escalator's intentions. A strike against a low-value target could occur because it is what the escalator intended, because the escalator could not strike a higher-value target, or because the escalator made a mistake in targeting. In the absence of a clear reason behind the escalator's targeting strategy, the attacked state has little information on which to base its response.

What kinds of targets are high-value and low-value? To illustrate my operationalization of target value, consider Hill 112, a strategic locale important to both the Allies and Germans on the Western Front during World War II. Colloquially referred to by the soldiers as Death Valley, Hill 112 was located just outside of French city of Caen. Hill 112 changed hands five times between the British VIII Corps and the German 12th SS Panzer *Hitler-jugend* and the *Wehrmacht's* Panzer Lehr forces during Operations Epsom and Jupiter, through terrible, violent, and bloody fighting

the proper application of force provides the attacked state with the requisite insight into the attacker's willingness to carry out future attacks to cause the former to capitulate so as to ensure its survival and minimize costs.

(Saunders, 2008).⁵⁰ Historian Bryan Perrett notes that Field Marshal Erwin Rommel himself remarked “that he who held Hill 112 also held the key to the whole of Normandy” (Perrett, 1996, p. 175). Defeating the German Panzer divisions and gaining control of the 37-mile front, at a cost of 30,000 total casualties, allowed the Allies to continue their delayed assault south from the Cherbourg Peninsula into France in what is considered the first major breakthrough in the Normandy Campaign (Clodfelter, 2008). The success of the British resulted in the breaking of the stalemate in Normandy sought since D-Day, and the German defenses to the west were unable to hold back the Allied follow-on forces after the costly battle over Hill 112. Reflected in the memoirs of fighters from both sides, including leaders such as German Seventh Army commander SS *Obergruppenführer* Paul Hausser, Hill 112 was a significant, high-value target that represented “the key to the back door of Caen” and, for the Allied forces, the unlocking of Normandy (Dyck, 2013, p. 32).

Conversely, an example of a strategically unimportant and low-value target is the Siachen glacier, over which Pakistan and India violently clashed in 1984.⁵¹ At an elevation of 20,000 feet above sea level, the two countries engaged in a battle for control over the territory. Neither habitable by a population nor of strategic military value, the dispute over the frozen landscape was, quite simply, to keep the other side from claiming ownership (Baghel & Nusser, 2015). Possession of the glacier offered neither side an advantage in any sense of the word. The initial conflict in

⁵⁰ The site Battle of Normandy Tours has a good collection of maps and photos from the Battle for Hill 112 available at: <https://www.battleofnormandytours.com/the-capture-of-caen-hill-112.html>. See also, The Hill 112 Memorial Foundation at: <http://www.thehill112.com/index.html> which notes, “In 1944, men from the 43rd Wessex, 53rd Welsh, 15th Scottish and 11th Armoured Divisions finally took control of one of the most strategically important battlegrounds in northern France. It took ten weeks of fierce fighting and cost the lives of 10,000 men, but taking and holding Hill 112 allowed the Allies to retake Caen and continue the liberation of Europe.”

⁵¹ Located in the disputed Kashmir region, the occupation of the Himalayan mountain tops is a result of expansionist attempts of the Great Game between Britain and the Russian Empire. See, for instance, Peter Hopkirk (1994) *The Great Game: The Struggle for Empire in Central Asia*.

1984 resulted from both sides attempting to preempt the other by staging forces at the uppermost heights and was only intended to be a show of force. India was successful in establishing outposts near the icefield and Pakistan has since failed to dislodge them. The severe conditions and altitude have resulted in more soldiers succumbing to adverse climatic conditions than from actual combat (Kumar & Joshi, 2018). The Siachen glacier is obviously of some inherent value to both India and Pakistan, however, by any strategic metric, there is no objective value to ownership of the glacier. A comparable strategically unimportant, low-value target is the uninhabitable Hans Island, which is located within the 12-mile territorial limit of both Canada and Greenland and has led to quarrels between the former and Denmark (Stevenson, 2007).

The value of the target struck, identified here as either high- or low-value, provides some crucial information to the attacked state about the credibility of the escalator's compellent threat: specifically, the escalator's willingness to attack additional targets in the future. An escalate-to-deescalate strike upon a target of high-value provides the attacked state with a reasonably high level of confidence that the escalator is willing to continue striking targets of equal or greater value if capitulation is not forthcoming. Conversely, it is much more difficult for the attacked state to glean useful information from a strike against a low-value target. That is to say, there is no obviously credible signal imparted through the strike upon a low-value target. To be maximally convincing about its willingness to make good on its compellent threat, an escalating state must thus hit a high-value target.

2.3.2 The Damage to a Target

The escalator's willingness to make good on its compellent threat is only one part of its overall credibility; the attacking state must also convince the attacked state it has the ability to

continue striking. In the confused, uncertain context of war, the *damage* to the target provides the attacked state with some important information on the escalator's abilities. Specifically, inflicting significant punishment on, or violence against, a target suggests the escalator has the means and methods to inflict additional harm against additional targets. By contrast, inflicting little to no damage is likely to leave the attacked state uncertain as to the ability of the escalator to make good on its compelling threat.

Damage, as it is ultimately assessed by the targeted state, is inherently difficult to define a priori. Damage to the target can be expressed, felt, or experienced in terms of financial loss; a significant loss of life; or the destruction of targets possessing symbolic importance such as religious, cultural, or historical areas.⁵² In conducting a battle damage assessment, the attacked state will determine the loss of life, impacts to command and control capabilities, infrastructure, energy degradation, economic setback, and/or disruption to the ability to govern.⁵³ For example, the loss as a result of an escalate-to-deescalate strike of a portion of sovereign territory that produces, manufactures, or creates a sizable portion of the attacked state's economy communicates that the escalator likely has the ability to inflict future and equivalent levels of damage. Conversely, a strike that has only a minor effect on its target, such as an explosive detonation that only cracks a window, provides little information on the escalator's ability to carry out future attacks in the event the attacked state does not capitulate: it could be the result of multiple causes, including the escalator's intent, battlefield accident, or escalator incapacity. The damage

⁵² For example, the sandstone Buddhas of Bamiyan carved in the 3rd and 5th centuries AD 90 miles west of Kabul were considered some of the most important of Afghan cultural treasures. While these statues were destroyed by the Taliban's systematic removal of Afghanistan's cultural heritage and not the target of an opposing state, it demonstrates the potential of a cultural artifacts or historical monuments to be destroyed intentionally as part of a war effort (Francioni & Lenzerini, 2003).

⁵³ There are differing types of damage: physical and functional damage. Physical damage is the level of damage ranging from light, moderate, or severe while functional damage is an analysis of the level of degradation or destruction on the capability of the target to continue its intended mission (DoD, 2017b).

sustained by a target may thus range from catastrophic and unrepairable to negligible or superficial damage. As these two extremes imply a vast range of damage, and the noisiness and messiness of war operate in the assessment of damage as much as in the assessment of target value, I again employ a bimodal categorization and classify damage as either high or low.

High levels of damage inflicted in an escalate-to-deescalate strike lend credence to the escalator's compellent threat that it has the ability to continue employing the violence it holds in reserve. A high-damage strike suggests that the escalator possesses the requisite capability to hit additional targets with similar, if not greater, violence. By contrast, a low-damage strike sends an ambiguous signal about the escalator's ability to make good on its threat. Whether the low-damage strike is the result of the escalator's relative incapacity or inability to overcome the vagaries of the battlefield, the credibility of the attacking state's threat to mete out future punishment is called into question.

What kind of damage counts as "high" and what kind of damage counts as "low"? As with coding target value, it is difficult to easily ascertain the damage inflicted on an attacked state in an escalate-to-deescalate strike. In making such determinations, I utilize my own judgement based on 17 years as an Explosive Ordnance Disposal (EOD) technician with advanced training in post-blast operations and weapons technical intelligence.⁵⁴ In order to facilitate both replication and extension of the model developed here, however, it is necessary to be explicit about the coding rules that emerge from my experience. I code damage to the target as high if the target is functionally or physically destroyed, damaged, or removed, as defined by the Joint Targeting

⁵⁴ This training includes the Bureau of Alcohol, Tobacco, Firearms and Explosives Post-Blast Analysis Course, Federal Bureau of Investigation Post-Blast Investigator Course, Advanced EOD Course, Chemical Energetics Course, Integrated Munitions Effects Assessment Course, Underground and Hardened Target Defeat Course, and the Advanced Infrastructure, Assessment, and Disablement Course among many others. In addition, I have several years leading post-blast missions in Iraq and Afghanistan conducting sensitive site exploitation.

School, and low if it is not (DoD, 2017c).⁵⁵ In every event, I explicitly define the level of damage with what the US military terms a Battle Damage Indicator or BDI. According to the Department of Defense, the Battle Damage Indicator is “a measurable phenomenon, either quantitative or qualitative, used to indicate the damage/change of a target” (DoD, 2019b, p. GL-5).⁵⁶

In determining the level of damage to an attacked target, I also determine the normal level of operation. Knowledge and understanding of the normal level of operation assists in categorization of the damage through the time, money, material, and labor resources required to return the target to its prestrike condition. For example, if it is a military target, I determine the basic purpose of that target, i.e., a command and control node, missile silo, soldiers in the open, etc. If the target attacked is industrial, I identify the product or service it provides, i.e., economic centers, power or energy, etc. A supplementary mechanism in assessing the level of damage a target sustained is the recuperation time that may be required to restore, replace, or return the state’s attacked target to fully mission capable or full operational capability.⁵⁷ Thus, included in my metrics for determining the damage a target sustained are: the time required to reconstitute the target to its original operating capacity, the money and manpower required to fix or obtain a like target, the functioning capacity of the target after the attack, and an assessment of the loss of military or civilian life. Battle damage is not specifically a quantitative determination, however, as

⁵⁵ The 2013 version of *Joint Publication 3-60: Joint Targeting* states that a “Functional damage assessment is an estimate of the degradation or destruction of the functional/operational capability of a target to perform its intended mission. Functional assessments are inferred from the assessed physical damage and all-source intelligence information. This assessment must include an estimation of the time required for recuperation or replacement of the target’s function” (p. D-5). Negligible degradation, insignificant damage, and readily repairable or replaceable targets would fall in the *low-damage* category.

⁵⁶ According to FM 3-09.12/MCRP 3-16.1A, *Tactics, Techniques, And Procedures for Field Artillery Target Acquisition*, the Battle Damage Assessment includes three components: physical damage assessment, functional damage assessment, target system assessment.

⁵⁷ Recuperation time is an estimate of the time and potential cost required for a target to regain its functional capability after being attacked (DoD, 2017, p. 119).

it is observed or interpreted from both quantitative and qualitative indicators. Historical cases especially call for the utilization of a broad range of quantitative and qualitative indicators to determine the functional damage resulting from the strike (DoD, 2003).

Israel's execution of Operation Opera provides an example of an attacker inflicting a high level of damage upon a target. Considered a left-of-launch mission, Operation Opera was the 1981 preventative Israeli attack on Iraq's Osiraq nuclear reactor complex.⁵⁸ During Operation Opera, Israel struck Iraq's nuclear facility with fourteen 2,000-pound Mk-84 bombs, "totally destroying the plant's main reactor, containment dome, and underground research lab;" several dozen nuclear technicians were also killed in the attack (Razoux, 2015, p. 167). The Osiraq reactor, in which Iraq invested billions of dollars, was destroyed, and Iraq spent the next ten years attempting to reconstitute the reactor, albeit at geographically dispersed facilities (Razoux, 2015).⁵⁹ Collectively, the loss of the funds invested in the nuclear enterprise, the time required to reconstitute the facility, and the exposure of Iraq's nuclear intentions places the strike in the high-damage category.

An example of a target suffering low-damage is the Allied attack on the German Unterseeboot (U-boat) pens at Lorient, France, during World War II.⁶⁰ Throughout the war, the submarine pens served as a fortified base for German submarine attacks on Allied shipping across the North Atlantic. The target, German Keroman bunker number three (K3), measured 550 feet in

⁵⁸ Similar to left-of-boom operations and targeting in the counter-IED fight, left-of-launch is a military counter-offensive operation utilizing multiple intelligence gathering platforms and mechanisms to develop targeting options to impede, disrupt, or foil adversarial attempts to design and field weaponry. See Kemp's (2017) *Left of Launch: Countering Theater Ballistic Missiles*.

⁵⁹ Pierre Razoux notes that the strike on Iraq's nuclear facilities had the additional impact of denying Saddam Hussein the ability to develop a nuclear weapon which "would have allowed him to dissuade Iran from continuing war and impose himself as a natural leader in the Arab world" (Razoux, 2015, p. 168).

⁶⁰ Another example of a target suffering low-damage is the Bombardment of Ellwood on 23 February 1942, during World War II, when a Japanese submarine surfaced off the coast of the Santa Barbara Channel and fired between 12 and 25 shells at the Ellwood Oil Facility, destroying an oil derrick and a pump house, causing other minor damage, and resulting in zero casualties. See, <http://www.seecalifornia.com/history/santa-barbara-wwII-japanese-attack.html> and John and LaRee Caughey (1977) *Los Angeles: Biography of a City*.

length and 465 feet wide, with a floor area of 258,333 square feet and a reinforced concrete roof 25 feet thick; it was constructed in response to the growing power of Allied munitions like the Wallis-designed gravity bombs (Mortimer, 2019).⁶¹ On 6 August 1944, in an attempt to target the pens housing multiple submarines, the Royal Air Force dropped a 12,000-pound Tallboy bomb on K3; the bunker withstood the blast (Mortimer, 2019). Allied bombers dropped thousands of tons of bombs on Lorient, inflicting significant damage on the city, but the effort had a negligible impact on the sub pens targeted. Arguably one of the largest fortified military complexes of World War II, the Keroman complex was constructed with reinforced concrete, rendering it indestructible, and it survived the war practically undamaged. Unfortunately for the French civilians in the area, the heavy aerial attacks utilizing many of Wallis' penetrating weapons left much of Lorient in ruins, especially the areas near the submarine pens (Ivanov, 2018). Despite repeated attacks with such sophisticated weaponry, the effects of the assault on the U-pens at Lorient fit in the low-damage category. The attacks failed to cause any damage to the pens, did not force any refurbishment, and did not degrade the Germans' operational capacity; they inflicted low levels of damage.

The damage sustained by a target offers the attacked state with insight into the ability of the escalator to impart additional levels of violence upon other targets. Infliction of high levels of damage through an escalate-to-deescalate strike sends a credible signal that the escalator has the capacity continue visiting punishment on the attacked state if it does not alter its behavior. If,

⁶¹ The British aeronautical engineer Barnes Wallis designed several different gravity bombs for use against buried and hardened structures previous conventional munitions had been unable to penetrate. Wallis was a gifted and prolific inventor of explosive ordnance for the British. His weapons including the Highball and Upkeep bouncing bombs, and the Tallboy and Grand Slam earthquake bombs, "helped to destroy such high-profile targets as the Bielefeld viaduct and led to the eventual sinking of the German battleship Tirpitz. His bombs were only eclipsed in destructive power by the atom bombs dropped on Hiroshima and Nagasaki" (Flower, 2013, np). See also, website dedicated to the work of Sir Barnes Neville Wallis (1887-1979), available at: <http://www.sirbarneswallis.com/index.php>.

however, the strike results in low levels of damage, the attacked state is more likely to doubt the ability of the escalator to carry out additional strikes.

2.3.3 Interaction Between Value and Damage

The value of the target struck through the escalate-to-deescalate strike provides the attacked state with an indication of the escalator's willingness to continue the fight, to continue raising the ante, to end the conflict on preferable terms; the damage the target sustains provides the attacked state with an indication of the escalator's ability to employ future violence if its demands are not met. In any given strike, these variables must be assessed holistically, in context, and together. Consider the 13 September 1940 German Luftwaffe Blitz attack on England's Buckingham Palace that failed to achieve the desired effects when several of the 110lb bombs dropped on the building malfunctioned (Hansen, 2008). By my classification scheme, the German attack was a high-value, low-damage strike. Had the bombs not malfunctioned and destroyed the palace as intended, it would have resulted in a high-value, high-damage attack. Alternatively, if the bombs had missed the palace entirely and detonated in an empty farmer's field, the attack would be classified as a low-value, low-damage attack. Each of these possible outcomes would have sent different signals to the British about German willingness and ability to continue their assault. More specifically, the various combinations of value and damage would have sent different signals about the credibility of Germany's compellent attempt. The four possible combinations of value and damage, and the messages they send about the escalator's credibility, are detailed in **Table 2.1**.

Table 2.1: Credibility

	High Damage	Low Damage
High Value	High Credibility (1)	Less Credible (3)
Low Value	Credible (2)	Low Credibility (4)

When an escalate-to-deescalate strike hits a high-value target and inflicts a high level of damage, it is likely to impart upon the attacked state a highly credible signal that the escalator possesses both the willingness and the ability to make good on its compellent threat.⁶² In such cases, the attacked state is likely to respond as though it is a virtual certainty that the escalator will continue to inflict ever-more painful damage on it in the absence of capitulation. Conversely, an escalatory strike against a low-value target with resultant low-damage is unlikely to credibly communicate that the escalator has the willingness and the ability to inflict additional violence. In such cases, the attacked state is likely to respond as though the escalate-to-deescalate attempt was a one-off event in the course of the fighting. The middling escalate-to-deescalate strikes of high-value, low-damage and low-value, high-damage are more complicated. When a low-value target is struck with resultant high-damage, the attacked state is likely to view the escalator's compellent threat as more credible than when a high-value target is struck with resultant low-damage. This is the case because proven ability is in itself more threatening than proven desire. A physical act of demonstrated violence provides a clearer compellent threat than does a known willingness to

⁶² See, for instance, Press (2005) *Calculating Credibility: How Leaders Assess Military Threats* and the current calculus theory on how decisionmakers determine credibility of future threats. This theory posits that “decisionmakers believe that threats and promises [such as the threat of future violence] are credible when – and only when – they are backed by sufficient power and serve clear threats” (Press, 2005, p. 143).

strike. The inclination to strike weighs less on a theoretical decision tree than does the proven competence to inflict violence. As a result, an attacked state is likely to respond to a low-value, high-damage strike as though it is more likely than not that the escalator will make good on its compellent threat. An attacked state is likely to respond to a high-value, low-damage escalate-to-deescalate strike as though there is some significant doubt about whether the escalator will make good on its compellent threat.

The combination of target value and target damage, and the information that interaction conveys about the credibility of the escalator's compellent threat complements the information an attacked state gleans from its danger situation to inform how it should respond. The interaction of these three variables is complex and is detailed below.

2.4 How to Escalate-to-Deescalate Successfully

The general tendencies of states are affected by the credibility of the escalator's threat demonstrated through its willingness and ability to strike targets of value and inflict damage to that particular target. It is the degree of that credibility implied through the escalate-to-deescalate strike that is fundamental in shaping the attacked state's ultimate response. When an escalator's credibility is high, attacked states are likely to follow their dominant tendencies; when it is low, they are more likely to deviate. Below, I trace the interaction between attacked states' danger situations and the two variables that condition perceptions of escalators' credibility to determine when an attacked state is likely to capitulate in the face of the escalator's violence held in reserve, and when it will elect continued fighting or even counter-escalation in response to the escalate-to-deescalate attempt.

2.4.1 High-Danger – High-Value – High-Damage: Counter-Escalation

Consider first the case of a high-value, high-damage escalate-to-deescalate strike resulting in a high-danger situation for the attacked state. As noted, post-strike, the dominant tendency of a state finding itself in a high-danger situation is to respond with aggression. The high value of the target struck, and the high level of damage inflicted send an especially credible signal about the escalator's willingness and ability to continue inflicting pain if the attacked state does not alter its behavior. An attacked state facing such a situation must therefore weigh both the internal danger it faces – whether from the military, its populace, or perhaps collapse in the face of the adversary – and the external threat posed by the escalator's compelling threat. With danger on all fronts, such an attacked state is not only unlikely to deviate from its general inclination to respond aggressively but is actually incentivized to counter-escalate. Counter-escalation would allow it to occupy its military, sell a new narrative to its restive populace about going on the offensive against the adversary, and provide an opportunity to eliminate the external threat. Continued fighting, by contrast, may only serve to heighten the danger for the attacked state, as it would be less likely to remove the external threat posed by an adversary that has credibly signaled its willingness and ability to continue inflicting punishment. Capitulation would all but guarantee the attacked state – its leadership or its sovereign territory – would cease to exist in its current form. Thus, perhaps counterintuitively, an exceptionally powerful escalate-to-deescalate strike is likely to backfire on the escalator and create conditions leading to the attacked state counter-escalating.

2.4.2 High-Danger – High-Value – Low-Damage: Continued Fighting or Counter-Escalation

While high-value, high-damage escalate to deescalate strikes that put attacked states in a high-danger situation are likely to provoke counter-escalation, high-value, low-damage strikes that put attacked states in a high-danger situation may provoke either continued fighting or counter-escalation. In this circumstance, the escalator's signal of credible future violence is muddled by the low-damage to the high-value target; the escalator's ability to carry out its threat is less clear. The threat is still generally credible, but less so than that associated with an attack resulting in high damage. The high-danger situation places the state in a position where its current existence is threatened by a potential insurrection, coup, or conquest. As a result, it is incentivized to continue fighting or even counter-escalate in order to rectify that potentiality. The low damage caused by the escalatory strike may cause the attacked state to question or doubt the escalator's true ability to commit future violence, however, thus opening the possibility of continuing to fight rather than counter-escalating, as it may be that the external threat confronted is low enough that it does not have to be fully eradicated as soon as possible. Capitulation is still unlikely for attacked states facing a high-danger situation after a high-value, low-damage escalate-to-deescalate strike, as they must act to preserve their own survival.

2.4.3 High-Danger – Low-Value – High-Damage: Capitulation

Alternatively, a state in a high-danger situation with a low-value target struck with high damage is more likely to capitulate than it is to continue fighting or to counter-escalate. The escalator's demonstrated capacity to inflict high damage weighs more heavily in the decision-

making process than the strike against the low-value target, as high damage is indicative of a more credible threat demonstrated through the proven ability. While a state facing a high-danger situation is incentivized to retaliate as part of its baseline tendency, the particular degree of credibility demonstrated by the low-value, high-damage attack affects that tendency in such a manner that the attacked state will often capitulate. The attacked state is likely to deviate from its general tendency here due to the tempered nature of strike – the escalator’s strike placed the state in the high-danger situation and highly damaged the target, yet it only struck a low-value target. This violent signaling implies both an ability to continue meeting out high levels of punishment and that the escalator does not necessarily desire to do so. This combination suggests there may be an opening for communication, including negotiations, allowing the attacked state an opportunity to remain somewhat intact and, potentially, trade space for time in order to continue the fight at a more advantageous future moment. Counter-escalation and continued fighting would likely only serve to invite additional violence upon the state, resulting in its demise through the escalator, or even at the hands of its own military or civilian populace looking to cease the punishment. It is through capitulation that the attacked state can secure its immediate survival to gain beneficial concessions or to trade space for time in favor of a future opportune moment to rectify the current situation.

2.4.4 High-Danger – Low-Value – Low-Damage: Continued Fighting or Counter-Escalation

A state in a high-danger situation with a low-value target struck with resultant low damage is likely to follow its general tendency of continued fighting or even counter-escalation as a response. The attacked state is highly likely to at least continue fighting, or counter-escalate, as

the low-damage provides both the incentive to respond and justification to escalate the situation in retaliation. As stated above, a state's baseline tendency in a high-danger situation is to counter-escalate. The low-damage strike against a low-value target signals to the attacked state that the escalator has some capability to strike targets, albeit with low-damage. This escalatory strike is more likely than any other type to be viewed or misinterpreted as a one-off event that is unlikely to occur again. The attacked state, in this circumstance, is not often likely to capitulate, as such an act may bring about the demise of the state through internal actors such as the military or civilian populace, or through the actions of the attacking state.

2.4.5 Low-Danger – High-Value – High-Damage: Capitulation

Turning now to address states in a low-danger situation, the dominant tendency of such states in the wake of an escalate-to-deescalate strike is to capitulate in order to avoid incurring additional attacks that could alter its danger situation. The credible threat of the latent violence held in reserve capable of striking equally valuable targets with high levels of damage further incentivizes such states to capitulate. The violent message sent through the strike effectively communicates that the escalator possesses the means and the will to inflict additional violence in the future. The prospect of further strikes of equal or greater damage against high-value targets suggests the attacked state's currently tenable situation is likely change for the worse if capitulation is not forthcoming. States in such situations are likely to avoid continued fighting or counter-escalation due to the latent violence available to the escalating state and its proven track record of inflicting high damage against a high-value target. Further, the low-danger situation allows the state to remain in control of its military and populace while a response of continued fighting or counter-escalation may jeopardize this position. This act of capitulation may allow the attacked

state to trade space for time to better secure its future at a lower cost than that offered by continued fighting or counter-escalation.

2.4.6 Low-Danger – High-Value – Low-Damage: Counter-Escalation

As noted, the dominant tendency of a state facing a low-danger situation is to capitulate, but the perceived credibility of the escalator's threat can alter that response. The strike against the high-value target demonstrates a willingness to attack while the resultant low damage creates relative uncertainty regarding the escalator's ability to make good on its compelling threat. If the low-danger state's high-value target only suffers low damage, it is more likely to question the validity of the escalator's commitment to utilize any potential violence held in reserve if the attacked state does not capitulate. The uncertainty created from this low-damage strike can incentivize the attacked state, in its low-danger situation, to go against its nature and, perhaps because it interprets the escalate-to-deescalate low-damage strike to be a sign of weak resolve on the part of the attacker, counter-escalate. Counter-escalation now could obtain a positive war outcome, and do so at a potentially lower cost than waiting to do it later. Counter-escalation is likely to be preferred over continued fighting because the latter depletes available wartime resources while not demonstrating to an attacked state's populace or the military that it is adequately responding to the escalatory attempt against the highly valued target. Continued fighting also does not demonstrate to the opposing state that the attacked state values the target attacked or the issue(s) for which the two states are engaged in violence in the first place.

2.4.7 Low-Danger – Low-Value – High-Damage: Capitulation

A low-danger state responding to a high-damage attack against a low-value target would likely capitulate, as the attack demonstrates the capability of the escalating state to continue inflicting significant damage and possibly create new problems. The “sheer pain and damage” from the strike demonstrates that the conflict is no longer “just a contest of strength” (Schelling, 1966, p. 30-33). Rather, it demonstrates the escalating state has the coercive diplomacy required to continue inflicting punishment, potentially against high-value targets with high-damage. The low-danger state’s initial predilection for capitulation is thus reinforced. Any temptation for continued fighting or counter-escalation in response to the targeting of a low-value target is likely mitigated by high damage to the target. The low value of the target is potentially immaterial to this instance, as the high-damage strike demonstrates the escalator has “enough power to do what he threatens” (Press, 2005, p. 21).

2.4.8 Low-Danger – Low-Value – Low-Damage: Continued Fighting

A low-danger state responding to a low-damage attack against a low-value target is most likely to continue with the ongoing engagement. It is this type of escalatory attempt that is most likely to be misinterpreted as something other than an escalate-to-deescalate strike. In this instance, the signaling from the target value and damage indicates the escalator does not have the requisite willingness or ability to follow through with its implicit threat. If the escalatory strike was specifically implemented against a low-value target with intentional low-damage, as a shot-across-the-bow signaling attempt, the attacked state is unlikely to notice, or clearly understand, that

particular violent message in the fog of war.⁶³ In this instance, the attacked state is likely to disbelieve the compelling threat and act against its baseline nature of capitulation – it is after all, already engaged in the conflict. There is no requirement for the attacked state, in its current low-danger situation, to trade space for time through capitulation. Instead, the response of continued fighting allows the attacked state to advance its wartime agenda and further deplete the fighting forces of the opposing state, with the added benefit of preventing or hindering an internal coup or insurrection by demonstrating to its populace that it is responding to the strike. In this instance, there is no incentive for the attacked state to alter its current plan of engaging militarily with the escalating state. Counter-escalation is not a viable option, in general, as it creates the potential for a tit-for-tat escalatory conflict that can readily spiral out of control resulting in a high-danger situation for the state.⁶⁴

I thus argue that the likelihood an escalating actor is able to coerce its adversary into capitulation depends on the relative danger experienced by the state, the value of the target the escalator struck, and how much damage that attack does. These three independent variables (*State Danger Situation*, *Target Value*, and *Damage*) impact the decision of the attacked state, leaving it with the choice to maintain the status quo of continuing the conflict (*Continued Fighting*), to escalate in response (*Counter-Escalation*), or to *Capitulate*. The attacked state, facing either a high- or low-danger situation, observes the signals communicated by the escalator's strike against a target of varying value and the damage to that target in determining its response.

My theory suggests that an escalate-to-deescalate strike is most likely to succeed, with the desired outcome of capitulation, only under certain parameters. The most likely instance of a strike

⁶³ Schelling argues the “restrained, signaling, intimidating use” of force as a bold demonstration on such a small scale can actually have the unintended consequence where the action is “contrary of boldness” (Schelling, 1966, p. 114).

⁶⁴ See also, Jervis (1976) *Perception and Misperception in International Politics*.

succeeding occurs when a low-danger state suffers high-damage to the target, regardless of the target's value. The escalator's credibility to inflict further violence is aptly demonstrated through its ability to inflict high levels of damage. The state in this situation is prone to capitulate to avoid punishing reprisals. Conversely, a strike is least likely to succeed when a high-danger state's high-value target is attacked, regardless of damage.

It is important to note that this is a probabilistic claim, and as such, I do not contend that capitulation, continued fighting, and counter-escalation will always occur in the circumstances outlined above; there is an unquantifiable amount of nonsystematic variation in the empirical world (King, Keohane, & Verba, 1994).⁶⁵ Recognizing up front that, if correct, this is a probabilistic claim, it nevertheless offers useful generalizations about the signals sent through escalate-to-deescalate strikes, and therefore should assist in forecasting potential outcomes in future conflicts in which a state attempts to force another to back down with such means (Dougherty & Pfaltzgraff, 2001). **Figure 2.1** offers a flowchart outlining my theoretical claim, linking the attacked state's danger situation, the value of the attacked target, and the damage to the target to the attacked state's predicted response.

⁶⁵ Naturally, it is feasible that an actor in either a high- or low-danger situation can be pushed only so far until they snap and respond in a matter outside of the norm and strike back, as one observes in Bob Clark's (1983) classic, *A Christmas Story*. The normally passive and risk-averse Ralphie counter-escalates in response to receiving a 'snowball-sandwich' and pummels the bully Skut Farkus. As Ralphie's inner voice states, "Something had happened. A fuse blew. And I had gone out of my *skull*." A special thanks to Ryan Grauer for highlighting this component of being pushed too hard. The fight scene is available at: https://www.youtube.com/watch?v=_agOnqeEeXw.

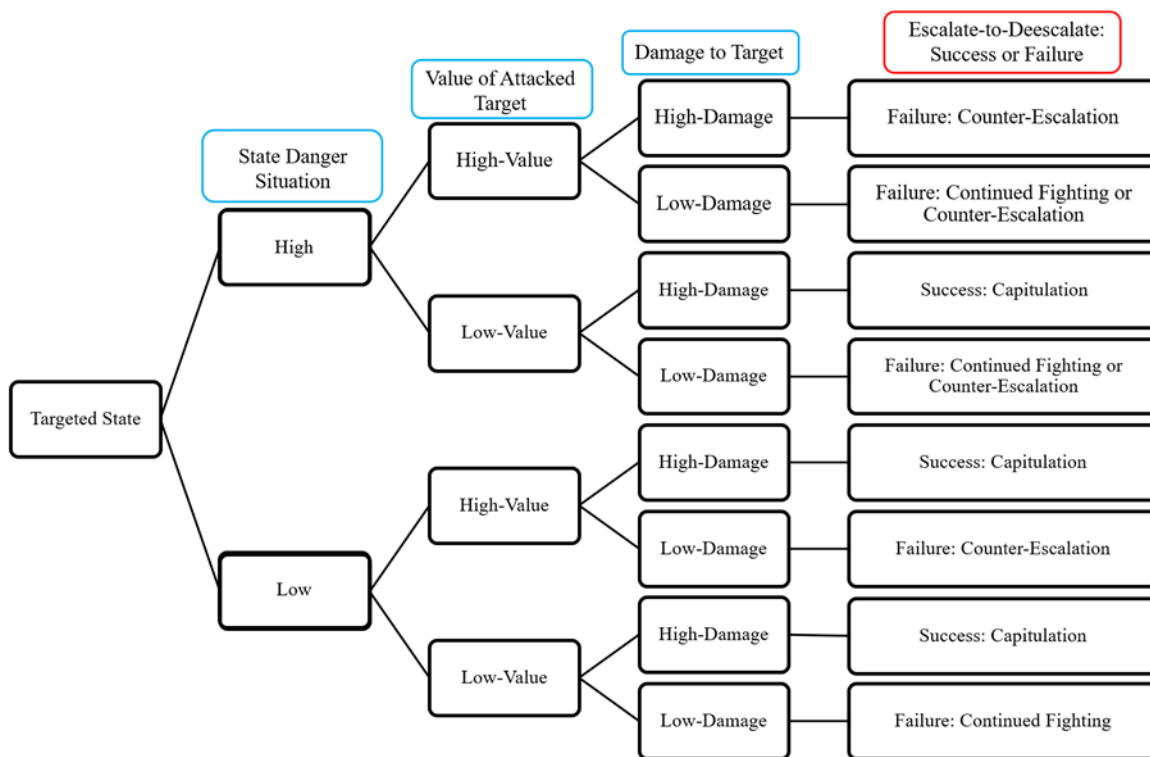


Figure 2.1: Escalate-to-Deescalate Flowchart

2.5 Methods and Research Design

The remainder of my dissertation investigates whether the conditions under which I argue escalate-to-deescalate strikes are likely to succeed or to fail actually have the effects I anticipate. The best method to evaluate the theoretical explanation advanced above is a small-*n* comparative case method, exploiting congruence testing and process-tracing. Small-*n* case studies are suitable for this type of research, which posits a novel causal theory for a phenomenon, as the tests “are often strong, because the predictions tested are quite unique;” they are also better than large-*n* studies at “inferring and testing explanations that define *how* the independent causes the dependent

variable[s],” if one exists (Van Evera, 1997, p. 54, emphasis in original). Additionally, small-*n* case studies are useful for assessing typological theories like the one I present above, where the claim “specifies independent variables, delineates them into the categories... and provides not only hypotheses on how these variables operate individually, but also contingent generalizations on how and under what conditions they behave in specified conjunctions or configurations to produce effects on specified dependent variables” (George & Bennett, 2005, p. 234).

Utilizing the typology method identified in Alexander George and Andrew Bennett’s (2005) *Case Studies and Theory Development in the Social Sciences* to determine the eight types of cases my framework delineates allows for the determination of patterns, relationships, and themes in the successes and failures of escalate-to-deescalate strikes. The use of empirical case studies provides historical examples of states employing escalate-to-deescalate strikes and struck states’ responses. As the conditions under study here are not time-bound, historical analysis of escalate-to-deescalate strikes allow for a rich understanding of the struck states’ responses. This methodology is appropriate, as the independent variables in each case incentivize the struck state to respond in certain ways, regardless of the era. This type of study contributes to the anticipated responses of future escalate-to-deescalate strikes. As Phil Williams notes in his work, *Crisis Management: Confrontation and Diplomacy in the Nuclear Age*, “the study of international crises may contribute to our understanding of, and knowledge about, war” (Williams, 1976, p. 12). The same concept concerning escalate-to-deescalate strikes is valid here. In examining the eight cases that fit within my typology, I first conduct congruence testing to determine if the cases within each category result in the escalate-to-deescalate outcomes expected. In each of the cases, I start by discussing the three key independent variables and map them onto the particular case under study and then identify the state’s response, the dependent variable. Following this, I conduct process-

tracing to map out the connections between the independent variables and the dependent variable. The purpose of this test is to see if the variables identified in my theory actually drive attacked states' responses.

In each case, I also analyze the validity of potential alternative explanations. These potential alternative explanations may account for the state's response to an escalatory attempt. I address the two most plausible explanations by identifying whether the targeted state leadership is classified as *hawk* or *dove*, and whether the targeted state has the *capacity* to respond militarily. That is, I investigate whether it is possible to attribute the state's response to, first, leadership or political groups that promote the use of hard power (hawk) or capitulation and engagement in soft power (dove) in response to escalatory attempts. Second, I investigate whether the attacked states' responses are driven by their ability to continue the fight, with continued fighting or counter-escalation occurring when attacked states retain the capacity to respond militarily and capitulation when they do not.

By examining the causal power of my theoretical claim and comparing it with the two most plausible alternative explanations, I will be able to assess whether attacked states respond to escalate-to-deescalate strikes as they do because of the independent variables I identify in this dissertation, and not as a result of some other variation. **Figure 2.2** outlines the basic range that case studies fall into for states facing a high- or low-danger situation.

High-Danger Situation

		Value of Target	
		High	Low
Level of Damage	High		
	Low		

Low-Danger Situation

		Value of Target	
		High	Low
Level of Damage	High		
	Low		

Figure 2.2: Basic Range of Case Studies

This testing strategy maximizes the relevance of my research for thinking about nuclear escalate-to-deescalate strikes. The use of process tracing assists to determine important “instances where explanations make unique predictions about the process or outcome of the case” and the likelihood of a similar outcome in a future event (George & Bennett, 2005, p. 118). Fundamental to process tracing is the essential requirement to “immerse oneself in the historical case” and to understand, thoroughly, the events that unfolded leading from X to the Z (George and Bennett, 2005, p. 190). Specifically, I evaluate the way in which a state’s relative danger situation and assessments of the value and the damage of targets hit drove the state’s respective escalate-to-escalate response of capitulate, continued fighting, or counter-escalation. Process tracing within the defined cases, through the state’s perceived danger situation and assessment of the value and

damage of the target hit, allows me to examine the conditions relating to the case outcomes and how a similar tactic may fail or succeed in a future conflict (Van Evera, 1997).

2.6 Case Selection

As there are zero examples of low-yield nuclear weapons being employed during a conflict as part of a state's escalate-to-deescalate strike, in order to study this concept, I instead take a broader approach to escalation dynamics and ask, *what are the conditions under which escalate-to-deescalate strikes are likely to succeed?* A viable test is to address near-history cases in which escalatory tactics such as the use of chemical weapons, mass fire bombings, or significant new technologies were employed, and use congruence testing and process tracing of the attacked states' response to determine whether the conditions under which I argue escalate-to-deescalate strikes, including those effected with low-yield nuclear weapons, are likely to succeed and fail actually result in such outcomes.

In order to maximize my analytical leverage on this question, I study cases of escalate-to-deescalate strikes across multiple historical conflicts to determine the drivers of escalate-to-deescalate success. I conduct primary and secondary source research into three full-length cases and four mini-cases to evaluate my theory. For the full-length cases, I evaluate a case in which my theory should explain an escalate-to-deescalate success: where the initiator crossed a firebreak for the purposes of deescalating the conflict in its favor and the opposing side *capitulated*. Second, I evaluate a case in which my theory should explain an escalate-to-deescalate failure where the attacked state's response is *continued fighting*. The third in-depth case of escalate-to-deescalate is another where my theory should explain the failure, this time where the escalator crossed a

firebreak and the attacked state *counter-escalated* in response. In each case, my effort is directed toward determining whether my identified independent variables had the impact on the outcome in the manner my theory anticipates. The remaining cases fit in the four cells of my typological theory that are not captured in the three full-length cases and are subjected to brief case study analysis to determine whether my theoretical expectations match the historical record.

Although there are countless conflicts throughout the history of mankind, the universe of cases selected for this dissertation are those in which escalation strategies were used to end a tactical conflict. Each of the case studies was selected because it involved an escalator crossing a firebreak of some sort by demonstrating an aspect of escalation for the purposes of deescalating the conflict. From that subsample, final case selection was based on the relative danger in which the attacked state found itself, the value of the attacked target, and the damage that target sustained. Finally, special effort was made to ensure a broad range of eras, tactics, weapon systems, and state makeup in the cases in order to test my claim against a wide range of conflict situations with a variety of circumstances, outcomes, and sources so as to increase the variance for my dependent variable (King, Keohane, & Verba, 1994).

The first in-depth case study, in which an attacker's escalate-to-deescalate attempt resulted in the capitulation of the opposing side, is the 1938 Battle of Wuhan. This is an instance of an ongoing conflict in which Japan utilized chemical weapons in an escalate-to-deescalate attempt against China. Wuhan was a strategically important location for China and, coupled with the significant loss of life, the Japanese attack fits into the high-value and high-damage categories. Because China was facing a low-danger situation and sustained high-damage to a high-value target in an attack by the Japanese, this episode represents a case in which my theory of escalate-to-deescalate success should work.

The second in-depth case study features an escalate-to-deescalate attempt that resulted in failure through continued fighting: Operation Rolling Thunder in 1968. The US utilized a massive bombing campaign to inflict punishment with the promise of further damage to come in an attempt to coerce North Vietnam into capitulating. Despite the tactics used, the damage never impacted North Vietnam's ability to continue the conflict. The North's ability to use guerilla fighters to conduct operations at will, despite overhead surveillance efforts and the threat of the aerial bombardment, is indicative of a state facing a low-danger situation and places the target in the low-value category. Similarly, the ability to move fighters and materials unimpeded along the supply route throughout the bombing campaigns places the target in the low-damage category. My theory should explain why North Vietnam continued to fight.

The third in-depth case study, Operation Meetinghouse in 1945, is an escalate-to-deescalate attempt that resulted in failure through counter-escalation. This conflict represents a case in which, according to my theory, an escalate-to-deescalate strike should be most likely to fail. Japan, facing massive bombing campaigns that destroyed entire cities and posed significant danger to the state's leadership, was in a high-danger situation. That the city of Tokyo was the center of trade and commerce in addition to being the capital city places this case in the high-value category. The massive loss of infrastructure and civilian life places this case study in the high-damage category. If my theory ever accounts for escalate-to-deescalate successes and failures, it should do so in this case.

The remainder of cases, ranging from high-danger situations with low- and high-value targets and damage to low-danger situations with low- and high-value targets and damage, are outlined in **Figure 2.3**, with further elaboration in Chapter 6. In each of the mini-cases, I explain the background of the conflict, justify its placement in its respective category, determine the state's

response to the identified escalatory attempt, and evaluate the explanatory capacity of alternative explanations.

		High-Danger Situation	
		Value of Target	
		High	Low
Level of Damage	High	Operation Meetinghouse	NA
	Low	Battle of the Atlantic	Siege of Eger

		Low-Danger Situation	
		Value of Target	
		High	Low
Level of Damage	High	Battle of Wuhan	Battle of the Marshes
	Low	Second Battle of Ypres	Operation Rolling Thunder

Figure 2.3: Selected Cases

Some may wonder why, given that it is the only instance of nuclear weapons use in history, I do not examine the atomic bombings of Hiroshima and Nagasaki, Japan, at the conclusion of World War II. There are several reasons for this exclusion. First, as Kenneth Glazier (1970), Barton Bernstein (1975, 1995), and Robert Pape (1996), among others, demonstrate, the decision to use the atomic bomb was a probably foregone conclusion – and, central to this study, not an intentional

or purposeful use as part of an escalate-to-deescalate strike.⁶⁶ Bernstein notes, “For President Truman, and his top advisers in 1945, the use of the atomic bomb was never a question” (Bernstein, 1995, p. 230). The director of the Manhattan Project, Lieutenant General Leslie Richard Groves, noted that President Truman’s “decision [to use the atomic bombs] was one of noninterference – basically, a decision not to upset the existing plans” established under his predecessor (Frank, 1999, p. 257). Gar Alperovitz, Robert Messer, and Bernstein underscore this understanding of Truman’s decision, stating, “At no time did top-level American leaders seek to avoid the use of the A-bomb. They never searched for alternatives” (Alperovitz, Messer, & Bernstein, 1991, p. 220).⁶⁷

Second, I contend the use of the atomic bombs align more with an escalate-to-win strike and less as an escalate-to-deescalate strike. On 6 August 1945, Truman even stated that the US is “prepared to obliterate more rapidly and completely every productive enterprise the Japanese have above ground in any city... Let there be no mistake; we shall completely destroy Japan's power to make war” (Truman, 1945, p. 198-199). The execution plan for the atomic bombs, crafted and signed by the Secretary of War and the Chief of Staff, listed, in sequential order, the cities of Hiroshima, Kokura, Niigata, and Nagasaki as the primary targets (Nitze, 1989; Bernstein, 1995; Frank, 1999; Freedman & Michaels, 2019). The 509th Composite Group, tasked with conducting the atomic bombing, was informed that “additional bombs will be delivered on the above targets

⁶⁶ Sheldon Cohen highlights the fact the use of atomic weapons against Japan was not a firebreaking attempt as, while “the weapons were new and revolutionary, the havoc they wrought on enemy cities was not... it was not thought that any threshold had been crossed” (Cohen, 1989, p. 91).

⁶⁷ In reviewing Gar Alperovitz’s *Atomic Diplomacy: Hiroshima and Potsdam: The Use of the Atomic Bomb and the American Confrontation With Soviet Power*, Gaddis Smith opines the atomic bomb was used upon Japan as a signaling mechanism against the Soviet Union, which “emboldened Truman and his Secretary of State, James F. Byrnes, to reverse President Roosevelt’s policy of accommodation with the Soviet Union and attempt to roll Soviet influence back from Eastern Europe in violation of the implicit sphere-of-influence agreements Roosevelt made at Yalta” (Smith, 1985, p. A-18).

as soon as made ready,” indicating the anticipation of a sustained atomic bombing effort (Frank, 1999, p. 262). This implies the US would continue destroying cities through atomic bombing until Japan was left with no other choice but to surrender. In fact, the third planned detonation of an atomic weapon was scheduled for 19 August 1945 (Allen & Polmar, 1995; Tillman, 2007; Wellerstein, 2013).

Collectively, the selected case studies represent varying escalation tactics, states, and outcomes across a wide section of history. By looking at these sub-nuclear conflicts, I can assess whether my theory provides analytical utility and is therefore likely to be useful in thinking about escalate-to-deescalate attempts with low-yield nuclear weapons.⁶⁸ From the results of this typological investigation, it should be possible to offer a prediction on escalation responses and provide a credible answer to the question: Would the intentional employment of low-yield nuclear weapons as a state’s escalate-to-deescalate strike achieve the preferred endstate resulting in the desired capitulation or would it retaliate in kind, escalating the number and yield of nuclear weapons to a catastrophic scenario? While it is impossible to be certain that the logic articulated in this dissertation will apply perfectly to such instances, as there is no data on the use of low-yield nuclear weapons either in combat or as part of an escalate-to-deescalate strike, evidence from the sub-nuclear historical conflicts where escalatory attempts were made by a state for the purposes of deescalation will provide guidance that is thus far missing from strategic analysis. The sub-nuclear examples of firebreaking, discussed in detail in subsequent chapters, is informative and allows for a reasonable amount of confidence to understanding how decision makers may respond to a low-yield nuclear escalate-to-deescalate strike. I contend, and show in subsequent chapters, that

⁶⁸ Keir Lieber and Daryl Press utilize a similar framework in determining the likelihood of a nuclear weapons state willingly transferring a nuclear weapon to a terrorist organization. See, Lieber and Press (2013) *Why States Won't Give Nuclear Weapons to Terrorists*.

responses to escalate-to-deescalate strikes are similar across time horizons, which suggests that it is feasible to generate a theory of response to an escalate-to-deescalate strike. These sub-nuclear events provide confidence that decision makers are likely to respond similarly to the use of a low-yield nuclear escalate-to-deescalate strike. The fact remains that novel weapons of war have been used for thousands of years, and the decision makers responding to the firebreaking events did not alter how they think about and respond to such events.⁶⁹ It is not analytically obvious why they would do so in this instance. The similarities in conflicts, with the variables I have identified, allow for a forecast of which of the potential responses available to a state suffering an escalate-to-deescalate strike during a conflict that a targeted actor is likely to select.

2.7 Conclusion

This chapter demonstrated that states attempt to employ escalate-to-deescalate strikes to end a conflict on favorable terms. Following this, the chapter laid out and operationalized my theory of escalate-to-deescalate success and failure, including the critical variables impacting an attacked state's range of responses (the dependent variable). Finally, the chapter presented the methods I employ to investigate the validity of my claim. The following empirical chapters delve deeply into the rich and detailed history associated with each case, highlighting the background of the conflict, the attacked state's perceived danger situation, the firebreaking attempt employed by

⁶⁹ Several notable scholars including Henry Kissinger (1962), Anthony Buzzard (1962), Alain Enthoven (1965), Bernard Brodie (1966), and Thomas Schelling (1960, 1966) among others, have contemplated how states would react following a nuclear strike. Herman Kahn, for example, notes that "A nuclear war can be reliably limited" as either side may elect to manage escalation and observe the rungs, or firebreaks further up the ladder, although "no one can absolutely guarantee they will. But one also cannot be sure they will be totally flouted" (Kahn, 1984, p. 29).

the escalating state as part of an escalate-to-deescalate strike, and the attacked state's response based on the value and damage sustained to the target, in addition to other possible explanations.

3.0 The Battle of Wuhan, 1938

Turning now to the empirical evaluation of my theory, I examine the Battle of Wuhan in 1938, during which Japan employed an escalate-to-deescalate strike with chemical weapons in an effort to break a stalemate.⁷⁰ The Battle of Wuhan is a case in which an escalate-to-deescalate strike should work. Japan attacked a portion of China's territory that was strategically important and, coupled with the significant loss of civilian life, credibly signaled its willingness and ability to use its reserve of violence. It did not, however, put China in a high-danger situation through its escalate-to-deescalate strike. Accordingly, my theory anticipates that China, facing a low-danger situation, would back down in the wake of Japan's high-damage escalate-to-deescalate strike on a high-value target.

This chapter proceeds as follows. First, I provide a brief overview of the case, outlining the background and the conflict situation. The second section focuses on China's danger situation, followed by an analysis of Japan's violent signaling through target selection and the damage inflicted. Following this, I compare China's response to the escalate-to-deescalate strike with that expected by my theory. The last section of this chapter addresses potential alternative explanations that could refute my theory.

⁷⁰ The area of Wuhan is a tri-city commercial center, consisting of Wuchang, Hanyang, and Hankou in the Yangzi River region and collectively referred to as Wuhan.

3.1 Background and Conflict Situation

The Battle of Wuhan, fought June-October 1938, pitted the joint Nationalist and Communist forces of China against a Japanese attempt at territorial expansion. The conflict is considered by historians of the Second Sino-Japanese War of 1937-1945 to be one of the most significant battles of the conflict, resulting in approximately 1.2 million combined battle deaths (MacKinnon, 1996). After the war developed into a stalemate in the summer of 1938, Japan utilized chemical weapons in an escalate-to-deescalate strike to try to force Chinese capitulation. Facing an onslaught of chemical war in the form of lacrimatory candles, Lewisite, and mustard agent, the Chinese military forces capitulated and gave up the strategic city of Wuhan (Smart, 1997).⁷¹

The underlying cause of the Second Sino-Japanese War were competing nationalisms, mutual hatred, and a negative-sum approach to dominating Asia (Paine, 2017).⁷² According to Sarah Paine (2012, 2017), “Sino-Japanese hatred, the Sino-Japanese competition for dominance in Asia, anarchy in China, the Soviet attempts to export Communism to Asia, and the inadequacy

⁷¹ Lacrimatory candles are a type of choking agent and are approximately 2-5kg chemical munitions that can be thrown by hand. According to a 1943 US War Department paper, *Enemy Capabilities for Chemical Warfare*, “The small tear-gas generator, which also may be used as a hand grenade, and the 2-kg and 5-kg candles contain 50 percent CX (chloracetophenone), 50 percent nitrocellulose (and acetone). The small candle burns 1 minute, whereas the 2-kg candle burns 2 minutes” (p. 58). See also War Department publication *Tactical and Technical Trends No. 27* (1943), which describes, in detail, Japanese smoke warfare. Lewisite and mustard are both blister agents that are absorbed through the skin, eyes, and mucus membranes and causes burns or blisters on exposed skin. Lewisite is notable for its geranium scent while mustard smells like garlic. See, for instance, Frederick Sidell, Earnest Takafuji, & David Franz (1997); Peter Brookes (2005); Johnathan Tucker (2006); and Benjamin Garrett & John Hart (2007), among others.

⁷² After World War I, Japan rose as a dominant regional power and saw Russian expansion and Communist ideologies as a threat to its position. Obtaining land and its associated economic benefits, specifically in the region of Manchuria, was thought to be essential to securing Japan’s rise and solidifying its perception as a great power. However, China refused to acknowledge the growing regional power disparity by, among other things, violating commercial treaties and continuing to refer to Japan as dwarf bandits or *wokou* in official communications. The resulting escalatory spiral “remain[ed] an enduring source of tinder for Sino-Japanese conflict” (Paine, 2017, p. 110). According to Ying-kit Chan, the hostilities are still a source of animosity for the Chinese today, even by those without direct experience in the war (Chan, 2017).

of both Japanese leaders and institutions together constituted the volatile underlying causes of the Second Sino-Japanese War” (Paine, 2017, p. 112). The opening salvos of the war occurred on 28 July 1937, after an unannounced Japanese military exercise near the Marco Polo Bridge southwest of Beijing resulted in an exchange of small arms fire between the two sides (Barnhart, 2013).⁷³

The initial Japanese assault into China was led by Japan’s 1st Army as it moved southward along the Beijing-Wuhan Railway while Japan’s 2nd Army attacked along the Tianjin-Pukou Railway (Paine, 2012).⁷⁴ Japan then advanced along the Yangtze River, with 300,000 soldiers facing a defensive Chinese line of 1,000,000 soldiers across a stretch of 250 miles (Woo, 2014). Japan’s initial blitzkrieg success allowed for it to turn its attention to Wuhan. The fighting continued for over four months, with Japan’s loss of 35,500 troops forcing a change in military strategy from blitzkrieg-style attacks to secure and hold operations (Woo, 2014).⁷⁵ The Japanese military succeeded in acquiring control of multiple coastal cities and towns; however, the Japanese failed to annihilate the Chinese fighting force or win over the civilian population. Additionally, China was able to acquire, train, and deploy fighting forces where needed. The Chinese Military History Bureau of the Ministry of National Defense notes that, ultimately, Chinese efforts during the Second Sino-Japanese War resulted in “23 campaigns, 1,117 major battles, 38,931 engagements, spent Fapi \$1,464.3 billion, lost 3,237,916 officers and men in casualties and

⁷³ The events are recognized as the ‘Marco Polo Incident’ by the Chinese and as the ‘North China Incident’ by Japan (Paine, 2017).

⁷⁴ Japan attempted to brutally “annex China incrementally under the Amau doctrine” until China capitulated in whole (Hsiung, 1992, p. 300). The Amau doctrine, as referenced in the US Department of State’s (1943) Foreign Relations of the United States: Japan, 1931-1941, is akin to the Monroe Doctrine, wherein Japan claims total responsibility for ensuring peace in the region.

⁷⁵ In each of these clear and hold attempts, Japan was forced to deal with significant casualties and a lack of reinforcements or supplies. In many instances, Japanese casualties were forced to self-evacuate, walking or crawling alone through the mud to the field hospital. On multiple occasions, Japanese forces requested reinforcements and supplies as the ammunition was used up, forcing the attackers to “throw stones at the Chinese [defenders] and sometimes [to throw] back the grenades the Chinese soldiers cast at them” (Woo, 2014, p. 63).

5,787,352 civilians in casualties before achieving final victory” (Long-hsuen & Ming-kai, 1971, p. vii).⁷⁶

The Japanese military attempted to take control of Wuhan through massive aerial bombardments on 18 February and 29 April 1938, which were supported by river gunboats and destroyers from the Japanese Imperial Navy. Despite heavy shelling and massive attacks by the Japanese, the Chinese forces continued to attrit the Japanese forces and managed to repel the attackers. As Japanese forces moved up the Yangtze River, the Chinese military took advantage of the terrain and natural barriers to hold the attackers at bay and to counterattack (Long-hsuen & Ming-kai, 1971). In May 1938, Japan occupied most of China to the north and east of the Huang He (Yellow) River and attempted to advance on Wuhan from that direction. China slowed the Japanese advance by breaching the Huang He levees in June 1938 in what is “probably the largest scale act of environmental warfare in history” (Dutch, 2009, p. 287). It was only a marginally successful defensive tactic from a military standpoint, as it caused enormous loss of Chinese life through flooding, resultant disease, and famine (Dutch, 2009).⁷⁷

The flooding served to delay the Japanese acquisition of Wuhan, but the fighting continued to cause heavy casualties on both sides. In order to dislodge the Chinese, the Japanese Imperial Princes, and specifically Emperor Hirohito, crossed a firebreak on 16 August 1938 by authorizing

⁷⁶ Long-hsuen and Ming-kai provide an overview map of the Japanese and Chinese military units involved in the Battle of Wuhan from mid-June to mid-November with the respective offensive and defensive positions of Japan and China (1971, p. M-10). An online image of the map is also available at: <https://worldhistoryproject.org/1938/6/13/japanese-forces-capture-anqing-setting-off-battle-of-wuhan>.

⁷⁷ Steven Dutch’s study indicates that the intentional flooding was an “attempt to slow down the westward advance of the Japanese army south of the Huang He... Official Chinese figures place the death toll at over 800,000” (Dutch, 2009, p. 287). See also, Diana Lary’s (2001) *Drowned Earth: The Strategic Breaching of the Yellow River Dyke, 1938*. Lary (2001) and Di Wu (2020) question the ‘drowned earth’ policy utilized as a defensive measure for Wuhan. Both argue the flooding of the rivers as a riverine defense actually hindered Chinese military operations and unwittingly facilitated Japanese offensive maneuvers, as the flooding freed the Japanese from the harassment of Chinese guerrillas and also “prevented the Japanese forces from being encircled and annihilated” (Wu, 2020, p. 19).

the use of chemical weapons as part of a final air power campaign, stating, “China is the opponent... So there’s no need for any reservations about using it [gas]” (Wakabayashi, 1991, p. 7-8). Japan utilized chemical weapons during the Battle of Wuhan to break Chinese defenses and to compensate for their numerical disadvantage (Grunden, 2017). In total, the Japanese 2nd and 11th armies utilized chemical weapons on 375 occasions, ultimately employing 400,000 canisters (Yoshimi & Matsuno, 1984).⁷⁸ Japan capitalized on the effects of the chemical weapons by escalating to the blistering agents of mustard gas and Lewisite against the untrained and unequipped Chinese forces. Thereafter, Chinese troops “retreated whenever the Japanese used just smoke, thinking it was a chemical attack” (Sidell, Takafuji, & Franz, 1997, p. 36).

Japan attacked the Chinese forces defending Wuhan consistently for four months. It was only after escalating to chemical weapons that Japan successfully captured the city. According to Edward Spiers’ (2010) *A History of Chemical and Biological Weapons*, “captured Japanese reports confirm, the Imperial Army employed gas to dislodge the enemy from fortified positions, facilitate river crossings, clear caves, engage numerically superior Chinese forces... and, in the most extensive usage, deliver some 375 gas attacks... to conquer Wuhan” (Spiers, 2010, p. 77).⁷⁹ Accounts of the casualties of soldiers and civilians from the chemical attack and supporting conventional ordnance are difficult to obtain due to a lack of proper record keeping, further fighting and resultant damage, and vague references to battle casualties. It is known, however, that masses

⁷⁸ The initial use of gas consisted of the use of smoke, tear gas, and lacrimatory candles (Sidell, Takafuji, & Franz, 1997). Walter Grunden’s study of Japan’s chemical warfare policy during World War II concluded that Japan permitted use of chemical weapons against China, because China did not possess chemical weapons with which to retaliate. Japan “largely prohibited [chemical weapon] use in the Pacific against the Allies, whom they feared could respond in kind with overwhelming force. Thus, the threat of retaliation in kind served as a successful deterrent to CW employment in the Pacific Theater” (Grunden, 2017, p. 259).

⁷⁹ Japan utilized chemical weapons against China as a force multiplier with increasing recourse to, and greater diversification of, the types of chemical weapons utilized by battlefield commanders. This indicates that Japan recognized and “appreciated the utility of gas as a means of exploiting Chinese vulnerabilities” (Spiers, 2010, p. 77).

of homeless and refugees from several beleaguered cities had flocked to Wuhan prior to the final conflict. An estimate from official archival research conducted by Ch'i Hsi-sheng states that 534,040 (or 43.56%) wartime refugees and homeless people left from Wuhan for central China (Levine & Hsiung, 1992). Additionally, once the Japanese secured Wuhan in October 1938, “over 70 percent of the city’s industrial capacity was either destroyed or relocated... bringing even more chaos into the lives of the refugee population” (MacKinnon, 2008, p. 53-54).

In the wake of the chemical weapons use, continued shelling of the city, and superior firepower, the Chinese resistance withered, and the Chinese military disappeared into the interior. Seeking to avoid further losses and, “under simultaneous attack from the north, east, and south, Wuhan *capitulated* on October 25” (MacKinnon, 2008, p. 41, emphasis added). The order by Chiang Kai-shek for the Chinese military to retreat was given on 24 October 1938, and the Japanese Imperial Army took control of the city the following day. While eventually successful in taking Wuhan, Japan secured only a Pyrrhic victory, as Japanese forces suffered significant battlefield losses while the Chinese forces in Central China remained defiant and continued to fight a war of extended resistance (MacKinnon, 2008). That is to say, after capitulating to Japan over many battles, China resorted to guerrilla-style tactics. Chinese writer Fan Changjiang notes that, “the war had been a string of defeats – Shanghai, Nanjing, Xuzhou, and now two more crucial cities [Guangzhou (Canton) and Wuhan].” Fan continues, noting “that the war had simply entered a new phase. Now Chinese must rely on guerrilla warfare and must operate behind enemy lines and convert the enemy’s rear into China’s front lines” (Coble, 2011, p. 386).

As is common in most escalate-to-deescalate strikes, Japan offered political and diplomatic messaging to complement the escalate-to-deescalate strike. For instance, Japan proposed negotiations through an intermediary, the office of German Ambassador Oskar Trautmann, in

order to quell the conflict (Long-hsuen & Ming-kai, 1971). The Trautmann Mediations, as they came to be known, served as the intermediary throughout the entirety of the conflict (Zasshi, 2017). The early refusal of China to submit and the resultant eruption of the large-scale war caused Japan to hesitate in expanding hostilities and overextending itself; the Japanese government was reportedly “always ready to negotiate peace with Chiang Kai-shek’s administration” (Minoru & Si-Yun, 2014, p. 16). As Japan escalated to chemical weapons to secure the strategic city of Wuhan, it also presented China with options through the ambassador’s office to acquiesce to its demands.⁸⁰ The demands, initially presented at the start of the conflict in 1937, were offered again on 14 January 1938 and again in the summer of 1938, coinciding with the Battle of Wuhan (Komatsu, 1999). It should be noted the messaging presented at the Trautmann Mediations highlight the Japanese intention of deescalating the conflict, provided China initiated capitulation. The demands included the recognition of Manchukuo (officially, the state of Manchuria) as a Japanese province, stationing of Japanese troops in conquered territories, and economic exploitation of those territories (Wu, 1992). Chiang rejected Japan’s mandates requiring the surrender of Manchuria and the willing economic exploitation of the Japanese-occupied territories. Instead, Chiang capitulated to the territorial expansion effort by Japan, attempting to trade space for time until a future point when China would be able to expel the invader from its territory and claim victory.

⁸⁰ In an article criticizing China for the Second Sino-Japanese War, Moteki Hiromichi (n.d.) identifies the basic terms outlined by Japan through the German Ambassador which included: 1) China would renounce pro-Communist, anti-Japanese, and anti-Manchurian policies, and would cooperate with Japan and Manchuria’s anti-Communist policies. 2) Demilitarized zones will be established in required regions, and special organizations will be established. 3) Close economic agreement will be executed among the three countries of China, Japan, and Manchuria. 4) China would pay reparations to Japan. Germany attempted to mediate the conflict and encouraged Chiang Kai-shek to join its Tripartite Treaty, promising to guarantee fulfillment of any agreed upon peace terms between China and Japan (Garver, 1992). According to R.J. Rummel’s (1991) *China’s Bloody Century: Genocide and Mass Murder Since 1900*, part of the terms offered during the Battle of Wuhan were denied by Chiang, as they implied a loss of Chinese independence and threatened his control.

3.2 Danger Situation

China – its leadership and its sovereign integrity – was in a low-danger situation during the Battle of Wuhan, as Japan was unable to amass the requisite military forces and strategy to establish a politico-military dominance over the country or its citizenry. Certainly, Japan was able to project military power against the coastal cities by utilizing air and naval assets to destroy fortifications and eliminate Chinese defenses. However, China, a state that would grow to a landmass of over nine million square kilometers, was in no danger of being completely overrun.⁸¹ As Japan acquired cities and towns, it was faced with the burden of holding that terrain; over time, fewer forces were available to both attack and defend the increasingly long supply lines. The sheer size and population of China impeded Japanese attempts at territorial conquest; “even with all the Japanese armies thrown into the territory of China, they could not cover the whole area of the nation” (Woo, 2014, p. 66). Additionally, the capitulation of Wuhan by Chiang on 25 October 1938 would not, and did not, contribute to Japan gaining a strategic foothold to further control the country. The strong sense of nationalism Chiang fostered in the populace helped generate a continual and communal resistance to Japanese attempts to rule the acquired portions of the country, and underground resistance disrupted the over-extended Japanese logistical lines (Longhsuen & Ming-kai, 1971). Additionally, the ready supply of willing conscripts provided ample Chinese forces to continue battling Japan on every front (Fenby, 2003).

⁸¹ A boundary map of China during the 1930s and 1940s is available at: http://www.emersonkent.com/map_archive/china_1920_1950.htm. According to the CIA World Factbook, China’s current total area of all land and water areas as delimited by international boundaries is 9,596,960 sq km making it the 5th largest country in contemporary measurements. See, for instance, <https://www.cia.gov/the-world-factbook/countries/china/> and <https://www.cia.gov/the-world-factbook/field/area/country-comparison/>.

Chiang recognized the war with Japan would result in the loss of Chinese coastal cities, and they fell like dominoes almost immediately into the hands of the Japanese (Minoru & Si-Yun, 2014; Paine, 2017). Recognition of this prospect forced Chiang to tailor his initial battlefield response and preparation, which he did through the strategic placement of military forces and identification of subsequent fallback positions in anticipation of a protracted war of attrition (*chijiu zhan*) that would enable China to trade space for time and cause Japan to overextend itself (MacKinnon, 2008). In addition to aligning with what would be expected from a state in a low-danger situation, this concept of trading space for time was “in keeping with plans drawn up after the first Battle for Shanghai in 1932” that sought to “impose unsustainable costs” on Japan (Paine, 2017, p. 125).⁸²

For its part, Japan sought to destroy China’s will to fight, attempting to gain control of the country by attacking and securing the perceived centers of gravity.⁸³ Japan targeted multiple centers of gravity to obtain Chinese capitulation. As Paine notes:

Initially, the Japanese considered the Nationalist capital to be China’s center of gravity. They believed that if they targeted that center of gravity the edifice of Nationalist control would collapse. In 1937 they occupied the historical capital, Beijing, and the Nationalist capital, Nanjing, and in 1938 they took the interim capital at Wuhan. Each time, the Nationalists moved their capital inland, settling in 1938 in Chongqing, Sichuan, a province beyond the railhead on which the Japanese way of war depended, behind mountains that the Japanese could not cross, and upstream of rapids that made the Yangzi river difficult to navigate (Paine, 2017, p. 130).

Japan’s war efforts did not produce the desired results, however. The continuing acts of violence against population centers furthered a sense of nationalism in the Chinese. As refugees

⁸² As early as 1913, Chiang recognized the potential for conflict with Japan, in which “China would have to rely on land forces and a protracted war strategy in order to deplete Japan’s manpower and financial resources” (Loh, 1971, p. 54).

⁸³ According to Paine, “In military terminology, the Japanese determined that either the Nationalist economy or Chiang’s conventional forces (and certainly both together) constituted China’s ‘center of gravity’” (Paine, 2012, p. 135).

fled the cities seeking safety further inland, they shared news of the atrocities they experienced and witnessed, and those accounts that were reported in the media intensified their sense of nationalism (Paine, 2012).⁸⁴

By all accounts, Japan had “assumed the war in China could be wound up once they had taken north China” (van de Ven, 2018, p. 92). However, as Clausewitz notes, the defense possesses a unique advantage, irrespective of the Japanese combat power, that results from intimate knowledge of the terrain and support of the populace.⁸⁵ Further, the “analogy of [a] center of gravity” is simply that – an analogy (Clausewitz, 1984 [1874], p. 486). The strategic plans developed by the Chinese military and the growing nationalism contrasted sharply with Japan’s efforts to achieve victory. Japan became overtaxed as it was forced to extend logistical lines and garrison the acquired territory. The successful blitzkrieg-style attacks at the start of the war resulted in the Japanese capture of Beijing, Tianjin, Shanghai, and Nanjing, along with large swaths of land between the cities that forced Japan to shift “from conquest to occupation” with “the monumental task of administering their occupied territories” (Brook, 2007, p. 22). This overextension allowed China to trade space for time with the knowledge that, “while the Chinese could not defeat Japan, they could deny Japan victory” (Paine, 2017, p. 133). Speaking to the country over broadcast, Chiang told the listeners that the situation was “definitely favorable because the further the Japanese moved into the interior, the greater their problems would be as they ‘swallowed like a whale,’ taking great areas of territory they would be unable to digest. The time must come when Japan’s military strength will be completely exhausted, thus giving us ultimate victory” (Fenby,

⁸⁴ Hans van de Ven notes that the consequence of the fighting was that “some 60 million people – a seventh of the population – took flight” (van de Ven, 2018, p. 96).

⁸⁵ Carl von Clausewitz authoritatively writes, “that defense *is the stronger form of waging war*” and “the benefit of terrain” produces “advantage to those familiar with it” (Clausewitz, 1984 [1874], p. 358-360, emphasis in original).

2003, p. 310). China's ability to absorb battlefield defeats and force Japan to overextend its logistical and operational lines of effort enabled China to deny Japan a war victory.

Civilians across the captured cities of China, instead of acquiescing to Japan and working for their new masters, departed the areas for safer and more hospitable regions further inland. Many key administrative, technical, and mercantile elites fled the captured areas. Those who remained and were willing to run a civilian administration for "the Japanese were far from ideal, at best second- or third-rate figures... [some] were people who appeared willing to collaborate but were actually still loyal to the Chinese cause and found all kinds of ways to *subvert Japanese authority*" (Brook, 2007, p. 22, emphasis in original).⁸⁶

There are worrisome moments for any state facing and attempting to repel an invasion of an occupying force. As Japan escalated its tactics, wreaking devastation on the city of Wuhan, Chiang acknowledged the grim situation, but held faith and conviction in his earlier military strategy. Chiang references the Battle of Wuhan in his journals in early October 1938, noting, "I have completed planning the defense, deploying all the troops available, and the timing is also already ripe. I have tried my best, and will hereafter remain in peace in my heart... [the better to] to carry out God's mission" (Kyoungghan, 2009, p. 6). Against overwhelming odds, Chinese forces fought bravely and were not grief-stricken with the loss of the city. Instead, the Chinese combatants capitulated to Japanese demands of relinquishing the city and "conducted an orderly retreat after a hard-fought, ten-month campaign. The Chinese attrition strategy had done what it was designed to do: survive to fight another day and overextend the Japanese militarily and financially in the

⁸⁶ Simon Hall (2014) describes Japan's attempts to utilize 'puppet armies,' known as the Peace Preservation Corps, to aid in the collection of frontline intelligence gathering. Hall acknowledges these Chinese puppet troops were often involved in enterprises that were self-serving and the collection of viable and actionable information was lacking or limited in functionality and effectiveness.

meantime” (Paine, 2017, p. 127).⁸⁷ The attack resulted in significant loss of life and the Japanese acquisition of sovereign Chinese territory. Facing an onslaught of chemical weapons, the Chinese leadership decided to evacuate the city and retreat inland. On 24 October 1938, Chiang ordered his commanders to depart and on 25 October, “guns sounded and Wuhan burned... the city was surrounded on all sides, and fell to the forces of the Imperial Army” (Mitter, 2013, p. 168).

Simply stated, the leadership was not in a high-danger situation of losing control of either the country or its political, military, and civil establishments. The escalate-to-deescalate strike against the target of Wuhan did not place China in a high-danger situation. Even with the mechanized forces of Japan rapidly rolling over multiple coastal cities and taking a strategic city like Wuhan, China was not in a high-danger situation, post-strike. As such, the low-danger state of China was inclined to capitulate. China expected it may be necessary to lose the battle in order to win the war.

⁸⁷ As part of the defense of Wuhan, 3,281 sorties with 519 tons of ordnance were dropped against Japanese forces. The elite Japanese Shikaya and Kisarazu Squadrons were destroyed, along with 140 enemy planes, 158 ships, and numerous enemy airfields, barracks, logistical and command and control nodes resulting in prohibitive losses to Japanese combat strength (Long-hsuen & Ming-kai, 1971). Michael Clodfelter’s (2008) *Warfare and Armed Conflicts: A Statistical Encyclopedia of Casualty and Other Figures, 1494-2007* lists the total Chinese casualties from the Battle of Wuhan at 790,000 (1,000,000 civilian and military casualties) and the Japanese losses at 380,000 killed (p. 395). The disparity between Japanese battle deaths and wounded may be attributable to the Japanese euthanizing its gravely wounded. As a member of the Red Cross, Bob McLure recounted, “at a Japanese field hospital, he had seen only very lightly wounded men, none wearing even splints. Nearby was a burial ground. There wasn’t a shadow of doubt that the Japanese were doing away with their badly wounded men. Crippled men back in Japan would have spoiled the picture of easy conquest the High Command was painting” (Fenby, 2003, p. 331). See also, Sarah Paine’s (2017) *The Japanese Empire: Grand Strategy from the Meiji Restoration to the Pacific War*, and her chapter on ‘The Costs,’ in particular.

3.3 The Value of Wuhan

Wuhan in 1938 falls into the high-value target category due to its military, political, and economic worth. That is, though its loss would not put China in a high-danger situation, Wuhan was exceptionally important to the defenders. Japan's escalatory strike upon Wuhan accordingly served to demonstrate its willingness to continue inflicting violence against China and its citizens. The selection of Wuhan as the target is notable as, during the Second Sino-Japanese war, Wuhan served as the wartime capital of China, anchoring China's military and civil response while also providing shelter to the displaced refugees fleeing coastal cities (MacKinnon, 2008). It was a strategic city full of burgeoning commerce and transport, importing and exporting goods throughout China and abroad. The importance of Wuhan as an economic hub is demonstrated by the multiple trading ports and designated foreign-concession areas in the region. Collectively, the two million military defenders, political leadership, and the civilian trade created in Wuhan a potential center of gravity, the taking of which might result in a windfall for the Japanese Imperial Army (Paine, 2012). It must be noted that the target of the escalatory strike was the city of Wuhan; however, the violence was perpetrated against those attempting to defend the city from the Japanese onslaught. While the objective was Wuhan, Japan's only option to acquire the city was through forcing the defenders from it. The targeting of Wuhan by Japan thus equates to a counterforce *and* countervalue strike. The escalatory strike against Wuhan, as a high-value target, thus demonstrated Japan's willingness to inflict additional future violence.

Scholars regard the Battle of Wuhan as one of the most heroic and important battles in modern Chinese history; it was also a battle which demonstrated Japanese resolve to achieve its desired ends (MacKinnon, 1996, 2007, 2008; Ye, 2010; Paine, 2012, 2017). Militarily, the city of Wuhan served as the war-time capital for China. It was where strategic decisions were made

pertaining to the ongoing conflict writ large, including which military resources to place against the continuing Japanese expansion (Long-hsuen & Ming-kai, 1971). As a strategic location, and center of gravity, Wuhan served as “the staging ground and logistics base for two million Chinese troops” (Paine, 2012; MacKinnon, 2008, p. 1). The military importance of the city was recognized by Japan, and was subsequently targeted in the belief that a victory over Wuhan would result in a victory over all of China. Japanese leaders noted the strategic importance of the area and anticipated that, “should the Chinese regulars be defeated at Wuhan, coupled with the capture of top-ranking Chinese leaders, organized Chinese resistance might be brought to an end entirely” (Chen, 2004, np).

Wuhan was also militarily critical to China in part due to the railway lines that crossed through it. The Japanese military command noted the railway offered a strategic target in the spring of 1938 (Mitter, 2013). Chiang summoned his military leaders to a conference where he explicitly noted the strategic importance of Wuhan, stating that the railway line, “if seized, would give the Japanese mastery over north-south travel in the populous area of central China” (Mitter, 2013, p. 146-147). Later, as Japanese forces acquired more terrain and encircled Wuhan, Chiang gave a speech “in which he linked the defense of Wuhan to the fate of the party itself” (Mitter, 2013, p. 148). Japan, likewise, sought to obtain the rail infrastructure and the associated military transport to secure its hold over the region and demonstrate its resolve to hold the land around Wuhan (MacKinnon, 1996; Paine, 2017).

Politically, the city of Wuhan served as the seat of governmental power when the battle was being waged. In addition to the military, the political elite resided or relocated to Wuhan, including important cultural figures (Mitter, 2013). Japan’s decision to strike the city housing these political leaders served to demonstrate a strong will, and suggested it possessed the commitment

to continue the conflict if necessary. Striking Wuhan thus serves as a message to the political elite that they stand to lose even more if Japan's demands were not met. The willingness of Japan to strike such a city of important political figures demonstrated Japan's resolve and credible commitment to continuing the violence to secure the region.

Economically, Wuhan meets the definition of a high-value target. Historically, Wuhan's geographic location provided China with a center of interregional trade for the collection, production, and dissemination of commodities throughout the empire. The waterway and railways were "located nearly at the geographic center of China proper," and the city "was thus the single most important entrepot for China's domestic interregional trade" (Rowe, 1989, vii). The city of Wuhan, as a commercial center, facilitated the movement of goods and services throughout China (MacKinnon, 2008). Wuhan was an economic hub, dubbed China's Madrid and the Chicago of China, with numerous trading ports facilitating the movement of goods to and from Western countries such as Britain, France, Germany, and Russia (MacKinnon, 2008). Foreign states also recognized the prominent position of commerce. Missionaries in Wuhan described the commercial and economic importance of the city as follows:

Commercially considered, [Wuhan] is one of the most important cities of the East. To it, the native merchants, not only from all parts of Hubei province, but from all the surrounding provinces for hundreds of miles, go up. It is the rendezvous of the foreign merchant and the native buyer in central China – a wonderful emporium for trade – a Chinese cosmopolitan city (Ye, 2010, p. 16).

The city of Wuhan thrived from the international trade brought through its port and factories. Western states such as Russia, Britain, Germany, and the United States established concessions along the 3,600-meter-long river road, taking advantage of the cheap labor and access

to raw materials.⁸⁸ By the early 1930s, Wuhan was “deeply involved in the foreign trade” and was a burgeoning “center for collecting and processing native goods and an outlet for western industrial commodities. The westerners simply plugged into an existing system of trade at Hankou and transformed it into part of the large foreign trade network” (Ye, 2010, p. 35-36). In the years immediately preceding the Second Sino-Japanese War, the level of commerce conducted at Wuhan was greater than that carried out in the actual Chinese capital (Paine, 2017). Japan’s target selection of Wuhan demonstrated its willingness to strike such a burgeoning city. Japan’s strike severed the economic ties and disrupted the flow of goods and services across the region. The intended compellent message aimed to demonstrate that Chinese resistance was untenable and the only resolution to further loss is capitulation.

A final factor contributing to Wuhan’s value was the burgeoning civilian population of the city. The growing metropolis, with its “urban reformist elite,” captured the attention of many foreign newspapers that drew comparisons of Wuhan’s political importance with that of the “ever-more-literate societies of Dickens’ London and Verne’s Paris” (Rowe, 1989, p. 26). As MacKinnon states, “Nowhere was the embrace of mass culture and politics in the arts and by intellectuals more fervent than in Wuhan for ten months in 1938 when it was the de facto capital” (MacKinnon, 1996, p. 932). With the outbreak of hostilities, civilians flocked from the coastal cities and made their way inland, many of whom transited through Wuhan. As Steven MacKinnon notes:

The forced migration of huge populations, including elites, was of epic proportions and unprecedented scale. The defense of Wuhan turned most of the populations of the central Yangzi valley from Nanjing to Yichang into refugees at one point or another. Both urban and rural communities were decimated by the constant back-and-forth fighting and bombing. Surviving family members could do little more than run. Millions of families

⁸⁸ Large quantities of Western merchandise, including cotton and wool textiles, hardware, Western medicine, and food products, flowed into the port of Wuhan and items like tea, beans, eggs, oil, and meat flowed out (Ye, 2010).

were torn apart and displaced by the war; the suffering of women and children was particularly grave and long lasting. Refugees who had fled earlier from the north and the coastal areas met the refugees streaming into Wuhan (MacKinnon, 2008, p. 43).

By the spring of 1938, Wuhan's estimated population grew to surpass 1.5 million people.

This massive migration was recorded by two American eyewitnesses, Theodore White and Annalee Jacoby, in their book *Thunder Out of China* (1946):

Through the long months of 1938, as the Chinese armies were pressed slowly back toward the interior, they found their way clogged by moving people. The breathing space of winter had given hundreds of thousands time to make their decision, and China was on the move in one of the greatest mass migrations in human history (White & Jacoby, 1946, p. 55).

In addition to the refugees streaming into Wuhan to escape the fighting, violence, and atrocities against Chinese civilians in other parts of the country, approximately 170 factories had relocated to Wuhan and began operations.⁸⁹ Alongside the machinery came a skilled labor force that included “large numbers of engineers and technicians. Estimates indicate that over forty thousand skilled workers fled inland during the war, and most of them passed through Wuhan in 1938” (Ye, 2010, p. 149). Striking this city, and the population center, furthered Japan's violent message by signaling its willingness to further punish those seeking refuge from the horrors of war, potentially turning those citizens against their political elites.

In summary, Japan's selection of Wuhan as the target of its escalate-to-deescalate strike lent credence to its implied willingness to strike additional targets of similarly high value if Chinese capitulation was not forthcoming. Wuhan was a high-value target due, in part, to the fact that: 1) it was home to strategic military and political command and control infrastructure; 2) it was an economic hub considered “the most industrialized and populous commercial city” positioned on the Yangzi river with an important railway system, enabling import and export

⁸⁹ For descriptions and stories of the atrocities committed by Japanese soldiers against the men, women, and children of China see, for instance, *The Rape of Nanking: The Forgotten Holocaust of World War II* (1997) by Iris Chang.

throughout all of China; 3) it was an established trading port with the US, Britain, France, Germany and Russia; and 4) it was home to thousands of Chinese refugees seeking security from the violence inflicted elsewhere (Wu, 2020, p. 1).

Japan's indicated willingness to continue inflicting harm on the Chinese in the absence of the latter's capitulation, as suggested through its strike on the high-value city of Wuhan, does not fully answer the question of why China did so in this instance. The theory, as presented here, suggests that an attacked state, whether in a low-danger or high-danger situation, will determine its ultimate response only in part based upon the demonstrated willingness of the attacker to continue to escalate. Credibility, the characteristic of the implied threat in Japan's escalate-to-deescalate strike, is a function of both willingness and ability. It is necessary, therefore, to look at Japan's ability to make good on its threat to fully understand why China capitulated. Said differently, adding in the calculation of the damage sustained by Wuhan and its defenders is necessary to judge the capacity of my theory to account for China's capitulation.

3.4 Damage to Wuhan

The harm inflicted by the Japanese escalate-to-deescalate strike places the attack squarely in the high-damage category. The demonstrated ability of Japan to strike high-value targets like Wuhan with resultant high damage provided China with credible evidence as to Japan's ability to inflict comparable harm against future targets. The loss of the military and civilian seat of power, the destruction of the city infrastructure, in addition to the loss of available resources, land, material, and the loss of a labor force, aptly demonstrated Japan's direct ability to continue inflicting harm against China if it failed to capitulate. Facing an opponent that credibly

communicated its willingness and ability to inflict future violence, a state in a low-danger situation ought to capitulate – even if said capitulation only serves to trade space for time in which to return to the conflict at a more opportune moment.

In explaining the damage to Wuhan, I first discuss the damage sustained and the impacts from the use of chemical weapons against the soldiers and civilians defending the city, followed by outlining the normal level of operations and the recuperation efforts required to return the city to its pre-strike standing. As described above, the city had the unique characteristic of being a civil and military command and control node as well as a major economic and industrial center. The damage to the city and its populace from the attack significantly impacted each of these aspects, with a significant loss of military and civilian life; a direct financial loss; and destruction of religious, cultural, historic, and symbolic sites. The high-damage escalatory strike demonstrated Japan's ability to carry out future strikes which, when coupled with the demonstrated willingness to strike future targets, provides the credible messaging that Japan would continue inflicting similar levels of violence against similarly valued targets.

3.4.1 Damage From Chemical Weapons

Despite Japanese claims to the contrary, evidence exists in primary literature and in the memories of the descendants from the war to confidently conclude Japan employed chemical weapons to break the stalemate as an escalatory attempt at the Battle of Wuhan.⁹⁰ For example,

⁹⁰ The Memorial Hall of the People's War of Resistance against the Japanese, located at the site of the Marco Polo Bridge Incident, contains a large exhibit displaying photographs, texts, and artifacts demonstrating the use of poisonous gas and medical experiments by the Japanese during the Second Sino-Japanese War through dioramas and recreated scenes. See, for instance, Ching Lee & Guobin Yang (2007), Jeremy Taylor (2015), and Kari Shepherdson-Scott (2018).

the second official document discovered by researchers proving the Japanese army used chemical weapons against the Chinese in Wuhan “describes how the Japanese 2nd and 11th armies used about 40,000 canisters and shells of sneezing gas on 375 occasions against Chinese troops in the Wuhan areas of Central China” (Yoshimi & Matsuno, 1984, p. 8). Another document uncovered in 1985 by historian Tanaka Nobumasa notes the Japanese Imperial Prince Higashikuni drafted a letter of authorization for employing chemical weapons against Chinese forces, provided “it could be done effectively and without incurring Western censure” (Wakabayashi, 1991, p. 8).⁹¹ During an interrogation prior to the International Military Tribunal for the Far East, or the Tokyo Trials, Lieutenant Colonel John E. Beebe, Jr. of the US Chemical Warfare Service, questioned General Kawabe Masakazu on Japan’s use of chemical weapons.⁹² Despite denying any knowledge of Japan’s chemical weapons use, the Japanese report bearing Kawabe’s name, states that “some Chinese soldiers had died by asphyxiation, sticking their noses and mouths into the ground to avoid breathing the smoke” (Grunden, 2017, p. 265).

While the direct costs and damages from the chemical strike on Wuhan are not specifically delineated in the historical literature, including that produced by the Chinese or the Red Cross, it is possible to gather the disparate references to the impacts on different sectors of the city and create an overall qualitative damage assessment. As R.J. Rummel notes, there are “no figures available on the overall death toll from these incidents, not even rough estimates... even when there were recorded deaths for an incident, there may have been many more deaths unreported or

⁹¹ Historian Tanaka Nobumasa unearthed a top-secret memo from the Imperial Prince Higashikuni, issued down through the Army General Staff, in which authorization for chemical weapons use was laid out in the form of orders called *rinsan-mei* and *tairiku-mei* that purportedly came from Japan’s Emperor, Hirohito (Wakabayashi, 1991, p. 7).

⁹² During the Marco Polo Bridge Incident that ignited the Second Sino-Japanese War, Kawabe Masakazu was a Major-General and a commander in the Permanent China Brigade. He had served as the Deputy Chief of Staff of the North China Army and the Chief of Staff of the Central China Expeditionary Army during the war. With his service record and the document *Lessons from the China Incident* bearing his name, Kawabe can be understood to have been directly positioned to know of Japanese employment of chemical weapons use against Chinese forces (Grunden, 2017).

misdiagnosed, given the relatively primitive and disorganized medical conditions in China during the war” (Rummel, 1991, p. 141-142). According to the Stockholm International Peace Research Institute, the “Japanese units active in China included 25% chemical projectiles in the complement of artillery forces, and in the store of aviation munitions 30% were chemical bombs. In several battles up to 10% of the total losses suffered by the Chinese armies were due to chemical weapons” (SIPRI, 1971, p. 147).⁹³ Japan’s own *Lessons From the China Incident* notes it utilized 18,000 toxic candles across nine kilometers “providing support and a screen for an infantry assault” to help break the hold (SIPRI, 1971, p. 148).⁹⁴ The fighting forces, and the civilian populace of Wuhan, rapidly fled any area in which the Japanese employed concealing smoke out of fear it was a chemical weapons attack (Sidell, Takafuji, & Franz, 1997). The casualties directly attributable to the use of chemical weapons during the Battle of Wuhan may be unreported and unknown. However, combining the SIPRI chemical weapons casualty estimate of 10% (1971, p. 147) and the 1,000,000 civilian and military casualties noted by Michael Clodfelter (2008, p. 395), a rough estimate of chemical casualties at the Battle of Wuhan equates to over 100,000 Chinese killed or wounded. Glyn Volans and Lakshman Karalliedde write that survivors who were exposed to these chemical warfare agents, “have been shown to have evidence not only of chronic respiratory disease, but also of cancer of the pharynx, larynx, and lung” (Volans & Karalliedde, 2002, p. 36).

⁹³ Outlawed by the 1925 Geneva Protocol, asphyxiating, poisonous, and other gases were used by Japanese forces against unprepared Chinese troops and civilians. At the War Crimes Tribunal following the end of hostilities in World War II, Japan freely admitted to employing irritant gases, such as Lacrimatory candles, but denied using those prohibited by international law. However, evidence of Japan’s use of these prohibited chemical weapons are available from Japan’s own reporting of their use and official memoranda, including Japan’s Inspectorate-General of Military Education’s *Lessons From the China Incident*. In 1939, the Lieutenant General Hashimoto Mure “admitted to Prince Takeda that poison gas was used in the fighting” (Ienaga, 1978, p. 187). Technical assessments conducted by Soviet and US authorities in addition to medical records from the Red Cross and the League Health Organization portray a different truth than that espoused by Japan. See, for instance, SIPRI (1971); MacKinnon (2008); and Frank Jacob’s (2019) *Genocide and Mass Violence in Asia*.

⁹⁴ Japan’s report listed 889 fatalities as a direct result of chemical weapons prior to 1939, which includes the Battle of Wuhan (SIPRI, 1971, p. 148).

These symptoms can afflict survivors, even those with only exposure to low doses of mustard or Lewisite, and that “disorders of the respiratory tract and eyes, and consequent malignant diseases are possibly greatest for this gas than for any other chemical warfare agent” (Volans & Karalliedde, 2002, p. 36).⁹⁵

The long-term social and economic impacts pertaining to the use of chemical weapons are not often discussed in any detail.⁹⁶ There are direct costs, including the life and health of those in contact with the chemical weapons and the costs to the health sector treating or caring for those individuals. There are also intangible or indirect costs to the community and society of Wuhan, including the remediation requirements. Finally, there is the environmental damage sustained in the attack, which can have long-lasting implications.⁹⁷ Not every impact associated with the use of chemical weapons is directly measurable, however. For instance, the psychological fears of those who suffered chemical weapons exposure or observed or heard stories of individuals suffering chemical weapons exposure cannot be measured quantitatively.

In summary, the chemical weapons escalate-to-deescalate strike during the Battle of Wuhan corresponds to the high-damage category as it credibly demonstrates Japan’s ability to inflict similar levels of damage against future Chinese targets. The loss of life and wounded directly attributable to the chemical weapons strike, argued here as approximately 100,000 Chinese

⁹⁵ A systematic review on the quality of life for veterans exposed to mustard gas concludes that those exposed “can hardly handle personal affairs and almost all had problems related to managing living costs because they not only sustained physical disorders, i.e., pulmonary, dermal, and ocular complications, but they also experienced fatigue, sleep disturbances and adjustment disorders. Further, they suffered from mental diseases, e.g., depression, anxiety, and PTSD. Abbasi reported that exposed veterans often encountered unsuitable income level, employment status, and dwelling place” (Satkin, Ghanei, Ebadi, Allahverdi, & Elikaei, 2017, p. 123).

⁹⁶ For a detailed report on the costs associated with chemical weapons use, see Dan Kaszeta’s (2016) article “Decontamination Of Buildings After An Anthrax Attack: The 2001 Anthrax Attacks, 15 Years On,” which is one of the few assessments on the direct and indirect costs associated with chemical weapons.

⁹⁷ See, for instance, the environmental study by Katarzyna Chmielińska, Daniel Hubé, Tobias Bausinger, Markus Simon, Gilles Rivière, Patrik Fauser, and Hans Sanderson (2019), looking at the residual toxicity from mustard agents in WWI.

soldiers and civilians, is not inconsequential. The Chinese soldiers and civilians exposed to the chemical agents were bound to suffer “severe dermal, gastrointestinal, respiratory and ocular injuries” in addition to the internal post-traumatic scars throughout the remainder of their lives (Solberg, Alcalay, & Belkin, 1997, p. 461). Finally, there is the long-term environmental damage to the land and water sources utilized by the population for bathing, drinking, cooking, agriculture, and industry (Chmielińska, et.al., 2019).

3.4.2 Normal Level of Operation

The normal level of operation for the city of Wuhan was primarily that of an economic trading center and port city providing access to the interior of China, linking it with the outside world (MacKinnon, 2008; Paine, 2017). During the Second Sino-Japanese War, Wuhan also served as a civilian and military command and control center that orchestrated the war effort, facilitated the transport of goods and commodities, and became a new home for those seeking refuge from atrocities and ravages of war (MacKinnon, 1996, 2007). Japan’s escalatory strike on the city greatly disrupted the daily operations of China’s ability to lead, govern, and provide security for its populace. Collectively, the strike against the city and the damage sustained provided China with the recognition that Japan possessed both the willingness and the ability to continue inflicting further violence upon the military, the political elite, the citizens, and against the infrastructure of China.

The loss of the city significantly degraded trade, shipments of materials and troops, and control of both the waterways and railways. The loss of the Chinese military defenders, estimated at 790,000 killed in action, is not insignificant (Clodfelter, 2008). It took years to rectify the disrepair and damages associated with the Battle of Wuhan and return the city to pre-war levels of

operation (Paine, 2017). The economy of Wuhan, like that of many of the cities attacked by Japan, took decades to recover (MacKinnon, 2008; Paine, 2012). Historians Diana Lary and Stephen MacKinnon note that, “Wuhan lost two-thirds of its industrial capacity between 1938 and 1941,” and that “the long-term damage to the region was incalculable” (Lary & MacKinnon, 2007, p. 12 & 112).⁹⁸ As William Kirby notes:

No one knows precisely the amount of the losses suffered by the Chinese economy as a result of the war between 1937-45, but there is no doubt that they were staggering. Between fifteen and twenty million Chinese perished. China’s initially small industrial output shrunk even further. In agriculture, the war intensified an already serious agrarian crisis. China’s currency became increasingly worthless (Kirby, 1992, p. 185).

3.4.3 Recuperation Time Required

The Battle of Wuhan left the city in ruins. The Chinese military leadership and government fled inland, far upriver where it was difficult for the Japanese to reach. The populace in the region was left, under the control of Japan, to pick up the pieces and attempt to recover. As noted throughout, many of the records from this time exist only in the memories of the descendants, war murals, and war art. The extent of the damage and the carnage inflicted “was so bad and pervasive that much went unrecorded” (MacKinnon, 2007, p. 121).⁹⁹ MacKinnon states in *Wuhan, 1938: War, Refugees, and the Making of Modern China* that “Wuhan’s economy did not recover and

⁹⁸ MacKinnon notes in *Scars of War: The Impact of Warfare on Modern China* (2007) that the historical accounting of the damage to the country, the economic loss, the loss of life, and the displacement of large swaths of the population is severely lacking. As a result, historians of the Second Sino-Japanese war are forced to “rely on random foreign and domestic contemporary accounts and the few official ‘war damage’ reports that were compiled after the fact. The resulting data is spotty in coverage and regional in focus. This leads inevitably to impressionistic conclusions. Systematic annual surveys of refugee movements such as those done in our own era by the UN or the US State Department simply did not exist” (MacKinnon, 2007, p. 119).

⁹⁹ A report released by the Chinese government in 1995, titled *Progress of Human Rights in China* and covering the damage sustained during the Second Sino-Japanese War, “states that the number of Chinese military and civilians killed or wounded over the eight years was 35 million, while damages and losses were estimated at \$600 billion” (Toshiya, 2019, p. 145).

grow until the late 1950s and early 1960s, when [Wuhan again] became a center for heavy industry and regained its position as a nexus for regional commerce” (MacKinnon, 2008, p. 113). MacKinnon notes that “Decades were to pass before the economies of major battlefield cities like Wuhan returned to prewar levels” (MacKinnon, 2008, p. 47). While the city of Wuhan faced additional challenges after the battle in the form of infighting between Chiang and Mao Zedong during the civil war that followed Japan’s defeat, the city’s most significant damage resulted from the Battle of Wuhan.

The industrial losses and the damage to the economy from the Battle of Wuhan left the city “substantially worse off in 1946 than it had been in 1937... the first two years of the war witnessed the destruction of over 50 percent of Chinese industries,” many of which were formerly operating in Wuhan (Kirby, 1992, p. 185). Foreign investments in pre-war China were estimated at \$3.5 billion, of which \$800 million was lost during between 1937-1938 and, across much of China, the “crop yields remained lower in 1949 than they had been in 1937” (Kirby, 1992, p. 186). The residents of Wuhan suffered as well; official archival reports estimate 43.56 percent of the population departed Wuhan as refugees (Levine & Hsiung, 1992).

Japan sought to defeat China at the Battle of Wuhan by targeting the seat of military and civil power in an effort to destroy China’s industrial and wartime infrastructural capacity. The military and civilian leadership of China feared “that if Wuhan were lost, the country would essentially be split into north and south halves,” potentially placing China in a high-danger situation, resulting in significant complications for moving men and materials (Mitter, 2013, p. 165). The loss of Wuhan, according to Chiang, “would also be a great spiritual loss” (Mitter, 2013, p. 166). Ultimately, however, Chiang remained confident in the ability of the military and the populace to absorb the attacks and ultimately succeed through the war of attrition (Long-hsuen &

Ming-kai, 1971; MacKinnon, 1996). China found these near-apocalyptic fears to be misplaced following the strike. The escalatory strike did not place China in a high-danger situation as many had feared. As noted above, the loss of Wuhan did not alter the danger situation of China. In fact, Chiang pulled troops out of combat roles to undergo additional military training and increase their combat effectiveness for the next stage of the conflict as part of its strategy to trade space for time (Long-hsuen & Ming-kai, 1971).

In summary, Japan credibly demonstrated its ability to inflict future violence upon China if it failed to capitulate. The displacement of the seat of military, civil, and economic power with the loss of civilian and military lives, and the loss of sovereign and strategic territory reflects the ability of Japan to inflict high damage against future targets. Combined with the high-value status of Wuhan as a target, Japan's indicated ability meant that its threat to continue inflicting violence on China if it did not capitulate – implicit in the escalate-to-deescalate strike – was credible.

3.5 The Response

Collectively, China's low-danger situation, the demonstrated Japanese willingness to strike a high-value target, and its ability to inflict high levels of damage combined to create a situation in which my theory expects an attacked state to capitulate. In line with my expectation, China responded to Japan's escalate-to-deescalate strike at the Battle of Wuhan with tactical capitulation and retreating, leaving the strategic, high-value city to the Japanese. The impact of the credibility of Japan's compelling threat, coupled with China's low-danger situation, facilitated a response in line with China's baseline tendency. Japan's ability to strike high-value targets and inflict high-damage against those targets suggested a virtual certainty that Japan would continue to inflict

further violence if capitulation was not forthcoming. China's response was that of trading space for time in order to further its strategic goals. Continued fighting and counter-escalation were both available options. However, neither would have furthered China's strategic goals and could even have created a potentially catastrophic course, as it might have resulted in China's danger situation changing from low to high.

The Japan Institute of International Affairs hosted a public symposium on the Second Sino-Japanese War on 14 February 2018, with presentations, discussions, reports from the battlefield, and official government papers. The summary of the seminar's proceedings notes that the Japanese were "taxed and at their limit after the Battle of Wuhan, causing [the] military to seek a political and diplomatic solution" (JIIA, 2018, p. 1). Japan did strike a perceived Chinese center of gravity, and successfully demonstrated its willingness and ability to inflict greater levels of violence. With the victory at the Battle of Wuhan, Japan controlled the coastal provinces, North China, and the strategic central Yangtze with Wuhan's railways. However, Japan "had failed to deliver a knockout blow [or place China in a high-danger situation]. The Chinese armies, battered and bloodied but still unbeaten, retreated yet further into the vast interior of their country, beyond the range of the now overextended Japanese armies" (Williamsen, 1992, p. 147). After the capitulation at Wuhan, Chiang altered China's strategy to that of limited offenses and counterattacks, primarily in the form of guerrilla attacks aimed at wearing down Japan's hold over the country (Long-hsuen & Ming-kai, 1971). This new strategy "impeded the Japanese ability to launch major new offensives," as Japan was forced to disperse its conventional army to fight the insurgency (Paine, 2017, p. 133). In keeping with my theory of a low-danger state capitulating to trade space for time, Chiang argued that the capitulation at Wuhan was significant, stating at the time that it marked "a turning point in our struggle from the defensive to the offensive. It also [marked] a beginning of a

change of tide in the war. It must not be mistakenly viewed as a military reverse or retreat” (Eastman, 1984, p. 133-134).

Unable to obtain the desired outcome in China, the Second Sino-Japanese war settled into a stalemate that would simmer through the end of World War II. Japan succeeded in acquiring the strategic city of Wuhan on 25 October 1938 at a cost of 380,000 soldiers and turned its attention to holding its territorial gains as the stalemate continued (Clodfelter, 2008). For its part, China’s defense of “Wuhan came at a terrible human cost: over half a million men killed or wounded in the long series of battles up and down the Yangzi valley. Soldiers received little medical attention, disease was rampant, and food was scarce” (MacKinnon, 2008, p. 42). However, in line with the theory presented here, China’s capitulation of Wuhan allowed for the continued survival of the nation.

3.6 Alternative Explanations

Some may argue China’s capitulation resulted from factors other than those I have identified. While there may be other explanations for China’s decision to capitulate in response to Japan’s escalate-to-deescalate strike, the two most probable alternatives are not convincing. Those alternative explanations for China’s capitulation are, first, the possibility that leadership had dovish tendencies, and second, that China’s military capability and capacity was insufficient to continue fighting or counter-escalate.

3.6.1 China Doves

The claim that Chinese dovishness accounts for the capitulation of Wuhan fails because the leadership of China is better understood as predominately hawkish and prone to engage in risky or combative behaviors. For instance, the ruling class of China prior to the Second Sino-Japanese War, including the warlords, the Nationalist party of Chiang, and the Communists associated with Mao, battled internally in addition to engaging in democide on a regular basis (Eastman, 1984; Rummel, 1991). The leaders, primarily Chiang and Mao, engaged in years of bitter and deadly internal conflict, resulting in millions of Chinese deaths. Chiang spent several years battling Mao and the Communist party and “may have succeeded in eradicating the Party had the Japanese not advanced into central China” (Grauer, 2016, p. 100).¹⁰⁰ In addition to the internal hawkishness displayed by the leadership, the warring Chinese factions utilized the opportunities found in war to send untrusted troops to the front, while holding loyal troops in reserve to increase their powerbase (Paine, 2012). In the instance of the Battle of Wuhan, the Chinese leadership attempted to put up a solid defense of the city and repel the onslaught of Japanese forces. Nevertheless, the hawkish leadership chose capitulation and did not attempt to call additional reinforcements to continue defending Wuhan. In this instance, the virtues of prudence and trading space for time appear to have outweighed any hawkish impulses, and capitulation was pursued in response to Japan’s escalate-to-deescalate strike.

¹⁰⁰ See also, Rummel (1991), MacKinnon, Lary, and Vogel (2007), and van de Ven (2018).

3.6.2 Insufficient Capacity

China capitulated despite retaining an ability to respond militarily throughout the Battle of Wuhan and the larger Sino-Japanese War. China pulled soldiers and war materiel straight from the population through both conscription and volunteerism fed by fervent nationalism (Kirby, 1992). China's wartime policy of conscription "withdrew farmers from the fields and permitted previously unimaginable labor shortages to develop at planting and harvest time. Conscription was not limited to human beings but included the requisition of livestock, tools, and the critical means of transporting harvests" (Kirby, 1992, p. 186). At the same time, Chiang fostered nationalism and a commitment to the Chinese defense of Wuhan by continually referring to a collective determination to fight the Japanese to the end, pointing out at a Wuchang Conference in 1938 that "the Japanese forces, poorly disciplined and brutal, would be defeated in the end" (Long-hsuen & Ming-kai, 1971, p. 176). His strategic vision throughout the war emphasized forcing Japan to overextend its forces by occupying captured land (Woo, 2014). In essence, Japan would be required to leave troops at each of the acquired cities and towns. Those reductions, coupled with battlefield losses, would reduce Japan's fighting force as the attackers pushed forward against the Chinese.

Did China's conscription and inspired volunteerism provide it with the capability to continue fighting at the Battle of Wuhan? The evidence would cautiously indicate that it did. China acquired its needed military forces through conscription and had an available pool from which to pull fighting forces if needed. The necessary armaments, in the form of light machine guns, artillery, hand grenades, and explosives were present in addition to small arms and ammunition (Williamsen, 1992; Ch'i, 1992; Whitehurst, 2021). In preparation for the Battle of Wuhan, Chiang "organized pack howitzers and anti-tank guns accompanied by necessary infantry and engineers

into several mobile artillery detachments” as part of a quick reaction force to employ, if needed (Long-hsuen & Ming-kai, 1971, p. 253). These armaments, in addition to supporting naval assets, were available for the defense to utilize if called for. However, there was a vast disparity in weaponry with a disproportionate advantage in favor of Japan, especially with regard to aircraft and armored vehicles.¹⁰¹ Japan’s superiority in air power “enabled it to bomb and strafe military and civilian targets with impunity,” while Japanese “tanks and armored vehicles condemned Chinese infantry soldiers to a position of absolute defenselessness” (Ch’i, 1992, p. 170). Additionally, the extensive and indiscriminate use of chemical weapons against the untrained and ill-equipped Chinese terrorized both the populace and the fighting forces. These disparities existed from the start of the Second Sino-Japanese War, however, and China continued to counterattack and refuse to acquiesce at every turn. China had the manpower, the nationalist fervor, and the willingness to continue fighting at Wuhan if Chiang had ordered it. The outcome of such a decision is an unknown counterfactual. In the end, Chinese forces made a valiant defensive stand over four arduous months of heavy fighting that ultimately resulted in a stalemate between the two sides; Japan could advance no further. As the onlookers White and Jacoby note:

The Japanese blundered in China... They were fighting more than a coalition of armies; they were fighting an entire people. They had watched the infant growth of Chinese industries on the coast, had marked the new railways on the map. But the strength of the Chinese was not in their cities; it was in the hearts of the people... There was an enormous elasticity in the system that Japan meant to wreck – when it was struck, it yielded, but did not break (White & Jacoby, 1946, p. 54-55).

¹⁰¹ The Chinese also faced the issue of subpar and dangerous equipment. According to Hsisheng Ch’i’s study of the war, approximately “80 percent of the hand grenades failed to explode. Gun barrels would sometimes explode unpredictably. Their primitive weapons made Chinese troops helpless against enemies entrenched behind hardened fortifications, and the weapons’ unreliability only further eroded the soldiers’ confidence” (Ch’i, 1992, p. 170).

In summary, China had the capacity and willingness to continue fighting at the Battle of Wuhan, had Chiang ordered it so. China had the will of the populace, an available pool of recruits, and the arms and ammunition to continue defending the city of Wuhan.

3.7 Conclusion and Implications

This chapter explained the case of Japan's escalate-to-deescalate success through the use of chemical weapons against China during the Battle of Wuhan. Collectively, China's low-danger situation, the high-value of the target struck, and the high level of damage inflicted resulted in China's tactical capitulation. Japan's credible compellent signals of a willingness to strike high-value targets and its ability to cause high levels of damage provided high confidence that it had the violence held in reserve to continue employing increasing levels of violence if China did not alter its behavior. In line with the theory advanced in this dissertation, a low-danger state, such as China, would use the information portrayed in the escalatory strike to help it determine its future and prioritize its values of surviving, winning the war, and minimizing costs. The collective signals provided credibly highlight Japan's willingness and ability to inflict additional rounds of violence against similar targets with similar levels of damage – potentially to the extent that it places China in a high-danger situation.

Table 3.1, summarizes this case study, highlighting how the independent variables act upon the dependent variable and shaped the outcome. The table contains the firebreaking attempt employed by Japan, China's danger situation, the value and damage of the target and the outcome.

Table 3.1: Battle of Wuhan, 1938

Firebreak:	Chemical weapons used to dislodge Chinese forces from defensive positions.
Low-Danger Situation:	China was not in danger of succumbing to Japanese attempted hegemony or politico-military dominance. The geographical makeup of China and leadership dispersion allowed the state to trade space for time facilitating its reconstitution and reorganization to continue fighting on different fronts.
High-Value Target:	Strategic city, site of wartime capital of China, trading ports with designated foreign-concession areas including British, French, German, and Russian zones, economic hub. Dubbed ‘China’s Madrid.’
High-Damage:	70% of industrial capacity destroyed or relocated, 43% of population considered refugees or homeless.
Outcome:	Capitulation. China surrendered the town of Wuhan, departing for Central China and trading space for time in the larger war effort.

Through Chinese tactical capitulation, Japan overextended its forces and was forced to then fight a protracted war of attrition (*chijiu zhan*) (MacKinnon, 2008). The success of Japan’s escalate-to-deescalate strike succeeded in accomplishing its intent. However, the initial success did not diminish the desire of the Chinese to rectify that situation, or the punishment received. Throughout the simmering war of attrition, Japan ultimately suffered its own wartime defeat. The communal suffering by Chinese civilians across the country at the hands of the Japanese lent itself to furthering and inspiring a fervent Chinese nationalism against a common foe, and not against the government that conscripted the fighting forces or commandeered civilian property for the war effort (Fenby, 2003). The large landmass of the country, with the devoted populace, impeded Japan’s attempts to wrest control of China. For these reasons, China did not face the potential loss of support from its citizens or its military. With the ability to absorb Japanese punishment and acquiesce sovereign land to Japan, China was able to capitulate at the Battle of Wuhan without losing control of either the nation or the populace. The general tendency of a state in a low-danger

situation, noting the credible threat of future violence, as demonstrated through the willingness and ability by Japan, reinforced China's predilection to capitulate.

I now turn, in the next two chapters, to failed escalate-to-deescalate strikes. One such escalate-to-deescalate strike resulted in continued fighting and the other resulted in counter-escalation.

4.0 Operation Rolling Thunder-5, 1965

In the second case evaluating escalate-to-deescalate strikes, I study a massive air power bombardment campaign against a low-value target of a low-danger state resulting in low damage. In this instance, the United States utilized a massive bombing campaign, code named Operation Rolling Thunder-5, to strike the Ho Chi Minh Trail during its war against North Vietnam, all with the goal of inflicting punishment and promising further damage to come if the latter did not capitulate (Turley, 2009). The North Vietnamese danger situation was low, as the leadership did not fear a popular uprising or a military coup, and was not in danger of being overthrown by the US. At the same time, the Ho Chi Minh Trail, while important in the North Vietnamese war effort, was not a high value target and the damage inflicted was minimal. The violent signals sent through the bombing campaign accordingly did not sufficiently communicate the US's willingness or ability to adequately place the North Vietnamese in a position necessitating capitulation. As my theory expects in such situations, North Vietnam did not capitulate, but instead continued fighting.

This chapter progresses as follows. First, I provide a brief overview of the case, outlining the background and the conflict situation. Second, I focus on North Vietnam's danger situation, then analyze the target value and the damage inflicted on that target. Following this, I evaluate North Vietnam's response to the escalate-to-deescalate strike against that expected by my theory. I then address potential alternative explanations that could refute my theory. The final section concludes.

4.1 Background and Conflict Situation

The American escalate-to-deescalate strike on the Ho Chi Minh Trail took place during the broader Vietnam War, a civil war between the peoples of North and South Vietnam (Dunnigan & Nofi, 1999).¹⁰² While the conflict as a whole spans decades, dating back to French colonial control over then French Indochina in the late 1800s, the focus in this chapter will only address the portion of the conflict between the United States and North Vietnam. It is further constrained in scope to the initial escalate-to-deescalate strike of Operation Rolling Thunder-5 against the Ho Chi Minh Trail (sometimes referred to as Phase I), taking place March – June 1965 (Gravel, 1971; Emerson, 2018).¹⁰³ For analytical clarity, I only focus on the Ho Chi Minh Trail as a target and do not address the lesser known Ho Chi Minh Trail Sea Route or the Sihanouk Trail, which were also targeted during the Rolling Thunder-5 attempt to bring Hanoi to the bargaining table (Morris & Hills, 2018).

Vietnam, at the time of the conflict, was a divided country in Southeast Asia with a collective history “replete with disparity and dissension, a 2,000-year heritage of subjugation, occupation, rebellion, division, and internal disorder” (Westmoreland, 1976, p. 60). Under the 1954 Geneva Agreement, the northern and southern portions of Vietnam were separated into distinct “regroupement zones,” with the non-communist administration of the Republic of Vietnam

¹⁰² William Turley (2008) prefers to reference the entirety of the conflict as The Second Indochina War. This includes the revolutionary and nationalist struggles of neighboring Laos and Cambodia, in addition to that of Vietnam’s own conflict, as an interstate war with the United States, the Democratic Republic of the North and the Republic of Vietnam in the south.

¹⁰³ The initial salvo of the Rolling Thunder air campaigns (operations 1-4) were all cancelled due to “political intrigue and bad weather conditions” (Emerson, 2018, p. 27). According to the 1971 Senator Mike Gravel edition of *The Pentagon Papers*, a Saigon semi-coup caused the political establishment to postpone and ultimately cancel the initial Rolling Thunder strikes.

in the south and the Democratic Republic of Vietnam led by Ho Chi Minh in the north (Pribbenow, 2002, p. x).

The North Vietnamese leader, commonly referred to as Ho Chi Minh, was born Nguyen Ta't Thanh in 1890, shortly after French Indochina was created from Cambodia and Vietnam. He was born in the poor farming village of Kim Lien, in the Nghe An Annam province, which was known for its resistance to the French (Fischer, 1954; Willbanks, 2013; Kort, 2018; Morris & Hills, 2018).¹⁰⁴ Ho would continue his home province's tradition of resistance to colonial rule throughout his life and, indeed, was central to the spread of both communism's influence and fervent nationalism across Vietnam (Westmoreland, 1976; Kort, 2018). In doing so, he drove Vietnam to declare independence from French Indochina and founded the Democratic Republic of Vietnam in 1945. Ho then led his people in numerous multilayered and multifront conflicts with the French, Chinese, and political leaders in South Vietnam.

The US formally entered the Vietnam conflict in 1955 after the withdrawal of French military forces and sought to support South Vietnam in its efforts to stem communist expansion in the region (Moss, 2010).¹⁰⁵ President Harry S. Truman, with Presidents Dwight D. Eisenhower, John F. Kennedy, and Lyndon B. Johnson following him, viewed the expansion of communism, supported by Chinese and Soviet efforts, as a threat to US interests and attempted to block its spread to South Vietnam through different means, including the provision of military funding and

¹⁰⁴ Nguyen, Ho Chi Minh's original family name, "means 'one who lives in the plains' or simply, a peasant; the given name, Ta't-Thanh, can be translated as 'a man who will be victorious'" (Fisher, 1954, p. 86). Ho Chi Minh had more than 170 aliases and was labeled everything from a true patriot and hero to most wanted man throughout his life (Fischer, 1954; Kort, 2018; Morris & Hills, 2018). Those under his command often referred to him fondly as Uncle Ho (Pribbenow, 2002).

¹⁰⁵ The US was active, but not formally involved, in Vietnam supporting American interests since 1945 through the Office of Strategic Services (OSS). See John Prados (2009), George Moss (2010), and George Herring (2014).

equipping, engaging in trade diplomacy, and ultimately establishing the Military Assistance and Advisory Group (MAAG) (Herring, 2014).

The conflict expanded in scope as the US attempted to secure the South from communist aggression and was increasingly motivated by the domino theory fear that, should Saigon fall, so too would Cambodia, Laos, Thailand, Malaysia, and potentially even Japan and the entire Indian subcontinent (Moss, 2010; Herring, 2014). Within Vietnam, Ho's forces continued to acquire territory through their military initiative and an increasingly broad base of support for their revolutionary goal of reuniting with South Vietnam.¹⁰⁶ As the conflict grew and intensified, additional US forces were shipped to the region to help stifle the flow of North Vietnamese forces and materiel moving down the Ho Chi Minh Trail to positions in the South, where they could threaten Saigon. Several events, including the Battle of Ap Bac, the assassination of South Vietnam President Ngo Dinh Diem, and the Gulf of Tonkin incidents, brought the US fully into the war against Hanoi (Prados, 2009). Each move the US made to increase its support to the South, however, was met with an equal or greater escalation in effort on the part of the North, including the latter's 31 October 1964 mortar and recoilless rifle strikes against the Bien Hoa airfield and a US military installation (Pribbenow, 2002; Moss, 2010). General Maxwell Taylor, the former personal military advisor to President Kennedy and US Ambassador to Vietnam, saw this attack in particular as a dramatic shift in the war and recommended that the US credibly demonstrate its will and ability to secure its interests in Vietnam (Taylor, 1972).¹⁰⁷ Specifically, Taylor and the Joint Chiefs of Staff recommended crossing a firebreak and launching an escalate-to-deescalate

¹⁰⁶ The North issued decrees stressing that winning was not solely the task of the southerners, but a requirement for all Vietnamese people (Moss, 2010).

¹⁰⁷ Taylor saw the North's strike against the Bien Hoa airfield as an attack specifically "directed at Americans which, [he] thought required quick retaliation" in the form of "an immediate air strike against an appropriate North Vietnamese target" (Taylor, 1972, p. 333).

aerial strike to “send Hanoi a signal that it must either stop supporting the [Viet Cong] or face the destruction of its country” (Moss, 2010, p. 139).

The genesis of Operation Rolling Thunder-5 followed North Vietnamese attacks on 7 February 1965 against an American air base at Pleiku and an American billet at Qui Nhon that resulted in serious casualties (Schlight, 1996; Pribbenow, 2002; Frankum, 2006). Observing the deteriorating situation on the ground, National Security Advisor McGeorge Bundy advocated a policy shift to sustained and concentrated aerial bombings to demonstrate US resolve (Moss, 2010; Morris & Hills, 2018). This recommendation, combined with the joint targeting list provided by the Joint Chiefs of Staff became Operation Rolling Thunder-5, authorized by President Johnson on 13 February 1965 to serve as a “systematic, gradually expanding bombing campaign using both American and VNAF aircraft to strike at North Vietnamese targets” (Moss, 2010, p. 142).¹⁰⁸ Held up due to weather delays, the US initiated this escalate-to-deescalate attempt on 2 March 1965, with an eight-week strike program against preselected targets, identified in the Joint Chiefs of Staff’s 94-target list (Frankum, 2005). The opening salvos of Operation Rolling Thunder-5 involved 160 US Navy and Air Force aircraft from bases in Thailand, Da Nang, and Takhli, with additional supporting sorties from the South Vietnamese Air Force (Frankum, 2005).¹⁰⁹ The escalatory strikes attempted to cut the vital supply lines between Hanoi in the north and Saigon in

¹⁰⁸ While the White House and political leadership were pushing for a graduated escalation to compel the North to the bargaining table, several members of the military, including some of those on the Joint Chiefs of Staff, argued for a massive, no-holds-barred air campaign to achieve a decisive victory. As a concession, the Johnson administration utilized the targeting list provided by the Joint Chiefs of Staff to select targets it deemed most likely to result in the North’s capitulation (Pape, 1990, 1996; Prados, 1999, 2009; Frankum, 2005; Grantz, 2021).

¹⁰⁹ Two supporting air campaigns, Operations Iron Hand and Blue Tree, facilitated and complemented Rolling Thunder-5 by searching for and targeting Surface to Air Missile (SAM) sites, and intelligence gathering in the form of imagery and signals (Frankum, 2005). Operation Igloo White, sometimes referred to as the McNamara Line, also supported Rolling Thunder-5 with electronic sensors placed at strategic locations with the aim of identifying enemy activity to loitering aircraft (Morris & Hills, 2018). To date, Operation Igloo White remains one of the largest electronic reconnaissance, surveillance, and intelligence gathering campaigns in terms of sheer numbers over geographically dispersed areas (Wilson, 2002).

the south by destroying railways, bridges, communication stations, radars, ports, and staging areas (Frankum, 2005). The US leadership “envisioned ‘rolling’ the line of ‘thunder’ very slowly northward” under the assumption the “government would capitulate to save the country from massive destruction” (Pape, 1990, 1996; Polmar & Marolda, 2015, p. 1; Gurantz, 2021). Secretary of Defense Robert McNamara’s guidance to General William Westmoreland was to apply sufficient American and Allied force “to convince the enemy that he would be unable to win. In essence, the American military objective was not to defeat or destroy the enemy. Rather, the military objective was to persuade the enemy that he could not win” (Drew, 1986, p. 11). These statements align with my argument that the US was undertaking an escalate-to-deescalate attempt, not an escalate-to-win attempt.

Operation Rolling Thunder, at times utilizing the varying coercive strategies of Thomas Schelling, area denial models, and Giulio Douhet, respectively, attempted to signal the ability of the US to employ increasingly damaging levels of violence against targets increasing in value along the Ho Chi Minh Trail in order to pressure the North to cease its support of the civil war (Pape, 1990, 1996).¹¹⁰ By all accounts,

administration officials confidently expected that it [Rolling Thunder] would bring Hanoi to its senses. It would take only a few weeks, at most a few months, of bombing before the North Vietnamese Communists abandoned the southern insurgents. Ho Chi Minh and his associates, awed by the power and destructive potential of America’s arsenal of high-tech air weapons systems, would quickly *capitulate* rather than risk losing their industrial and transportation infrastructures (Moss, 2010, p. 143, emphasis added).¹¹¹

¹¹⁰ The Schelling strategy, the implementation of minimal harm provided compliance is imminent and increased violence if not, was utilized by the US for Rolling Thunder-5. The area denial and Douhet models were utilized at the conclusion of the conflict as the military was granted more freedom of target selection, capitalizing on the airpower theory espoused by Douhet to “inflict the greatest damage in the shortest possible time,” including specifically targeting cities and civilians (Brodie, 1959, p. 92; Schelling, 1966; Pape, 1990, 1996).

¹¹¹ Broadly referred to as *graduated pressure*, the US used escalation through airpower as a form of violent communication to deescalate the conflict with North Vietnam. The term graduated pressure was utilized to appeal to the US populace, politicians, and the international community watching US actions during the Cold War. See, for instance, Document 84: Memorandum From the Secretary of Defense (McNamara) to the President, available from

Secretary of State Dean Rusk made the point, arguing, “Strikes into North Vietnam should be considered as serving the political purpose of indicating to the North that they cannot expect to rely upon a sanctuary in the face of their increased infiltration and operations in South Vietnam” (Rusk, 1965, p. 357).¹¹² President Johnson himself noted, “I saw our bombs as my political resources for negotiating a peace... our bombs could be used as sticks against the North, pressuring North Vietnam to stop its aggression against the South” (Kearns, 1976, p. 264).

To make the US’s intentions to inflict an escalate-to-deescalate strike exceedingly clear, though, the Americans paired political and diplomatic messaging efforts with the punitive air sorties. President Johnson and Secretary McNamara instituted several bombing pauses, the first of which occurred 12-17 May 1965 under the codename Mayflower, to test the North’s reaction to the escalatory attempt (Gravel, 1971). The Johnson administration also attempted to mix carrots with the escalate-to-deescalate stick, promising the North billion-dollar reconstitution funds and humanitarian assistance if it ceased its efforts in the civil war (Drew, 1986; Prados, 1999, 2009).¹¹³ Speaking to the public at Johns Hopkins University on 7 April 1965, President Johnson promised North Vietnam “massive economic support if peace were restored,” with additional promises of

the State Department Office of the Historian at: <https://history.state.gov/historicaldocuments/frus1964-68v01/d84>, Volume 3 of *The Pentagon Papers*, Chapter 3 in particular, in addition to Mark Clodfelter (1989).

¹¹² Assistant Secretary Walt Rostow, then Director of Policy Planning at the State Department, claims in a memo to Secretary of State Rusk, that “Hanoi’s leaders have to ask themselves whether it was not better to suspend support... rather than suffer the destruction of their major military facilities... and risk major destruction in North Vietnam” (Gravel, 1971, p. 645).

¹¹³ In an effort to persuade Hanoi to begin negotiations, “Washington declared bombing halts. One, lasting five days in May 1965, was part of a diplomatic initiative code-named Mayflower; the second, lasting thirty-seven days in late 1965 and early 1966, was part of a diplomatic initiative codenamed Marigold. Both efforts failed to persuade Hanoi to begin discussions to end the war” (Van Staaveren, 2002, p. 6).

assistance in rebuilding after the war if the North would cease its aggression (Gravel, 1971; Drea, 2011, p. 28).¹¹⁴

The escalatory concept behind Rolling Thunder-5 was thus to place North Vietnam in an untenable position and demonstrate American willingness and ability to strike any level of target if concessions were not forthcoming (Pape, 1990, 1996).¹¹⁵ The initial escalate-to-deescalate plan for Rolling Thunder-5 was to strike the Ho Chi Minh Trail for a few months. After the initial salvo of sorties, citing limited success, the Joint Chiefs of Staff, with Defense Secretary McNamara and President Johnson's approval, extended Rolling Thunder-5 for an additional three months (Wilson, 2002).¹¹⁶ The coercive attempt would ultimately last three years and eight months, with the US escalating in scope and intensity throughout.¹¹⁷ Diplomatic and economic engagement was also kept up for a longer period than initially expected; there were seven major bombing pauses, plus nine minor pauses, instituted to determine if the North would consider negotiations (Gravel, 1971; Frankum, 2006; Kort, 2018).¹¹⁸ Attempts to meet with the North's leadership were made through multiple diplomatic channels, including peace feelers extended by a Canadian official named Blair

¹¹⁴ President Johnson's Johns Hopkins address met with favorable public reaction at home and across the globe, "but it failed to silence the Peace Bloc and it failed to move Hanoi. Premier Pham Van Dong responded to the President's speech by proposing his famous Four Points as the only correct way to resolve the Vietnam problem and, two days later, denounced the President's proposal as simply a 'carrot' offered to offset the 'stick' of aggression and to allay public criticism of his Vietnam policy" (Gravel, 1971, p. 273-274).

¹¹⁵ See James Thompson (1980) *Rolling Thunder: Understanding Policy and Program Failure* and Robert Pape's (1996) *Bombing to Win: Air Power and Coercion in War* in particular for the goals of Operation Rolling Thunder.

¹¹⁶ Operation Rolling Thunder, and the additional missions of Barrel Roll and Steel Tiger targeted the north-eastern region of Lao and the southern panhandle, respectively, and served as the most intense air-ground combat during the Cold War (Morris & Hills, 2018).

¹¹⁷ As Rolling Thunder continued to escalate, a senior military official with close access to President Johnson broached the idea of utilizing tactical, or low-yield, nuclear weapons to shut down the Ho Chi Minh Trail as part of Operation Vulture (Moss, 2010). The comment, overheard by Freeman Dyson, resulted in the recently declassified 1966 JASON study, *Tactical Nuclear Weapons In Southeast Asia*. Available at: <http://nautilus.org/wp-content/uploads/2011/12/dyson67.pdf>. Denounced by many, including then Under-secretary of State George Ball, the use of tactical nuclear weapons as an escalate-to-deescalate strategy was at least considered throughout the conflict. See also, Prados (1999) and Nina Tannenwald (2007).

¹¹⁸ George Herring notes that "Hanoi was especially disinclined toward negotiations at this time because it was certain it was winning" (Herring, 2014, p. 166).

Seaborn; the Soviet Ambassador to the United States, Anatoly Dobrynin; and the US Ambassador to the Soviet Union, Foy Kohler (Gravel, 1971; Drew, 1986; Pape, 1996; Van Staaveren, 2002; Drea, 2011). Hanoi flatly rejected the idea of peace talks and Ho authored a “letter to several world leaders denouncing the ‘so-called search for peace’ as a fraud,” which reportedly “left McNamara sputtering, ‘Hanoi spit on our face’” (Drea, 2011, p. 68, p. 61).¹¹⁹ Even a written note delivered to the Democratic Republic of Vietnam’s embassy “was returned ostensibly unopened. Nevertheless, it is quite clear that Hanoi was more than adequately advised of the contents of the US message through the various diplomatic channels that were involved” (Gravel, 1971, p. 274).¹²⁰ Rather than agreeing to negotiations, Hanoi utilized the breaks in bombing to “strengthen air defenses; push additional troops and supplies southward; and disperse fuel, ammunition, and equipment stocks throughout the countryside” (Polmar & Marolda, 2015, p. 35).¹²¹ The Johnson administration’s escalate-to-deescalate strikes failed to impress Hanoi or alter its behavior; it remained intransigent to the carrot and the stick throughout the bombing and the pauses, rejecting the offerings of postwar development funds (Drew, 1986). Fighting continued.

¹¹⁹ McNamara’s recollections of the planned pause indicate he wasn’t certain the initial pause would achieve the desired effects; however, he assumed the pauses would demonstrate to the North the US ability to continue inflicting future harm which would “set the stage for another pause, which might produce a settlement” (McNamara, 1995, p. 219).

¹²⁰ Additional pauses to Rolling Thunder were carried out to determine if the North was willing to capitulate. On 24 December 1965, President Johnson instituted a three-day pause that would ultimately stretch until 30 January 1966 to determine if the North was willing to meet US demands. “Rather than asking for terms, North Vietnam exploited the lull to strengthen air defenses; push additional troops and supplies southward; and disperse fuel, ammunition, and equipment stocks throughout the countryside” (Polmar & Marolda, 2015, p. 35). President Johnson met with his political and military leadership every Tuesday during the initial Rolling Thunder operations, often focusing on the political impacts of the strikes rather than the military significance (Frankum, 2006).

¹²¹ Interestingly, the bombing pauses only afforded the North the opportunity to develop and implement “what would become one of the strongest air defense missions in the world” (Frankum, 2006, p. 217).

4.2 Danger Situation

North Vietnam consistently faced a low-danger situation during the period of my examination. Prior to the US engagement in the conflict, the South did not possess a capacity to threaten the North with occupation. Even with supporting elements of French, and later US, forces, the South Vietnamese simply could not raise and train enough effective fighting forces “to offset the mounting strength of the enemy” (Taylor, 1972, p. 338). The additional support of the MAAG and increasing numbers of US combat forces did not change the North’s low-danger situation before March 1965. At the same time, as described further below, the North enjoyed considerable popularity with its population and even significant portions of the population of South Vietnam. It faced no threat of insurrection, coup, or conquest.

North Vietnam remained in this low-danger situation throughout the Rolling Thunder-5 operation. As suggested above and discussed further below, the American escalate-to-deescalate attempt had little impact on the North’s capacity to continue its own operations. Consequently, the strikes did not result in the North finding itself in jeopardy of coup, insurrection, or conquest. Indeed, the Ho Chi Minh Trail remained easily trafficable throughout the bombings and the North actually worked to expand its logistical lines of effort by expanding and improving the Trail, thereby increasing the numbers and frequency of soldiers and material flowing south (Pribbenow, 2002; Frankum, 2006; Kort, 2018).

Considering first the potential of an insurrection during and after Operation Rolling Thunder-5, the populace was committed to continuing the conflict and willing to bear the current costs and hardships associated with continued fighting to drive the US from the region. The populace in the North was not suffering economic hardships – at least not hardships greater than they were experiencing prior to Rolling Thunder-5 – that would induce them to challenge the

political ruling elite. The escalate-to-deescalate attempt was in line with the Schelling's model that escalation was "a tool of coercive diplomacy, intended to pressure Hanoi and signal American resolve," and sought to increase the risk of suffering to a point that the North, seeing the high likelihood of economic loss, would acquiesce to avoid future costs (Pape, 1990, 1996; Emerson, 2018, p. 116; Gurantz, 2021).¹²² The intentional avoidance of economic centers and of areas high in civilian populations contributed to the populace refraining from an insurrection. By striking chokepoints along the Trail, the US attempted to demonstrate an ability to strike the center of gravity of Hanoi, thereby contributing to the populace calling for change by the North's leadership (Prados, 1999; Ellsworth, 2003). The intentionally constrained strikes sought to communicate that failing to capitulate would result in the US crossing the existing limits and leading to the loss of the North's industrial production capabilities. However, not striking economically important targets did not result in the populace urging the North to capitulate (Pape, 1996). Further, in December 1964, prior to the escalatory attempt of Rolling Thunder-5,

Propaganda teams from the People's Army of Vietnam fanned out across North Vietnam's countryside orchestrating 'civilian-military unity days' in thousands of villages and hamlets. They presented stories and skits telling of past glories in fighting the Chinese and the French. People were organized into teams to assist in the repair of roads and railroads. Recruits for the militia forces climbed toward the two million mark – about 10 percent of the population. In villages the peasants dug bomb shelters and slit trenches. North Vietnam was mobilizing for war (Tilford, 1993, p. 68).

These efforts by the North portrayed to the populace a common enemy in the form of the colonial US, like the French before, thereby successfully orchestrating a united front of resistance. In the south, the South Vietnamese government's strategic hamlet program and crackdowns on dissent contributed to aligning its own populace with that of the North – or at least sidelining them

¹²² See also, Schelling (1966), Robert A. Pape (1990, 1996); Prados (1999, 2000), and Mark Clodfelter (2006).

so they didn't actively support either side (Duiker, 2000; Hayslip, 2006; Moss, 2010).¹²³ Many civilians on both sides of the border were at a crossroads. Some north of the demilitarized zone simply desired to return to their families in the South, while many in the South simply desired a return to the sweet rice and bean period that existed before the conflict (Hayslip, 2006). Saigon's brutal crackdown on any civilian dissent, and the North's tolerance for those uncommitted to the war effort, facilitated the North's low-danger situation. With the support, or at least ambivalence, from the populace, the North had little fear of a potential insurrection.

Turning to the potential of a coup during and after the escalatory attempt, the PAVN military appeared devoted to the cause of reunification under the leadership of Ho. As the conflict continued under Rolling Thunder-5, additional recruits joined the ranks to contribute their efforts to rid the land of the US and to reunify Vietnam (Pribbenow, 2002). Volunteers were drawn from the North, along with all their classmates, and indoctrinated with political cadres, receiving lectures on patriotism and political values. The volunteers received indoctrination on the "heroic deeds of the Communist Party, on Uncle Ho, on the high order and discipline and morality of the PAVN, on socialist doctrine... and on his ignoble and poverty-stricken Southern brethren, who were enslaved under the yoke of the Americans" (Tin, 2006, p. 59). As the new recruits were shipped south, they had no home base to fall back to. Their return was effectively cut off; they could only continue down the Trail and fight (Tin, 2006). The coercive techniques of indoctrination and persuasion were used to bolster the volunteer's resolve. There was no escape to the rear when under attack, only the ability to move forward (Tin, 2006). This method of recruitment and indoctrination prevented the PAVN from devising a military coup that might

¹²³ The strategic hamlet program was designed to deprive the North of recruits and supplies by creating self-defense communities. Instead, the program "brutally forced villagers from the beloved lands of their ancestors – a disastrous event in the family-conscious Vietnamese culture" (Hayslip, 2006, p. 144).

threaten Hanoi. As the PAVN came under attack from Rolling Thunder-5, the military and political leadership heaped praise upon the soldiers, with Ho himself traveling across the region to personally thank them for their efforts (Pribbenow, 2002). A defining characteristic of the North Vietnamese military leadership was its continuity. As Stephen Biddle and Robert Zirkle note, “Stability among the top military leadership is virtually a defining characteristic of the PAVN” (Biddle & Zirkle, 1996, p. 191). The stability of military leadership contributed down the lines and helped to secure the collective mission for the military. At the conclusion of Rolling Thunder-5, the North’s military had three separate forces organized across the battlefield and had “made significant progress toward becoming a modern, regular force” with strategic land and sea transportation routes that controlled the important areas (Pribbenow, 2002, p. 155). There was no indication that the military had any inclination of turning on the leadership in Hanoi before, during, or after the conclusion of Rolling Thunder-5.

Finally, on the matter of conquest during and after the escalatory attempt of Rolling Thunder-5, the North was not concerned with the US or South Vietnam taking over its territory. Politically, at home and abroad, a US occupation of North Vietnam would be untenable. The proximity to China and recent proxy battles with the Soviet Union precluded any potential for US territorial expansion. In the South, Saigon’s leadership possessed little interest in taking the fight to the North, and, instead, sought the support of rural communities, the religious leaders and Buddhists, factions within the insurgency, and even French President Charles De Gaulle (Moss, 2010).¹²⁴ The political activities of the North focused on fostering resolve to defeat the US forces

¹²⁴ De Gaulle had offered to help the South achieve a solution to peacefully coexist with Hanoi, “free of external influences, including American influence” (Moss, 2010, p. 124).

both in the North and through the guerrilla militia operating in South Vietnam.¹²⁵ The North was able to utilize existing and battle-proven war plans as the US military leadership saw themselves as innovators and resisted the notion that there was anything to glean from the French experience (Prados, 1999).

Collectively, neither the populace, the military, nor the United States threatened the North's existing low-danger situation. Throughout the Rolling Thunder-5 escalatory strikes, the North mobilized the entire nation, strengthened its offensive capacity expanding the PAVN, improved its national defense, and secured military support from fraternal and allied nations like China and the Soviet Union (Pribbenow, 2002; Prados, 2009; Moss, 2010). Rolling Thunder-5 did not result in the leadership fearing for its survival. The military and civilian populace were co-conspirators in rejecting US attempts to demonstrate its ability to inflict future harm. Further, "the civil leadership and the military shared a common ideology of revolutionary struggle, in which the military voluntarily accepted a subordinate (though important) role," reducing even more the threat of political violence by the military (Biddle & Zirkle, 1996, p. 191). There was no internal pressure, from the military or from the populace, to suggest the political leadership needed to alter its status quo. There was also no external pressure concerning potential threat of occupation by the US. Instead, as the escalatory strikes ground on, the North found evermore increasing support for its war of reunification (Dommen, 1972; Prados, 1999). In fact, PAVN fighters claim that "the soldiers and civilians of Military Region 4, the front line of North Vietnam, proudly withstood these challenges, fighting heroically, and kept our supply artery to the battlefield open" (Pribbenow, 2002, p. 225).

¹²⁵ According to the official history of the war, the North's insurgent forces operating in the South in 1965 comprised 174,000 more fighters than the South possessed (Pribbenow, 2002).

4.3 The Value of The Trail

The Ho Chi Minh Trail fits within the low-value target category due to its geographical dispersion as well as the relative ease with which routes were altered, shifted, rerouted, and repaired to avoid losing the needed freedom of maneuver to supply fighters and material to the South. Indeed, the Trail's relatively low value to the North was a significant reason that the US chose to target it during Operation Rolling Thunder-5. While the supply route was important to the North, the loss of the Trail would not foreclose Hanoi's capacity to continue its fight. The North had alternative methods of supporting the conflict had the US successfully blocked or closed the Trail, either temporarily or completely. The fighters and supplies were dispersed across multiple supply routes to ensure a complement made it south, even if other shipments were compromised (Pribbenow, 2002). Military Transportation Group 759, for example, began shipping supplies to South Vietnam in 1961, utilizing both wooden- and steel-hulled vessels disguised as fishing boats and capable of ferrying over 100 tons to provide additional supplies and military equipment to strategic areas in the South (Pribbenow, 2002).¹²⁶ Additionally, the North capitalized on the ill-defined borders between Vietnam, Laos, and Cambodia – utilizing the Sihanouk Trail – to successfully thwart US efforts, viewing those areas “as an integral battlefield that could not be separated” (Tin, 2006, p. 66; Prados, 2009).

The Ho Chi Minh Trail originated at Hanoi and terminated at various points in the South, including in the provinces of Pleiku; Dar Lac; Kontum; and Tay Ninh, north of Siagon (Nalty, 2005). Not specifically a single solitary trail, the Trail was instead a vast complex consisting of a

¹²⁶ The 603rd Sea Transportation Battalion utilized the sea routes successfully delivering heavy weapons, including mortars, recoilless rifles, anti-aircraft machine guns, antitank rocket launchers, and surface-to-air missiles to the provinces of Phu Yen, Binh Dinh, Quang Ngai, and Quang Nam (Pribbenow, 2002).

series of routes leading to South Vietnam, comprised of “secret roads, bypasses, hard-standing highways, mountain tracks and river systems” complete with an underground tunnel network (Morris & Hills, 2018, p. 251).¹²⁷ The initial rudimentary pathway was transformed by Senior Colonel Dong Sy Nguyen, Commander of Transportation Group 559, from simple foot paths to a modern conveyance infrastructure (Dommen, 1972; Pribbenow, 2002; Morris & Hills, 2018).¹²⁸ According to Vietnam veteran and former Air Force Chief of Staff General Merrill A. McPeak, the Ho Chi Minh Trail was referred to by the North as “the Truong Son Strategic Supply Route, or Highway 559, numerals that memorialized the month (May) and year (1959) the government of North Vietnam reached a formal decision to provide active support to the insurrection in the South” (McPeak, 2017, np). Laborers toiled at all hours to maintain and upgrade the network despite the constant threat of an American attack, exhaustion, disease, weather, and even the very real threat of being mauled by a tiger or attacked by an elephant (Prados, 1999).¹²⁹ The initial transport of war materials to South Vietnam along the Ho Chi Minh Trail is suspected to have occurred in August 1959, when a few dozen rifles and ammunition arrived – more of a morale boost than anything for the PAVN (Prados, 1999). From the success of the initial shipment, PAVN

¹²⁷ A US helicopter pilot supporting US targeting and bombing efforts during Rolling Thunder describes the Trail as “no Pennsylvania Turnpike. It’s more like a plate of spaghetti” (Kenney, 1993, p. 53). Civilians assisted keeping the flow of traffic moving, filling craters by hand, providing food and medical aid to those in need, served as porters couriers supplies and equipment to the way stations, and even dressing in white to serve as “human road markers” at critical locations (Prados, 1999, p. 194).

¹²⁸ The Military Transportation Group 559 was established 19 May 1959 and comprised two battalions, the 301st and 603rd. The 559th Group was tasked with developing an emergency military road to ferry supplies to the South. According to *The Official History of the People’s Army of Vietnam, 1954-1975*, as translated by Merle Pribbenow, “by the end of 1959, the human porters of the 301st Battalion had delivered a total of 1,667 infantry weapons, 788 knives, 188 kilograms of explosives, and a number of military maps, compasses, and binoculars” (Pribbenow, 2002, p. 53).

¹²⁹ Villagers were moved from the North’s coastal areas, as part of the Khai Hoang (Clear The Wilderness) resettlement program. The program moved approximately a million people to areas around the Trail for the explicit purpose of making up the loss of rice production, then in the hands of the US, eliminating fears of famine. An additional benefit was the logistical support these new settlers offered to the movement of supplies and fighters into the south, including repairing trails and bridges destroyed by Rolling Thunder’s targeted strikes (McElwee, 2005).

Transportation Group 559, comprised of 30,000 soldiers, technical support personnel, and civilians, worked tirelessly night and day to improve, and exploit the Ho Chi Minh Trail (Pribbenow, 2002).

Over the years leading up to the initiation of Rolling Thunder-5, PAVN Group 559 created a sprawling network of interconnected trails to facilitate the movement of war materials south, with dedicated groups of military and civilians repairing roads, building bypasses, and ensuring freedom of maneuver through chokepoints (Prados, 1999; Pribbenow, 2002).¹³⁰ In 1965, the Politburo of the Party Central Committee wrote, “Guaranteeing a clear, unobstructed line of communications and transportation [is] a central task for the entire Party, the entire population, and the entire armed forces” (Pribbenow, 2002, p. 168). The activities along the Trail did not go unnoticed by the US and, with the initiation of Rolling Thunder-5, “became an immediate focus of the air campaign” (Prados, 1999, p. 156). The US Air Force and Navy concentrated its escalate-to-deescalate efforts against the Trail along several chokepoints, including the Ban Kari, Nape, and Mu Gia mountain passes (Polmar & Marolda, 2015).

An appendix to a declassified US military report describes the 20 major roads within the Ho Chi Minh Trail complex with detailed segment-by-segment descriptions, complete with “tractionability,” based on imagery supplied by the Defense Intelligence Agency (DIA) (Schweitzer, 1966, p. 59). These trail and road networks were continuously upgraded and maintained by elements of PAVN Group 559 and North Vietnamese civilian volunteers. Estimates suggest that in 1965, there were 10,000 to 12,000 Vietnamese directly supporting construction operations maintaining or extending the Trail with another 10,000 to 12,000 Vietnamese solely

¹³⁰ In a fervent display of ardent patriotism, “families even donated their doors and wooden beds to cover the roads so the trucks could get through” (Pribbenow, 2002, p. 169).

focused on moving supplies south (Prados, 2006).¹³¹ Historian John Prados notes that, in addition to those maintaining or moving supplies down the Trail, “During 1965, Hanoi sent seven full regiments and twenty battalions down the Trail, along with cadres, for a total of 50,000 men” (Prados, 2009, p. 153).¹³²

The US target set developed for Rolling Thunder-5 included logistical areas and supply route chokepoints that formed “an attractive, vulnerable, and remunerative target system which,” according to the Joint Chiefs of Staff, “would hurt the North Vietnamese psychologically, economically, and militarily” (Gravel, 1971, p. 340; Clodfelter, 2006). Crucially, however, the US concurred with my assessment of the Trail’s worth, as it did not believe that it was targeting an especially high-value objective; it was “leaving the most important targets untouched so they could be used as leverage to force Hanoi to the bargaining table” (Kort, 2018, p. 130). Avoiding targets considered to be of high value was essential to the US war strategy.¹³³ The assumption within the Johnson administration was that purposely avoiding high-value targets would credibly signal the ability of the US to strike those targets in the future (Kearns, 1976; Prados, 2009; Moss, 2010).

The Trail, with its complex network of primary, secondary, and alternate routes, storage sites, underground and hardened structures, was thus a vast sprawling target. The North regarded it as important, but not absolutely vital to its war effort. The North’s perspective on the Trail and the US’s intentional avoidance of known high-value targets indicates that it falls in the low-value category.

¹³¹ While Group 559 was tasked with expanding and ensuring the mobility of the Trail, Group 665 coordinated shipments of resources down the Trail (Pribbenow, 2002; Prados, 2006).

¹³² At the conclusion of the entire conflict, the Trail encompassed “twelve thousand miles of roads and paths laid in the face of a potent nature and an increasingly violent and systematic series of American efforts to prevent this very achievement” (Prados, 1999, p. xiv).

¹³³ See for instance, Curtis LeMay and MacKinlay Kantor (1965), Taylor (1972), Doris Kearns (1976), Westmoreland (1976), Larry Berman (1982), Earl Tilford (1993), and McNamara (1995), among others.

4.4 Damage to The Trail

The damage inflicted upon the Ho Chi Minh Trail by the escalate-to-deescalate strike of Rolling Thunder-5 places the attack in the low-damage category. The US's intentional avoidance of high-value targets limited the number of suitable, potentially high-damage targets available for a military strike. Additionally, the battlefield conditions, including the terrain, vegetation, atmospheric conditions, and military technology further limited the damage. When chokepoints and other sections along the Trail were obstructed or blocked by the air strikes, the sheer tenacity and determination of the North Vietnamese ensured they did not remain closed or impeded for long. In explaining the damage to the Ho Chi Minh Trail, I provide an overview of the damage sustained and the North's ability to mitigate that damage, followed by describing the normal level of transport operations down the Trail. In this instance, as I will explain, there was no recuperation time required to return the Trail to its prestrike condition.

4.4.1 Damage From Rolling Thunder-5

The damage inflicted upon the Ho Chi Minh Trail from Rolling Thunder-5 did not result in serious damage and did not impact the North's ability to move fighters and war materials to the South. Attempting to escalate-to-deescalate by striking the Ho Chi Minh Trail was akin to "swatting flies with a sledgehammer" (Frankhum, 2006, p. 212). A US battle damage assessment following the first two bombing strikes of Rolling Thunder-5 notes "a total of 267 sorties (including flak suppression, etc.) [were] directed against 491 buildings, we destroyed 47 buildings

and damaged 22” (Gravel, 1971, p. 333).¹³⁴ This is a success rate of less than 10 percent, though even this low figure may be an overestimate. According to one of the former commanders of the North’s Transportation Group 559,

The Americans could bomb us as much as they wanted. That hardly bothered us at all. According to our statistics, out of every 100 bombs that were dropped, only 0.23 percent hit [the Trail], which means the Americans needed to drop a thousand bombs to get two of them on [the Trail] (Tin, 2006, p. 70).

There are several reasons why Rolling Thunder-5 inflicted such limited damage, but perhaps the most noteworthy is the way in which the US prosecuted the attack. First, with its intentional targeting of low-value targets, the US limited the number and type of targets available to the US military. Against this narrow set of specific targets along the Trail, the US, with all its advanced fighters and bombers equipped with modern weapons, then flew at high altitudes to avoid antiaircraft fire, and attempted to drop ordnance “from high-speed planes flying at more than 2,000m onto a trail ‘as thin as a thread’ only 5m wide” (Tin, 2006, p. 58). By operating in such a fashion, the American military reduced its likelihood of hitting any specific target and it would be unsurprising if, as the Group 559 commander suggested, only 0.23 percent of the US bombs dropped hit the Trail. Finally, the numerous bombing pauses initiated by the US allowed the North to rapidly reconstitute damaged sections of the Trail and acquire additional war materials to make up for supplies lost in the strikes; “rather than a continuous program of sustained reprisal, Rolling Thunder-5 was more of an isolated series of thunderclaps” (Drew, 1986, p. 34).¹³⁵

¹³⁴ Ronald Frankum finds that the US dropped approximately 643,000 tons of ordnance on the Ho Chi Minh Trail (comparatively, the US dropped 527,000 tons of ordnance in the Pacific Theater of World War II), but notes that this did nothing to stem the tide “of North Vietnamese resources to the South, nor did it force the North Vietnamese to negotiate” (Frankum, 2006, p. 219).

¹³⁵ According to Stephen Hosmer, the “pauses and changes in bombing lines seriously diminished the impact of the Rolling Thunder air campaign by providing the North Vietnamese with respites to repair damaged bridges and LOCs and to reposition war supplies closer to South Vietnam” (Hosmer, 1996, p. 33).

In addition to the US's choices about how to carry out the escalate-to-deescalate strike, there are several structural factors that contributed to the low damage sustained. Foremost, the North had valuable allies in the form of tropical vegetation and weather, significantly hindering the ability of the US to effectively strike and inflict high levels of damage to the Trail (Van Staaveren, 2002). The jungle canopy and cloud cover limited the US's reconnaissance and targeting efforts, hindering the ability to accurately strike the intended targets. With the frequent cloud cover, rain, and fog obscuring the visibility of the aircraft, the dropped ordnance "often fell between 1,500 and 2,000 feet from the intended targets" (Tilford, 1993, p. 75). Additionally, the heavily forested areas provided cover for the PAVN and provided the benefit of absorbing both blast and fragmentation effects from the strikes (Van Staaveren, 2002).¹³⁶

US choices and the nature of the operational environment thus inherently limited the damage that the American escalate-to-deescalate attack could inflict. Where damage was visited upon the Ho Chi Minh Trail, however, the North Vietnamese undertook significant efforts to limit and reverse it. A tactical evaluation by the Project of Contemporary Historical Examination of Current Operations (CHECO) finds that the North took elaborate precautions to ensure the survivability of the shipments. For example, lookouts were positioned on top of the moving trucks, red beacons were switched off during periods of danger, single or multiple warning shots were fired to provide indication of the impending danger, false canopies were created to obstruct visibility from the air, and bridges were created out of bamboo and sunk during the day to avoid detection (Thorndale, 1969; Herring, 2014). Other countermeasures included the repositioning of

¹³⁶ According to Jacob Van Staaveren, the weather "was responsible for thousands of canceled or aborted missions, it delayed takeoffs or lengthened takeoff intervals, which in turn delayed formation after takeoff, and it prevented aerial refueling or created difficulties for aircraft attempting to rendezvous for aerial refueling. Poor weather forced aircraft to deviate from planned routes or planned targets, leaving pilots with the option of hitting targets by radar, striking a secondary target, or aborting the mission" (Van Staaveren, 2002, p. 71).

road repair crews in foxholes with ready access to rocks, bamboo, and wood at critical junctures to repair or establish detours around the bombed sections. Additionally, the North used deception techniques to lure US fighter aircraft into anti-aircraft kill zones; to pull aircraft to a different area, thereby ensuring high-priority vehicles were relatively safe from attack; and to stage previously bombed vehicles at particularly difficult sections of the Trail in the hopes the US would bomb the area, leveling the pass, and providing debris for filling in low areas (Nalty, 2005). These actions resulted in the PAVN readily and rapidly repairing the structures, bridges, and roads struck by the escalate-to-deescalate attempt.¹³⁷ The CHECO study found that reopening damaged sections of the Trail took the repair crews approximately “nine hours for a bridge destroyed or cratered, six hours for a ford destroyed or cratered, and four hours for a road destroyed or cratered” (Thorndale, 1969, p. 128).¹³⁸

The North’s limited industrial system was particularly well-disposed to endure, and rapidly recover from, the damage inflicted by the US’s escalate-to-deescalate efforts. As Tilford notes,

Bridges were bombed often but, in addition to being difficult to hit, were easily bypassed with dirt fords, underwater bridges, and pontoon bridges. Underwater bridges, built a foot or less beneath the surface, were impossible to spot from aircraft moving 400 knots. They were, in effect, invulnerable (Tilford, 1993, p. 74).

¹³⁷ As part of Rolling Thunder-5, and subsequent Rolling Thunder missions, the US military attempted to destroy the Thanh Hoa Bridge south of Hanoi. Known as The Dragons Jaw, the bridge carried almost 3,000 tons of vehicle and rail traffic daily to Route 1 and served as the beginning of the Ho Chi Minh Trail (Emerson, 2018). Aerial sorties from the Air Force and Navy repeatedly struck the bridge from 1965 to 1972. Despite dropping thousands of tons of explosives on the bridge, and one failed attempt to float explosives under the bridge, the bridge was never fully taken out of operation and became a symbol of Vietnam’s defiance and resourcefulness. The US claimed success in late October 1972, as Walter Boyne notes, “At long last, after seven years, 871 sorties, tremendous expenditure in lives, 11 lost aircraft, and a bewildering array of expended munitions, the Dragon’s Jaw was finally broken” (Boyne, 2011, p. 60). The damaged section of the bridge was rebuilt in early 1973 and has stood proudly since. See Ham Rong Historical Cultural Relic at: <http://www.vietnam-tourism.com/en/index.php/tourism/items/2914>

¹³⁸ For example, during a later iteration of the Rolling Thunder campaign, B-52 bombers struck the Trail with 585 tons of ordnance anticipating impressive results. A reconnaissance plane following “the next day discovered that the craters had been filled with dirt and rocks, and trucks were moving through the pass... the hardship of a destroyed bridge was minimal” (Frankum, 2006, p. 216-217). Other reconstitution estimates “suggested the enemy repair of road cuts took 45 minutes, while downed ford/bridge targets closed the LOCs for about an hour” (Thorndale, 1969, p. 128).

In addition to the measures taken to recover from the strikes, Hanoi utilized dispersal tactics to further avoid suffering and limit the impact from the bombings. Civilians were encouraged to depart the cities and were dispersed across the countryside assisting with the war effort; “industries and storage facilities were scattered and in many cases concealed in caves and under the ground. The government claimed to have dug more than 30,000 miles of tunnels” (Herring, 2014, p. 180-181). The tunnel complexes along the Ho Chi Minh Trail were extremely resilient to the bombing efforts. Attempts to collapse entrances or entire sections were impeded by the engineering and ingenuity of the builders who included multiple entrances, bomb sumps, and blast mitigation corridors and bulwarks (Herring, 2014). The ability of the North to outwit modern technology contributed to the low damage sustained despite the best efforts of the US (Morris & Hills, 2018).

The Johnson administration assumed the Trail and supporting transportation elements were highly susceptible to the bombings and would rapidly bring about internal pressure for Hanoi to capitulate. Instead, due to choices made by the US, the operational environment, and efforts undertaken by the North Vietnamese, the Rolling Thunder-5 bombing effort had limited influence on the shipment efforts by the North (Gravel, 1971; Prados, 1999). Even an American increase in the types of weapons utilized against the Ho Chi Minh Trail resulted in negligible levels of damage. After the first bombing pause in May 1965, President Johnson permitted a relaxation on the weapon constraints, authorizing the use of the highly flammable, jellied-gasoline napalm; artillery with greater penetration and fragmentation effects; scatterable landmines and submunitions; and the use of the 15,000lb BLU-82, commonly referred to as the Daisy Cutter to inflict damage against

the Trail (Westmoreland, 1976; Herring, 2014).¹³⁹ The expansion in weaponry had no measurable impact on curtailing the shipment of fighters and war materials down the Ho Chi Minh Trail.

4.4.2 Normal Level of Operation

The normal level of operations for the Ho Chi Minh Trail prior to the Rolling Thunder-5 escalate-to-deescalate strike was not impacted by the US's attempt. The Trail had undergone significant improvements during the years between the French departure and the arrival of the US. In the 1950s, recognizing the need to establish reliable supply routes to provide support to the conflict in the South, the North Vietnamese purposely created primary, secondary, and tertiary routes to facilitate the movement of fighters and equipment south (Pribbenow, 2002). The North had continued the development of the Ho Chi Minh Trail following the conclusion of the First Indochina War, improving it in order to “oppose the American imperialists” (Pribbenow, 2002, p. 4). In addition to the Ho Chi Minh Trail networks, the North “dug by hand thousands of miles of tunnels that connected villages and linked staging areas to battle zones. Inside these underground fortresses were supply depots, ordnance factories, hospitals, printing presses, sleeping quarters, kitchens, and even theaters for propaganda plays” (Herring, 2014, p. 194). Of note, the 1965 American maps of the Ho Chi Minh Trail only annotate a skeletal outline of narrow footpaths and game trails used by local tribes and some limited dry-season roads remaining from the colonial

¹³⁹ General Westmoreland also notes the US attempted to seed the clouds above the Ho Chi Minh Trail in a failed attempt to flood and wash out the passes and roads; experimented with different foliage-removal agents including the highly controversial Agent Orange, and the other color-coded herbicides used for deforestation as part of Operation Ranch Hand; and attempted to destroy sections of the forest with incendiary bombs which were ultimately unable to sustain fires in the damp jungle (Westmoreland, 1976; Clodfelter, 2008). Further, after a section of forest was destroyed from the knocking down of trees, the PAVN simply cut its way through, and the US military was unable to reproduce that delaying tactic (Dyson, et al., 1966).

occupation of the French – this was not the true picture of the Trail (Pribbenow, 2002; Davies, 2020). As Peter Davies notes, “within nine years [of the French evacuation], it became a complex network of all-weather roads, bypasses, tracks, bridges, and fuel pipelines stretching for thousands of miles” (Davies, 2020, p. 4). By the end of the Rolling Thunder-5 bombing campaign, the Trail had “branched into numerous byways, circuits, and shortcuts” (Tin, 2006, p. 70).¹⁴⁰

The escalate-to-deescalate strikes of Rolling Thunder-5 focused on areas of the Trail assumed to be critical to the North’s ability to ship fighters and resources to the South. Striking transportation chokepoints between the 17th and 20th parallels were of particular interest to the US, but the North was adept at adjusting to changing conditions and ensuring supplies were adequately transported south (Frankum, 2006). Earl Tilford’s study of air power in Vietnam notes that Hanoi truly only needed one hundred tons of supplies each day to enable its combat operations. Approximately fifty trucks were all that was needed to move that required tonnage (Tilford, 1993). With the North’s diversification of porters utilizing modified bikes, carrying supplies on their backs, and the tactic of floating fifty-five-gallon drums down the streams and rivers flowing along the Trail amply provided the needed items to continue the fight; “Simply put, 100 tons of supplies a day was a trickle too small for air power to stop” (Tilford, 1993, p. 75). As a result of the North’s ability to continue the shipment of fighters and war supplies down the Ho Chi Minh Trail, there was no true recuperation time required.

In summary, the harm inflicted by the escalate-to-deescalate attempt of Rolling Thunder-5 corresponds to the low-damage category. The difficulty of hitting the Trail and the ease with which

¹⁴⁰ In 1965, Transportation Group 559 “began to lay all-weather paved roads where possible at a rate of 280 miles per year, rising to 650 miles by 1971. Road-building equipment could then be moved to areas where further 18ft-wide hard surfaces and bridges were constructed. US pilots began to see captured American bulldozers and graders at work on sections of the Trail” (Davies, 2020, p. 7).

the North repaired inflicted destruction and continued to provide fighters and war materials south lends credence to this low-damage claim. The North created secondary and tertiary methods of moving the required supplies down the Trail. It developed multiple layers of redundancy to circumvent any potential choke points damaged by the escalate-to-deescalate attempt. James Gillam notes that in 1965, the North was sending 400 tons of supplies down the Trail each week and 10,000 tons weekly by 1969 (Gillam, 2010, p. 55). The shipments of fighters and war materials only increased despite US efforts. PAVN fighters and war materials were continuously shipped south, regardless of the US bombing efforts.

4.5 The Response

In response to the escalate-to-deescalate strikes of Rolling Thunder-5, North Vietnam continued fighting. The escalate-to-deescalate strikes had negligible impacts upon the North's ability to traverse the Trail and,

like so much of the Vietnam War, they failed to achieve the political goals desired by the United States. The United States expected the North Vietnamese to pull back when faced with overwhelming firepower but, instead, it continued its support for the Viet Cong and its struggle to incorporate South Vietnam into its fold (Frankum, 2006, p. 215).

The bombing sorties did not compel the North to cease its support of the Vietcong nor did the bombing decrease the North's ability to infiltrate supplies and fighters down the Trail (Gurantz, 2021). It continued its shipments of PAVN fighters and war material, expanded its antiaircraft capabilities, and continued efforts to achieve its objective of reunification (Prados, 2009; Van Staaveren, 2002; Herring, 2014). The Rolling Thunder-5 bombing strikes did constrain Hanoi's ease of maneuver to vehicle, bicycle, and foot traffic mainly to the hours of darkness. However,

from all accounts, the US was not able to sever the flow of fighters and war materials down the Trail (Tin, 2006; Gillam, 2010; Polmar & Marolda, 2015).¹⁴¹ Essentially, “after months under the gun, all North Vietnam had done was dig in its heels” (Tilford, 1993, p. 76). In contrast to the expectations of the Johnson administration, the escalate-to-deescalate Rolling Thunder-5 strikes did not compel Hanoi to capitulate.

This observed response of continued fighting aligns with my theoretical expectation, as the North’s danger situation, the target value, and the target damage combine and interact in a manner that casts doubt into the credibility of the US’s will and ability to follow through with its compelling threat. Specifically, the North’s low-danger situation and the largely unimpressive American strikes on the intentionally low-value targets resulted in low damage. This is a combination that, as I describe in Chapter 2, leads me to anticipate the attacked state continuing to fight. In particular, I expect that the US’s specific avoidance of high-value targets like Hanoi, large civilian centers, and areas in proximity to China (Prados, 1999, 2009) and failure to inflict high levels of damage would undermine the credibility of its threat and not incentivize the North to capitulate. This expectation aligns at least in part with the ultimate views of at least one participant: as McNamara notes, “Our primary objective, of course, was to communicate our political resolve... Future communications of resolve, however, will carry a hollow ring unless we accomplish more military damage than we have to date” (Gravel, 1971, p. 64).

Generally, my theory expects low-danger victims to capitulate; because they are not under significant domestic or external pressure, they can trade space for time in combat. The exception

¹⁴¹ Van Staaveren notes that “the gradualness of the air program had enabled the government to absorb its daily losses of military manpower, trucks, watercraft, and other materiel. Despite the Johnson administration’s efforts to win the war using the carrot of diplomacy and eventual foreign aid, and the stick of limited military pressure, Hanoi clearly had not felt sufficient pain to begin talks on ending the war” (Van Staaveren, 2002, p. 324).

to this general tendency, however, is when the attacker does not credibly signal its willingness and ability to continue escalating or punishing the victim unless it capitulates. As described above, North Vietnam, at the conclusion of the escalate-to-deescalate attempt of Rolling Thunder-5, remained in a low-danger situation. By itself, a low-danger situation suggests a state is likely to respond with capitulation in order to better position itself to achieve its operational and political objectives. In this case, however, capitulation would be unattractive no matter how compelling the American escalate-to-deescalate threat happened to be. Recall that the North's goals were reunification and removing the US from the region. Capitulating to the demands of the US, even for the sole purpose of trading space for time, was not an option that would further either of the North's objectives.

The likelihood that the North would deviate from the general tendency of low-danger states on the receiving end of an escalate-to-deescalate strike, already low, was driven lower by the weak nature of the implicit threat of the US to employ more violence, as it was severely lacking in terms of both demonstrated will and ability. Turning first to the question of the American will to escalate further if the North did not capitulate, the low-value of the targets struck during the Rolling Thunder-5 bombings suggested that the US may not be eager to inflict future violence. The US's unwillingness to strike high-value targets – specifically leaving the high-value targets off-limits – confined its strikes to relatively unimportant targets (Van Staaveren, 2002). Taking note of this decision and its intent, scholars of the Vietnam conflict “charge that [the US's] gradual escalation instead emboldened North Vietnam by conveying a reluctance to escalate” (Gurantz, 2021, p. 246). They have good reason to make this claim; Pribbenow's translation of the North Vietnamese history of the conflict highlights their interpretation of the American effort: “Our army's victories in its initial battles against the American air forces in North Vietnam during 1965 solidified our

confidence in the ability of the soldiers and civilians of our entire nation to defeat the American aggressors” (Pribbenow, 2002, p. 173). This outcome, surprising as it might have been to the Johnson administration, is consistent with my theory; I have argued that striking a high-value target during an escalate-to-deescalate attack suggests a determination on behalf of the escalator to increase the scope of the conflict if necessary while striking a low-value target does not. The striking of a low-value target offers little information to the targeted state about the escalator’s willingness to credibly carryout future violence. As a result, at best, the striking of low-value targets is ambiguous and does not credibly imply the escalator possesses the willingness to continue inflicting future punishment upon its foe. As Schelling notes, a “restrained, signaling, intimidating use” of compellent force can actually have the unintended consequence where the violent messaging is received as lacking in credibility (Schelling, 1966, p. 114).

The low level of damage inflicted in the strike then undermined the US’s implicit statement of its ability to continue escalating violence if Hanoi did not capitulate. As I note in Chapter 2, high damage is indicative of a state’s ability to inflict additional violence, if necessary. A strike that results in low damage is likely to cause the attacked state to question the escalator’s ability to inflict future violence. There is evidence in support of my expectation that the North would doubt the ability of the US to inflict higher levels of damage in the wake of the Rolling Thunder-5 attack. Former PAVN Colonel Bui Tin, responding in an interview to the question of the effectiveness of American bombing of the Trail, stated that it was “Not very effective. Our operations were never compromised by attacks on the Trail... enough men and weapons to prolong the war always came out the bottom” (Young, 1995, p. A8). Bui Tin continued, “If all the bombing had been concentrated at one time, it would have hurt our efforts. But the bombing was expanded in slow stages under Johnson and *it didn’t worry us*. We had plenty of time to prepare alternative routes”

(Young, 1995, p. A8, emphasis added).¹⁴² Dennis Drew also highlights this issue concerning the US's ability to accurately strike the Ho Chi Minh Trail noting,

When the Rolling Thunder campaign began, the average circular error probable (the radius of a circle centered on the target within which half of the bombs will fall) was nearly 750 feet. It took several years to increase bombing accuracy and achieve a circular error probable of 365 feet. Although 750 feet may be an insignificant inaccuracy when using nuclear weapons, it becomes very significant when dropping conventional explosives on small targets such as individual buildings or bridges (Drew, 1986, p. 37-38).

The US's inability to accurately strike and inflict high levels of damage against the Ho Chi Minh Trail created doubt as to its true ability to credibly strike future targets with high damage, undermining the strength of its compelling threat.

Combining the low value of the Trail and the low damage inflicted on it, the US escalate-to-deescalate strike did not send a credible message that the US possessed both the willingness and the ability to inflict future violence if Hanoi did not capitulate. Hanoi was actively engaged in the conflict and not looking, or needing, to extricate itself. It was demonstratively invested in reunifying the country and ridding it of the US. Facing a low-danger situation in which it was already less likely than many such states to deviate from the baseline tendency of capitulation, as laid out in my theory, the low-value targets struck with resultant low-damage pushed Hanoi toward continued fighting. The intentional US tactic of striking targets of low value, combined with its inability to inflict high levels of damage, gave Hanoi several reasons to doubt that the US possessed the willingness and capacity to strike more important targets in the future. First, and foremost, the apparent risk to the populace was low, as the US's bombing patterns indicated there was no intention to strike civilian areas or threaten civilian hardship. Second, striking the Ho Chi Minh

¹⁴² Pape notes that the air attacks of Rolling Thunder-5 "could not affect the war and so had no effect on Hanoi's behavior" (Pape, 1990, p. 146).

Trail did not impact the North's meager industrial sector.¹⁴³ Third, the escalatory strikes did not threaten the civilian economy or threaten the food sources. Lastly, the North was under the impression that it was winning (Pape, 1990; Pribbenow, 2002; Herring, 2014). As Stephen Emerson notes, "the air strikes failed to send the meaningful message of strength and resolve [willingness and ability] that Washington had intended, or upon whom the ultimate success of the campaign depended" (Emerson, 2018, p. 27). In fact, the North's history of the conflict notes that at this point in the conflict, the US was "in a defensive posture," while "our soldiers and civilians were in an offensive posture" (Pribbenow, 2002, p. 155).¹⁴⁴ Contributing to the perceived lack of US will and ability was the large antiwar movement in the US. Popular American celebrities, calling for the removal of US forces, demonstrated "the conscience of America;" the celebrity "visits to Hanoi by people like Jane Fonda, and former Attorney General Ramsey Clark and ministers gave us confidence" that the North could persevere (Young, 1995, p. A8).¹⁴⁵

One final question to ask is, even if the North was pre-disposed to deviate from what my theory anticipates as its baseline tendency, and the lack of credibility conveyed by the nature of the American escalate-to-deescalate strike increased the odds that it would not give up, why did it continue fighting instead of counter-escalating? The North had the capacity, as is discussed below, to respond with counter-escalation. However, having been "emboldened by their victory over

¹⁴³ Pape argues that striking the Ho Chi Minh Trail was "a poor target for air attack. At first glance, it appears to have been highly vulnerable," an assumption shared by Johnson administration and the Joint Chiefs of Staff, "on close examination, however, this rudimentary system was amply durable and redundant" (Pape, 1990, p. 128).

¹⁴⁴ Based on the successes the North achieved in the first few months of 1965, the leadership directed that it "would continue and expand [its] offensive posture and make preparations to crush the US's planned counteroffensive" (Pribbenow, 2002, p. 155).

¹⁴⁵ Jane Fonda visited Hanoi in 1972. However, "the war in Vietnam triggered the most tenacious anti-war movement in US history, beginning in 1964, with the start of the bombing of North Vietnam;" the opposition within the US and abroad, "increased in tandem with the escalation of the war" (Zunes & Laird, 2010, I2-I5). According to Bui Tin, the antiwar movement in the US was very important to the war effort; Hanoi "would listen to the world news over the radio at 9 a.m. to follow the growth of the American antiwar movement" (Young, 1995, p. A8). The leadership of the North was turning the US's ability to wage war in its favor through the dissent and protest of the American populace (Young, 1995).

France and fortified by their faith in the efficacy of protracted warfare, the [North's] leaders were convinced they eventually would win" (Hosmer, 1996, p. 32). The objective of the North – the reunification of the two countries – remained attainable following the escalate-to-deescalate strikes as "North and South Vietnam had been separate only since 1954, and, indeed, the insurgents were mostly South Vietnamese" (Pape, 1990, p. 124). The low-danger situation of the North, coupled with the low-value target and the low-damage to that target, meant that continued fighting at the current operational tempo would not likely place the ruling elite at any greater risk. Hanoi continued to receive popular support from its citizens and enjoyed substantial credibility; "there is little evidence that the bombing triggered any active opposition to the Hanoi government or its policies" (Pape, 1990; Hosmer, 1996, p. 32).¹⁴⁶ The US political decision to strike targets of low value did not lead to the North's citizens calling for change. The low levels of damage did not endanger the North's basic economy or create the intended incentive for the North to capitulate to ensure the survival of its industrial complex (Gravel, 1971; Pape, 1990; Prados, 1999). In short, the North had no obvious incentive to strike back hard in an effort to win the war more quickly.

4.6 Alternative Explanations

Alternative explanations for why Hanoi continued fighting in the face of the US's escalate-to-deescalate strike include that the leadership in Hanoi a) were hawkish and prone to engage in conflict, and b) possessed the military capacity to do so (but not counter-escalate). While there is

¹⁴⁶ According to Pape, "In light of the importance Hanoi attached to South Vietnam, the lenient Schelling strategy did not create risks of sufficient magnitude to affect the North's political calculus. The principal problem was that conventional bombing did not threaten especially brutal civilian hardship" (Pape, 1990, p. 124).

some evidence in support of these claims, they are no more compelling, and in many ways less compelling, than my theory.

4.6.1 North Vietnamese Hawks

It is difficult to label the North as dovish, as large sections of the populace were supportive of, and actively engaged in, Hanoi's efforts at reunification and ejecting the US from the country. Ho himself had engaged in revolutionary actions for the vast majority of his life, including serving as an agent in the Comintern (also known as the Third International) and as the founder of the Vietnamese Communist Party in 1930 (Duiker, 2000). Ho was an adept revolutionary leader with great charisma and charm. From all accounts, and his recorded life experiences, it is unlikely that he would forego his attempt at reunification had the US succeeded in stopping the flow of material down the Trail. However, it is plausible, from the studied literature on Ho and his previous efforts at continuing the anticolonialist cause, that he would have capitulated in order to trade space for time and continued his reunification efforts through other mechanisms at a later more propitious moment if he needed to do so (Duiker, 2000).

Hanoi could have responded differently, as it had in previous conflicts with the French and in earlier fighting against the US. For example, in March 1954, the North counter-escalated in response to the French operation Atlante, which had used lightning raids on the North's encampments in an attempt to end the North's incursion into the South (Moss, 2010). In response, the North orchestrated a plan to overrun the French at the Battle of Dien Bien Phu. In this instance, the North occupied the mountainsides surrounding the French, lobbed artillery, mortars, and rockets down into the camp while their sappers simultaneously tunneled under the fortified positions. Ultimately, the North amassed a fighting force that outnumbered the French by 4:1,

successfully overran the battered troops, and compelled their surrender (Moss, 2010). The North also capitulated in several instances, trading space for time. One such capitulation occurred in April 1963, following a battle at Mu Duc in the Quang Ngai province. Here, the PAVN capitulated in response to US-led search and destroy efforts prior to establishing the strategic hamlet program (Westmorland, 1976; Pribbenow, 2002). In this instance, facing a technologically superior and better-organized US military, the North recognized it did not have the required assets or tactics capable of destroying US fortifications, stopping armored personnel carriers, or bringing down helicopters. The North traded space for time to resolve its technical and tactical problems and increase its capabilities so that it could advance the cause of revolution in the South (Pribbenow, 2002). Hanoi capitulated “to study the pattern of the enemy’s military operations and the enemy’s tactical and technical weaknesses... in order to defeat the enemy’s short-term and long-term military operations” (Pribbenow, 2002, p. 114). These examples demonstrate that Hanoi almost certainly did not simply continue fighting in a blind, unconsidered fashion. It was selective in its responses to enemy efforts and could have capitulated if the US had placed it in a situation where such behavior would be propitious. There was nothing in the violent US compellent messaging that credibly demonstrated a willingness and ability to mete out further punishment if Hanoi did not capitulate. From the perspective of either side, dove or hawk, there was no credible message to incentivize the North to alter its current calculus.

4.6.2 Sufficient Capacity

Hanoi had the resources, personnel, and equipment to continue responding militarily, and did so. Did it choose that option simply because it did not have the capacity to do anything else, though? Because the North had the capacity to continue fighting, it is almost certain that it also

had the capacity to capitulate and trade space for time, if it had wanted to. This would have likely been true even if the US had successfully disrupted the flow of material down the Ho Chi Minh Trail. There is evidence to suggest the North understood the compelling attempt by the US and it still did not waiver in its determination solely because it was willing to endure the violent compelling attempt by the US (Gurantz, 2021). The North's will to continue the fight mattered. Additionally, as noted above, the North retained the capacity to continue its fight in the South throughout the escalate-to-deescalate strikes of Rolling Thunder-5, as "the campaign being fought in this period was largely immune to conventional air attack" (Pape, 1990, p. 105). Other means of transporting troops and materiel would have allowed it to continue its fight even if the Ho Chi Minh Trail had been severed.

Alternatively, did the North respond with continued fighting simply because it lacked the capacity to respond with counter-escalation? Admittedly, there was a disparity between the fighting forces of the US and the PAVN. However, the North was continuing its investment in anti-aircraft weaponry and, by the end of the conflict, had developed one of the most sophisticated air defense systems in the world (Frankum, 2006).¹⁴⁷ An influx of weaponry from China and the Soviet Union also bolstered the North's ability to strike US forces and provided greater deterrence around Hanoi and other nonmilitary sites (Prados, 1999, 2009; Polmar & Marolda, 2015). Throughout the course of Rolling Thunder-5, the North "marshaled an estimated 300,000 to 500,000 military and civilian personnel to maintain its logistic network and to man its antiaircraft guns and automatic weapons" (Van Staaveren, 2002, p. 324). It had increased its surface-to-air missile capabilities and its own air force (Pribbenow, 2002). With the continual advancement in

¹⁴⁷ Biddle and Zirkle's (1996) article, "Technology, Civil-Military Relations, and Warfare in the Developing World" provides great insight into the civil-military relations of North Vietnam and its acquisition and employment of its air defense systems.

weaponry, along with willing and able Vietnamese fighters, it is possible the North could have counter-escalated. However, as a calculated response to the US escalatory strikes, counter-escalation had the potential to create a tit-for-tat response between the two parties. A more credible explanation is that Hanoi's response of continued fighting offered it a war strategy with which it was able to ensure state survival, continue to pursue victory through reunification, and minimize the cost of doing so.

4.7 Conclusion and Implications

The Rolling Thunder-5 air campaign failed to achieve its escalate-to-deescalate objectives and the North continued moving forces down the Trail and fighting against American and South Vietnamese troops (Tilford, 1993; Wilson, 2002; Willbanks, 2013). The escalatory attempt did not adequately demonstrate to the North that the US possessed the will to strike high-value targets, and the damage inflicted was low, indicating the US lacked the ability to continue inflicting punishment and make good on its compellent threat. The US attempted to calibrate the correct amount of compellent force to bring Ho to the negotiating table, but inadvertently sent the message that it may not be willing or able to continue punishing North Vietnam (Emerson, 2018). Some suggest that the escalate-to-deescalate attempt violently communicated through Rolling Thunder-5 “failed for the simple reason that Ho Chi Minh and the communist leadership were neither ready nor willing to negotiate an end to the war in 1965 – or in 1966, 1967, or 1968 for that matter” (Emerson, 2018 p. 118). If that is true, we must ask why. According to my theory, as presented here, the compellent attempt of Rolling Thunder-5 did not credibly demonstrate an American willingness or an ability to inflict future levels of violence against targets the North valued. Had

the US credibly demonstrated its will and ability with strikes against high-value targets, or strikes with resultant high-damage, the North very well may have altered its response calculus and capitulated. Instead, the ineffective escalate-to-deescalate efforts of Rolling Thunder-5 failed to achieve the objectives the Johnson administration outlined. In response to the escalate-to-deescalate attempt, “the North Vietnamese did not waver in their ability or will to continue. In contrast, the costs to the United States mounted and the American will to continue began to crumble” (Drew, 1986, p. 42). As Rolling Thunder-5 came to an end, and subsequent aerial and ground force attempts started, the movement of supplies and fighters moving down the Trail only intensified. In fact, according to US intelligence estimates, “infiltration *increased* from about 35,000 men in 1965 to as many as 90,000 in 1967, while Hanoi’s will to carry on the fight stayed firm” (McNamara, 1995, p. 244, emphasis in original).¹⁴⁸

Below, **Table 4.1**, summarizes the key elements of this case study, demonstrating how the independent variables act upon the dependent variable and the outcome.

¹⁴⁸ The US Consul General Edmund Rice and Sir Robert Thompson find that the compelling attempt of “Rolling Thunder had strengthened rather than diminished Hanoi’s will” (McNamara, 1995, p. 265). Additionally, estimates of Hanoi’s movement of fighters and materials in the first five months of 1966 were nearly double that of 1965. Compared to 1965, the “daily enemy supply tonnage had increased 150 percent, the troop infiltration rate along the Ho Chi Minh Trail had increased by 120 percent (averaging 4,500 men per month), and the number of North Vietnamese Army units in South Vietnam had risen by 100 percent” (Van Staaveren, 2002, p. 321).

Table 4.1: Operation Rolling Thunder-5, 1965

Firebreak:	Sustained air power coercion attempt.
Low-Danger Situation:	Hanoi was not in danger of territorial conquest by the US, nor was the military or civilian populace pressuring the leadership to cease its support for the war.
Low Value Target:	The US intentionally avoided high-value targets; the economic, industrial, and military sites struck were not deemed critical to the North and had little impact on their ability to contribute to the war effort.
Low Damage:	Despite significant bombing attempts by the US, the damage had no significant impact on the North's operations or its freedom of maneuver.
Outcome:	Continued fighting. Continual flow of forces and warfighting materials down the Ho Chi Minh Trail demonstrates the North Vietnamese government was not compelled to capitulate in face of the escalatory strikes.

The historical literature surveyed and reported here indicates that the North did not view the US compellent message as credible. The North's low-danger situation, the Ho Chi Minh Trail's low value, and the lack of damage inflicted during the bombing runs combined to incentivize Hanoi to continue fighting. North Vietnam was engaged in a conflict from which it was not looking – or needing – to extricate itself. The planned bombing pauses and diplomatic messaging by the US ensured the North knew the US could continue its bombing attempts. However, the Americans' intentional selection of low-value targets and the unanticipated low damage sustained account for why the North disbelieved the compellent threat and continued fighting in response. In its low-danger situation, and in not being compelled to trade space for time, the North was able to continue

advancing its wartime goals of providing support to fighters in South Vietnam, continuing to attrit US forces and, more importantly, depleting US political will.¹⁴⁹

¹⁴⁹ Ho Chi Minh was an adapt revolutionary leader who understood strategy. From his experience fighting the French he believed “that Westerners had little patience for a long and indecisive conflict. Supposedly Ho once remarked that ‘you can kill ten of our people for every one I kill of yours, but eventually you will grow tired and go home and I will win.’ From late 1965 until his death in 1969, Ho supervised the protracted war strategy that offered neither side a quick or decisive victory” (Willbanks, 2013, p. 76).

5.0 Operation Meetinghouse, 1945

This final in-depth empirical evaluation of my theory examines an escalate-to-deescalate attempt that resulted in counter-escalation. Specifically, I examine Operation Meetinghouse – the United States’ attempt to cross a firebreak and, by firebombing Tokyo on the night of 9-10 March 1945, compel Japan to give up its fight, surrender, and end World War II. The American escalate-to-deescalate attempt increased the danger that the Japanese government, already in a high-danger situation, was facing. The political, economic, and spiritual value of Tokyo as a target and the damage inflicted – the bombing caused the most extensive loss of civilian life and infrastructure of any conventional attack in history – combined to establish the credibility of the implicit American threat of further, and perhaps greater, violence to be inflicted in the future if capitulation was not forthcoming (Harada, Ito, & Smith, 2019). This combination of the attacked state’s high-danger situation, the high value of the target struck, and the high level of damage inflicted by the escalate-to-deescalate strike is one that my theory anticipates will fail by incentivizing counter-escalation rather than capitulation. Japan behaved as my theory expects.

According to the definitions presented in this dissertation, Operation Meetinghouse was an escalate-to-deescalate attempt by the US. The leadership within the military believed the airpower would demonstrate the requisite will and ability for Japan to justify its acquisition to US demands of capitulation. The American escalate-to-win attempt – its effort to achieve victory by eradicating Japan’s ability to continue the fight – would come with the use of nuclear weapons against Hiroshima and Nagasaki on 6 and 9 August 1945, respectively, and preparations for the invasion of the Japanese homeland. Indeed, the US was prepared to continue its use of nuclear weapons on 19 August 1945 with the available third plutonium core had Japan not finally conceded in defeat

on 15 August 1945 (Allen & Polmar, 1995; Tillman, 2007; Wellerstein, 2013; Coster-Mullen, 2018).

In examining this case of an escalate-to-deescalate failure, I first provide an overview of the conflict situation. Second, I focus on Japan's danger situation before and after the escalate-to-deescalate strike. The next two sections focus on the value of Tokyo and the damage sustained by the escalate-to-deescalate strike. Following this, I compare Japan's response with that expected by my theory. Finally, I address alternative explanations that could potentially better explain the case. A final section concludes.

5.1 Background and Conflict Situation

Operation Meetinghouse, the 9-10 March 1945 firebombing of Tokyo, took place during the larger World War II conflict between the Allied and Axis nations as the campaign in Europe drew to a close (Crane, 1993). The US, shifting its focus away from Germany, sought to end the conflict with Japan through an escalate-to-deescalate strike that would cause Japanese capitulation and prevent the US having to invade and occupy the island nation. The US's previous attempts to force Japanese capitulation focused on the destruction of industrial targets of high value, but they had not successfully destroyed a single target by mid-January 1945 (Searle, 2002). Something had to change. Accordingly, the US, at the urging of Major General Curtis LeMay and other senior leaders, attempted to effect its objectives by crossing a firebreak and using incendiary cluster munitions (Tillman, 2007).¹⁵⁰ The intent behind this shift, which would ultimately result in the

¹⁵⁰ For instance, aerial mission San Antonio I on 24 November 1945 attempted to bomb the Nakajima aircraft engine plant near Tokyo and caused only limited damage, as most of the bombs missed the plant. Numerous mechanical

US's escalate-to-deescalate strike in Operation Meetinghouse, was to both destroy the Japanese war-making ability and create conditions where the civilian population would turn against the despotic emperor and ruling military elite (LeMay & Kantor, 1965; Crane, 1993; Hoyt, 2000). Theoretically, this escalate-to-deescalate strike would serve to demonstrate the ability of the US to resort to an escalate-to-win strategy if the Emperor did not initiate the cessation of hostilities. Functionally, both objectives would necessarily be served by the firebombing because, due to the dispersal of Japan's war industry into the cities, "it was practically impossible to destroy the war output of Japan without doing more damage to civilians connected with the output" (Crane, 1993, p. 135).¹⁵¹

Japan's strategic goals at the start of World War II consisted of territorial expansion "driven by a need for economic and military autarky" (Pape, 2006, p. 110). In the 1940s, Japan was at its zenith of imperial ideology in which it was believed the emperor had "descended from the mythical figure of Jinmu and reigned without a single break for 2600 years" (Iwatake, 2003, p. 243).¹⁵² Resultingly, as the "oldest self-perpetuating government," Japan's leaders believed they were "following a destiny that demands for the Japanese the leadership of Asia and perhaps the world" (Hoyt, 1986, p. viii). Japan's territorial expansion was aimed at "the twin objectives of building a

issues, bad weather, and high-altitude bombing runs collectively contributed to these failed strikes (Wolk, 2004). Notably, of the 111 Boeing B-29 Superfortress bombers planned for the mission, 17 experienced fuel problems and returned to base, six had mechanical issues, one plane was lost to enemy combat, and 64 overflowed the target completely. Only 24 of the B-29s successfully hit the plant and the assessed damage sustained by the plant was negligible (Ralph, 2006). The principle supporters for the escalate-to-deescalate attempt included "Assistant Secretary of War for Air Robert Lovett, Army Air Forces Commanding General Henry Arnold, and Chief of Staff of the Twentieth Air Force General Lauris Norstad" (Pape, 1996, p. 92).

¹⁵¹ The forward to Major General Curtis LeMay's XXI Bomber Command's Tactical Mission Report for Mission 40: Urban Area of Tokyo, notes, "the object of these attacks was *not* to bomb indiscriminately civilian populations. The object *was* to destroy the *industrial and strategic targets* concentrated in the urban areas" (Lemay, 1945, np, emphasis in original).

¹⁵² As John Dower notes, "For ideological reasons, the Japanese calculate time differently than do other peoples. They tie it to the emperor's reign" (Dower, 1993, p. 1). This ideology helps explain how Japan viewed its lineage and history.

Greater East Asia Co-Prosperity Sphere and liberating Asians from American and British imperialism” (Ienaga, 1978, p. 153). At its height in 1942, Japan, under the leadership of Emperor Hirohito and the military elite, “controlled an empire that stretched from Alaska to India to the gates of Australia” (Haulman, 1999, p. 3).

While Japan had achieved these gains under the ostensible divine rule of Emperor Hirohito, it was in fact the military, operating without civilian oversight and capable of vetoing most civilian government actions, that led the country to its successes.¹⁵³ Indeed, it was General Hideki Tojo and his cabinet who were largely responsible for initiating the war of territorial expansion (Hoyt, 1993).¹⁵⁴ Below these military elites was the civilian leadership, consisting of former military officers and statesmen with the responsibility of running the daily interactions of the country, including providing counsel to the emperor. The emperor served primarily as a religious symbol who, in principle, possessed the authority to create law but, in practice, did not formally participate in running the country or the government (Pape, 1993, 2006).

The impressive initial victories of the imperial advance started to erode following the US victory in the Battle of Midway (Morgan, 2003). By June 1944, the Japanese military forces were stretched thin in attempting to defend the island empire. Although Japan’s air, land, and sea capabilities were increasingly depleted from repeated engagements with US and British forces, the Japanese military leadership remained determined to fight and “repel the Allied invasion”

¹⁵³ There is some scholarly disagreement on the actual roles and responsibilities of the emperor versus that of the military or the civilian leadership. For instance, Herbert Bix’s biography, *Hirohito and the Making of Modern Japan*, argues the emperor possessed much oversight and was heavily involved in the military plans to invade Manchuria, attack Pearl Harbor, and even denied Prime Minister Fumimaro Konoe’s nominated replacement, paving the way for the hawkish Hideki Tojo (Bix, 2000).

¹⁵⁴ Tojo simultaneously served as Japan’s prime minister, war minister, and home minister through much of the conflict. However, after a series of military defeats between 1943-1944, Tojo resigned and was replaced by General Kuniaki Koiso on 18 July 1944. Koiso was replaced the following April by Admiral Kantaro Suzuki (Hoyt, 1993; Morgan, 2003).

(Morgan, 2003, p. 186). As Japan lost more and more territory, and the US approached ever closer to the home islands, Japan's leadership believed continued resistance would bring about the desired ends. Reportedly, Admiral Kantaro Suzuki, the emperor, and the military leadership were not interested in capitulating in face of the US advance and "believed that Japan should fight an intense battle on the home island" (Pape, 2006, p. 111). The Japanese leadership believed that, by inflicting "heavy losses on American forces, both at sea as they approached the landing zones and on the beach once they landed, that the United States would be compelled to retreat" (Pape, 2006, p. 112).

Apprehensive of any engagement on the home islands of Japan, the US attempted to use its air power to destroy not only Japanese military capabilities, but also factories and plants contributing to Tokyo's war effort. Specifically, the US sought to apply "unremitting pressure against Japan with the purpose of continually reducing her military power and attaining positions from which her ultimate unconditional surrender [could] be forced" (Wolk, 2004, p. 70). Initially, the air strikes launched at Japan's war-making capabilities relied on high-altitude precision bombing to erode Japan's aircraft production and repair facilities. However, weather conditions over much of Japan, the dispersal of the Japanese aircraft industry throughout the country, and the US's primitive targeting capacities that did not allow for true precision bombing undermined the effort.¹⁵⁵

The US military leadership did not abandon its belief "that the loss of [Japan's] war-making capability would cause a corresponding loss of national morale, as [the] nation's economic collapse would trigger social chaos" (Clodfelter, 2006, p. 7). It simply believed that some other

¹⁵⁵ Japan had dispersed its aircraft industry throughout the residential sectors of its major cities, even subcontracting over 50 percent of its industry to plants with less than 250 people (Clodfelter, 2006).

path toward the end goal must be found. General Henry H. “Hap” Arnold, the Commanding General of the Army Air Forces (AAF) advocated for a change in the use of US airpower, and specifically for the conduct of an escalate-to-deescalate strike to drive Japan out of World War II and thereby avoid a costly and bloody land invasion (Wolk, 2004, 2010; Ralph, 2006).¹⁵⁶ Arnold demanded his subordinate AAF generals like Major General Haywood Hansell Jr. and Major General Curtis LeMay execute his vision.

Hansell, the commander of the AAF XXI Bomber Command prior to 1945, had long advocated the benefits of precision bombing to erode Japan’s war effort (Craven & Cate, 1981; Crane, 1993). In contrast to advocates for the use of incendiary bombings, Hansell argued that eradication of Japan’s aircraft supply chains would bring the results Arnold demanded (Schaffer, 1985).¹⁵⁷ Hansell launched multiple high-altitude precision bombing runs against Japan’s war-producing infrastructure. Due to weather conditions, inaccurate radar devices, and inexperienced bomber crews, Hansell’s attempts were largely ineffective and tested Arnold’s patience (Schaffer, 1985).¹⁵⁸ For example, in December 1944, Hansell targeted the Mitsubishi aircraft plant. With clouds covering the target area, Hansell’s bombers resorted to radar and bombed the plant with 48 planes – resulting in “no detectable impact on production” (Schaffer, 1985, p. 125).¹⁵⁹ Arnold, fed up with the lack of progress, relieved Hansell and replaced him with LeMay on 20 January 1945

¹⁵⁶ Arnold recognized the potential of a long, protracted fight requiring a costly invasion of Japan’s homeland if the fighting continued as it had in the Pacific. In essence, Arnold expressed a keen interest “in strategies that might provide a shortcut to victory” (Downes, 2008, p. 119).

¹⁵⁷ General “Possum” Hansell was a founder of the US’s strategy of selective or precision air strategy, coauthoring the Air War Plan Division’s 1941 *AWPD-1* blueprint for executing modern air war (Schaffer, 1985; Tillman, 2007, p. 53).

¹⁵⁸ Hansell planned and executed multiple precision bombing runs against the Japanese war-producing capacity, all without the resounding success desired. These operations included San Antonio I and II and Hotfoot, among multiple unnamed operations (Craven & Cate, 1981). In total, Hansell launched approximately 950 combat sorties with only 780 actually striking anything – and “far fewer had attacked primary targets. Thus, aborts and weather had consistently conspired to rob Hansell of one-fifth of his potential striking power... More importantly, no targets had been destroyed” (Tillman, 2007, p. 56).

¹⁵⁹ The Japanese military derogatorily referred to the high-altitude bombing as “blind bombing” (Edoin, 1987, p. 16).

(LeMay & Kantor, 1965).

The command LeMay inherited was not producing the effects Arnold demanded. As such, LeMay was immediately under pressure to achieve results. Major General Lauris Norstad bluntly informed LeMay, “If you don’t get results, you will be fired... If you don’t get results, it will mean eventually a mass amphibious invasion of Japan, to cost probably a half a million more American lives” (Tillman, 2007, p. 55). In this context, LeMay initially continued the precision strikes against Japanese airplane factories, but began experimentation with incendiary attacks (Schaffer, 1985). LeMay’s initial sixteen precision-strike missions dropped 5,000 tons of ordnance, with only one mildly successful raid. The XXI Bomber Command “placed less than 6 percent of bombs within 1,000 feet of their targets... LeMay was getting no better results than had Hansell” (Haulman, 1999, p. 20). The initial experiments of incendiary bombing also failed to produce the desired results, however, as the firebombs were dropped too far apart to create any meaningful damage (Schaffer, 1985).

LeMay then altered the bombing tactics employed by the XXI Bomber Command and crafted the strike that would be employed in Operation Meetinghouse. He did so by thoroughly studying multiple theories and recommendations from military planners, then combining the most useful aspects of each while discarding elements that seemed less significant (LeMay & Kantor, 1965; Craven & Cate, 1981; Tillman, 2007).¹⁶⁰ Four changes were crucial: LeMay dropped the flight ceiling at which the bombers struck targets, selected the capital city of Tokyo as the target, changed the bombing timeline from daylight to nighttime raids, and, most critically, stripped all fragmentation ordnance and defensive measures from the B-29s so that he could fill them

¹⁶⁰ LeMay states that, regardless of the assistance and advice of his planners, it was ultimately his decision and his order that sent the B-29s to the task in the manner described. He continues, “*My decision and my order*” (LeMay & Kantor, 1965, p. 355, emphasis in original).

exclusively with incendiary cluster munitions.¹⁶¹

Considering first LeMay's changes to the bombers' flight ceilings, the AAF commander understood the Japanese weather posed a significant hurdle for his forces. Japan's geographical location resulted in weather conditions not encountered elsewhere by the AAF. The winds at the doctrinal height for the B-29's (25,000-30,000 feet) consistently blew at 120-180 knots, and sometimes even over 200 knots, causing the planes to drift (LeMay, 1945; Schaffer, 1985; Tillman, 2007). Under Hansell, the XXI Bomber Command strikes operated at roughly 30,000 feet; based on his experiences in China and the European Theater, LeMay immediately lowered the flight ceiling to 10,000 feet (Werrell, 1996; Hoyt, 2000). LeMay, in consultation with experts like Dr. Edward Bowles from MIT and an advisor to the War Department, argued these lower altitudes were still relatively safe from Japanese gunners, as they would not be able to track the B-29s long enough to distribute effective flak (Tillman, 2007).¹⁶² Dropping the ceiling would contribute to a more effective, if dangerous, bombing run: "the ballistic characteristics of the 500-pound cluster of M-69's rendered that bomb grossly inaccurate. A lower bombing altitude would increase accuracy... It might also increase [US] losses to a prohibitive rate" (Craven & Cate, 1981, p. 612).

LeMay's second change, the decision to strike Tokyo with incendiary bombs, was not his alone.¹⁶³ Targets in the Pacific theater were updated throughout the conflict. For instance, in

¹⁶¹ The removal of the defensive weapons and associated crew members with the decision to fly at a ceiling under 10,000 feet "meant a 65 percent increase in bomb capacity" (Hoyt, 2000, p. 8).

¹⁶² LeMay also recognized the Japanese air defenses were nothing like that experienced in Germany. Unlike the electronically controlled flak batteries used by the Germans, the Japanese utilized radar and searchlights (Hoyt, 2000).

¹⁶³ The selection of Tokyo's war industry as a potential target, in addition to its inflammability, was noted as early as 1943 in AAF and the Office of Strategic Services (OSS) intelligence assessments (Crane, 1993; Searle, 2002). The massive fires resulting from the 1923 Tokyo earthquake were suggestive of the potential results from a US incendiary strike. Further, even without the influence of Billy Mitchell and George Marshall, "the Japanese incendiary bombing of Chinese cities in the 1930s and the London blitz of 1940 would have made it virtually impossible for USAAF planners to have remained unaware of the possibility of using fire to attack Japanese cities" (Searle, 2002, p. 116). The Commander of the OSS proposed firebombing Tokyo in 1944 stating, "Hell... knock out Tokyo, and the Japanese throughout the country would say we have been hit. After a few major fire attacks, the Japanese would demand that their government surrender" (Ralph, 2006, p. 503).

October 1943, an AAF intelligence section offered an analysis of twenty key cities across Japan based on the inflammability of the industrial sectors (Searle, 2002). The assessment offered four reasons why incendiary bombing would serve as an effective method of targeting Japan: “the greater inflammability of Japanese residential construction, the greater building congestion in Japanese cities, the proximity of factories and military objectives to residential construction in Japan, and the concentration of Japan’s war industry in a few cities” (Searle, 2002, p. 117). The intent was not, as some scholars claim, to simply “demoralize the urban population” (Overy, 1980, p. 99). Rather, Tokyo was selected as the target specifically for its war-related industry (LeMay, 1945; LeMay & Kantor, 1965; Searle, 2002). The US’s Committee of Operation Analysts, charged with studying American bombing objectives in Japan, rationalized that the industrial sector of Tokyo offered a unique target, as “war production is peculiarly vulnerable to incendiary attack because of the widespread practice of subcontracting to small handicraft and domestic establishments. Many small houses [in Tokyo] are not merely places of residence, but workshops contributing to the production of war materials” (Ralph, 2006, p. 501). The Committee of Operation Analysts and LeMay’s intelligence section determined that the target area within Tokyo had a high concentration of these factories supporting Japan’s war production capability.

LeMay’s third alteration was his decision to strike Japan at night. His reasoning for the switch from daylight operations, generally required for precision bombing and for navigators to determine the targeted bombing areas, resulted from a better understanding of Japan’s antiaircraft and fighter plane capabilities. Specifically, LeMay expected that Japan’s fighter planes would be on alert and ready to respond only during the daylight hours, and that Japan did not have effective or capable night fighters (Crane, 1993; Searle, 2002). Operating at night would ultimately provide an element of surprise and some concealment while hindering Japanese attempts to bring down

LeMay's bombers.

The shift to nighttime raids was intimately linked to LeMay's fourth alteration: the stripping of extraneous materials, including defensive weaponry like machine guns, from the AAF bombers to allow for more incendiary bombs to be placed on the B-29s (Searle, 2002). This decision to maximize the number of incendiaries carried on each bomber was driven in large part by Arnold who, along with his AAF intelligence section, had concluded that "heavy fire raids against the chief cities would be more effective than precision strikes against factories in the suburbs" (Craven & Cate, 1981, p. 611). LeMay and his operations officers reached the same conclusions (LeMay, 1945; LeMay & Kantor, 1965).¹⁶⁴ Accordingly, LeMay ordered that the B-29 bombers be stripped of their defenses and, in the space formerly occupied by such systems, 3,000 pounds of additional incendiaries be loaded. This additional ordnance was further bolstered as a result of LeMay's decision to fly the bombers below 10,000 feet, which required less fuel than traditional missions and allowed the bombers to carry even more M-69 incendiary cluster munitions. In this way, each B-29 that was used in Operation Meetinghouse was able to carry double the bombload of bombers on previous missions (Ralph, 2006). With the additional munitions, the incendiaries would land in closer proximity to one another and cause small fires to collectively merge into one massive, uncontrollable inferno.

These four changes, LeMay believed, would combine to allow the AAF to produce the two effects it had long sought. Specifically, the AAF hoped to achieve what they labeled as "'direct effects' (destruction of production facilities, military establishments, and storage facilities) and 'indirect effects' (reduced worker efficiency, casualties among workers, damage to transportation

¹⁶⁴ Some scholars, such as William Ralph (2006), posit that the use of incendiary bombs was a radical departure from the US's position at the start of the conflict while others, like Thomas Searle (2002), argue the shift to incendiary bombing was actually a continuation of the methods the AAF utilized in Germany.

facilities, damage to public utilities, diversion of resources to reconstruction, and lowered Japanese morale)” (Searle, 2002, p. 117). The AAF and LeMay concurred that “the fire raids seemed to be the easiest and the quickest method for destroying the ability of Japan to wage war” (Crane, 1993, p. 141), and should therefore be made as punishing as possible for the Japanese to help convince them “to surrender before the scheduled invasion” (Werrell, 1996, p. 158).¹⁶⁵

The escalate-to-deescalate strike of Operation Meetinghouse occurred the night of 9-10 March 1945. With LeMay’s launch order, “The thirty-seven-year-old airman had just rolled the professional dice in an all-or-nothing bid to turn the strategic bombing campaign against Japan from a costly experiment into a bold stroke that might end the Second World War” (Tillman, 2006, p. 1). Three hundred and twenty-five B-29 bombers from the 73rd, 313th, and 314th bomber wings departed from Guam, Tinian, and Saipan, enroute for Tokyo in accordance with XXI Bomber Command’s Field Order Number 43 (LeMay, 1945; Schaffer, 1985). Shortly after midnight in Tokyo, LeMay’s lead bombers started dropping their M-47 napalm cluster munitions as markers for the bulk of the planes filled with M-69 incendiary bombs to follow (LeMay, 1945; LeMay & Kantor, 1965; Schaffer, 1985; Hoyt, 2000).¹⁶⁶ The bomber wings crisscrossed the target section one at a time, dropping their incendiaries at a rate of “sixty tons per square mile” (Schaffer, 1985, p. 131). Tokyo was firebombed with 1,665 tons of M-69 incendiary bombs burning at roughly 1,000 degrees Fahrenheit for over 10 minutes (Schaffer, 1985; Werrell, 1996). Three and a half hours later, the last of the bombers completed dropping their incendiaries and headed back towards

¹⁶⁵ Norstad’s views on the use of incendiary bombs also complemented LeMay’s thinking; he argued, “Japan’s war-making ability will be seriously affected and the enemy might well lose their taste for more war” (Wolk, 2010, p. 87).

¹⁶⁶ The M-69 is colloquially referred to as the Tokyo Calling Card. It was used in clusters of 38 (1500 per bomber) as part of the E-46 and M12 and M19 incendiary bomb clusters (DOD, 1957; Werrell, 1996; Hoyt, 2000). See a quick overview of the M-69 Incendiary Bomb at: <https://scalar.chass.ncsu.edu/bodies-and-structures/m69-incendiary-bombs>. It was the most effective incendiary device tested by the US in 1943 and 1944 against surrogate German and Japanese villages on Dugway Proving Ground and Eglin Air Base, complete with wood tatami and furniture to replicate the intended targets (Werrell, 1996; Plung, 2018).

Guam. Pilots and crew on “bombers eighty-five miles away could still see smoke and fire. Planes from the later waves smelled like the insides of burned buildings. Their fuselages were coated with soot” (LeMay & Kantor, 1965, p. 373). Describing the results of the escalate-to-deescalate strike of Operation Meetinghouse, Ronald Schaffer notes,

Altogether, LeMay’s command had dropped 1,665 tons of bombs on Tokyo. An estimated seventy-four Japanese fighters had attacked the B-29s without bringing down a single bomber, though intense anti-aircraft fire had brought down two planes and damaged forty-two before the spreading web of flames extinguished the gun batteries. Reconnaissance photographs disclosed that the firebombs had incinerated 15.8 square miles of the city... They had burned out 18 percent of the entire working-class residential zone, consuming 250,000 buildings... The fire had covered a much larger area than the target zone, for the wind had blown it far to the east... (Schaffer, 1985, p. 132-137).

The messaging coinciding with this particular escalate-to-deescalate strike is not as clear and upfront as other escalate-to-deescalate attempts considered in this dissertation. US President Franklin Delano Roosevelt and British Prime Minister Winston Churchill first provided notice to Japan of their demands for capitulation on the final day of the 14-24 January 1943 Casablanca Conference (CCS, 1943a). Roosevelt was careful to note that this demand did not require the complete and utter destruction of Japan, as he was not seeking strategic capitulation from Japan or planning an escalate-to-win strike, but rather the destruction of Japan’s expansionist undertakings (CCS, 1943a). In subsequent meetings, the Allied partners tailored their overall war objectives for the defeat of Japan, highlighting the importance of intensive air bombardment to avoid invading Japan (CCS, 1943b).¹⁶⁷ If capitulation was not forthcoming, the Allied partners threatened an escalate-to-win strike, announcing they were positioned and willing to subject Japan “to the overwhelming weight of all the forces of the four powers” (CCS, 1945, p. 296).

¹⁶⁷ See, for instance, the Combined Chiefs of Staff (CCS) Papers and Meetings from the Cairo, Egypt *Sextant Conference*, the Tehran, Iran *Eureka Conference*, and the *Second Cairo Conference* (CCS, 1943b); the Quebec City, Canada *Octagon Conference*, and the Malta and Yalta, Soviet Union *Argonaut Conference* (CCS, 1945).

Prior to executing Operation Meetinghouse, the US did drop several psychological operations and warning leaflets across Japan and the occupied islands throughout the war. LeMay instructed leaflets be dropped in preparation of the impending operation, urging civilians to depart the cities. The leaflets, ominously printed in red and black ink stated, “These leaflets are being dropped to notify you that your city has been listed for destruction by our powerful air force. The bombing will begin within seventy-two hours” (Tillman, 2006, p. 71). Throughout the subsequent firebombing campaigns, LeMay’s bombers dropped 60,000 leaflets warning the civilian population that cities were to be destroyed by firebombing in the near future (Schaffer, 1985). LeMay reportedly “emphasized that, whenever possible, populations were warned to evacuate. The intent was to disrupt the industry without killing everyone” (Crane, 1987, p. 36). However, “there was little evidence that the warnings were heeded (Hosmer, 1996; Tillman, 2006, p. 71).

The Japanese leadership, beyond failing to capitulate before the bombing, refused to give up following the Operation Meetinghouse escalate-to-deescalate strike. The Japanese response, as described in detail below, centered around the premise that a “last resort would change the course of the entire war” (Feifer, 1992, p. 203). More specifically, Japan attempted to counter-escalate with Operations Kikusui, Ten-Go, and Ketsu Go (Hoyt, 1983; Earhart, 2005; Sears, 2015; Lacey, 2015).

5.2 Danger Situation

Japan, following the 9-10 March 1945 Operation Meetinghouse escalate-to-deescalate strike, was in a high-danger situation, as the country was in serious jeopardy of being occupied by the US. While Japan enjoyed a low-danger situation at the onset of World War II, the significant

losses of territory, infrastructure, and civilian deaths that mounted throughout the conflict had pushed it to a high-danger situation by late 1944.¹⁶⁸ The March 1945 firebombing of Tokyo further contributed to Japan's high-danger status. Due in large part to Japan's military rule, devotion to the emperor, and the vast propaganda network, there was not, in this instance, a direct threat of insurrection or military coup. The very real threat was that of conquest, as US forces moved closer to invading the home islands.

Japan faced a limited danger of an insurrection prior to the escalate-to-deescalate attempt because Japanese civilians "were seen to be just as fanatic as their soldiers; everyone supported the war effort" (Crane, 1993, p. 121). The Japanese government made a concerted effort to foster national fanaticism, worship of the emperor, and willingness to carry out the orders of the ruling military elite to the letter. The collocation of Tokyo's industries with that of the civilian populace exploited "the group-oriented nature of the Japanese society" developed prior to World War II (Noguchi, 1998, p. 404). Even the corporate structure of Japan was controlled by the military, furthering their control over the populace and the production. For example, at the direction of the military elite, the National Mobilization Act limited civilian influence for the purpose of raising productivity of Japan's material industries "in order to contribute to national defense" of Japan (Noguchi, 1998, p. 405). The newspapers and media organization were systematically reduced until only one official Japanese news agency remained. This control over the media provided "the Tokyo government greatly increased powers in affecting public opinion" (Embree, 1943, p. 16). The military also consolidated the automotive and airplane industries, the banking sector, and the

¹⁶⁸ Japan's low-danger situation began to deteriorate with the US naval blockade and US submarine warfare in early 1944. As Robert Pape notes, Japan's home industries required the importation of raw materials to support the aircraft industry and to provide basic goods to the populace. Japan was highly susceptible to even small losses as its fleet was operating at near full capacity at the start of the war. Additionally, Japan's ship-building capacity was insufficient to keep up with losses inflicted by US submarines (Pape, 1993).

media thereby creating greater government control over what was produced, what areas received government funding, and what was disseminated in the media solely for the purpose of accomplishing the goals of the nation (Noguchi, 1998, p. 406).¹⁶⁹

These efforts produced in the Japanese population a confidence in ultimate victory that, until approximately 1944, was reinforced by the fact that they had little knowledge of or experience with the impending US bombing campaigns. Nurtured by the military's victory propaganda, Japanese civilians largely assumed the war was progressing promisingly (Craven & Cate, 1981).¹⁷⁰ Throughout much of the war, the Japanese military's propaganda machine kept the true danger situation out of the news and out of daily life. The emperor's Imperial Rescript declaring war against the US was republished monthly to keep civilian support at a fever pitch, and Tojo traveled across Japan, presiding over frequent assemblies in full military regalia while promising "victory to the people of Japan" (Hoyt, 1986, p. 338).¹⁷¹ The media supported this theme, publishing propaganda articles on the great victories achieved by the valiant Japanese soldiers against the Allied nations (Hoyt, 1986). Reports of US atrocities such as collecting bones of the Japanese war dead fueled the desire for a Japanese victory. Stories of Japanese skulls being sent back to the US and used as ashtrays was particularly inciteful to the populace and Japanese soldiers, steeling their resolve to continue the fight (Hoyt, 1986).

In the autumn of 1944, Japanese civilians began to notice the military demands in support

¹⁶⁹ Pape notes that "the [Japanese] government controlled information. By controlling education, the media, and religion, the state could indoctrinate the population to sacrifice for national goals and to believe in the evil nature of their enemies" (Pape, 1993, p. 194).

¹⁷⁰ For example, after successfully bringing down a B-29 in an August 1944 battle, government posters claimed to have brought down 100 of the bombers. The Japanese navy also claimed to have sunk over 103 US submarines and seriously damaged another 42. Yet, during the entire war, the US only lost 52 submarines. Similarly, a 9 September 1944 battle resulted in four B-29 bombers being brought down – the Japanese claimed they brought down 40 (Hoyt, 1986).

¹⁷¹ The Imperial Rescript was reprinted the eighth day of the month beginning 8 December 1941 until September 1945 to remind the Japanese people why they were engaged in the war (Hoyt, 1986).

of the war effort, including the rationing of food and oil, had increased to include the recruiting of younger and younger conscripts as well as the evacuation of children to the rural areas (Ienaga, 1978; Hoyt, 1986).¹⁷² Food was in shorter and shorter supply and any potentially useful items available were sequestered for the war effort. For example, the largest bronze Buddha statue in Japan was removed from its location in Yudanaka, sent to the ammunition factory, and melted down for shell casings (Hoyt, 1986). Rice, the staple sustenance in Japan, was largely unobtainable and replaced by pumpkin. Civilians began “trading off family possessions for black market food to augment the slender bean cake and mixed unhulled grain they received each month” (Hoyt, 1986, p. 354). The results of the battles off the coasts of Japan presented a stark contrast to the propaganda messages published by the military. Yet, the populace remained loyal to the demands of the military elite and their emperor.

Overall, though there were some beginnings of discontent, the Japanese populace remained stoic in the face of the US’s advance and posed no insurrection threat to the government. This remained true even as American bombers began regularly attacking targets on the Japanese home islands. Prior to the firebombing, the US repeatedly targeted the industrial portions of Japan with precision bombs. As noted above, many of the bombing runs failed to hit or even damage the intended targets (Hoyt, 1986). These precision bombing attempts “had little effect on Japanese production due to the dispersion of cottage industries as well as the woeful inaccuracy of high-explosive bombs” (Crane, 1987, p. 35). The inaccuracy of the US’s precision bombing attempts and the media’s descriptions of damages in neighboring cities further bolstered many Japanese civilians’ feelings of security in their cities and confidence in their leadership (Hoyt, 1986).

¹⁷² Japan initially drafted those aged twenty-two and older. By the end of 1944, Japan had dropped age restrictions on draftees age first to twenty and to eighteen (Hoyt, 1986).

Even following the escalate-to-deescalate strike, the civilians did not pose a meaningful threat to the ruling military elite or the emperor. There was some potential for the civilian populace to revolt and demand action from the government. For example, Saburo Ienaga notes there was civilian dissent following the firebombing. After the strike, a housewife reportedly went up to a group of soldiers viewing the carnage and asked them “You there, you soldiers! How do you feel about all these people? Can you face them?” The soldiers returned to their vehicles and left. Ienaga continues, noting that there were a few protest attempts, but “popular anger dissipated itself in these short outbursts; there were no organized uprisings” (Ienaga, 1978, p. 221-222). Instead, “the mass of the populace was impotent” (Ienaga, 1978, p. 229). Robert Pape concurs, arguing that the firebombing did not result in collapsed Japanese morale or the potential for the populace to press the leadership for capitulation. He notes that the civilian population, including the industrial workers and military personnel, “did not pressure the government to surrender, and army discipline remained excellent” (Pape, 1996, p. 88).

Just as Japanese civilians posed no threat to the government through potential insurrection, the military posed no threat to the government through a potential coup. The Japanese military had no incentive to coup because they were already effectively in charge of the country. The military, under the guidance of Tojo, initiated Japan’s offensive war in an effort to expand the country’s territory and dominance in the region. Japan had succeeded in its territorial expansion while not suffering a military defeat in combat until 1942.¹⁷³ Following the escalate-to-deescalate strike of Operation Meetinghouse, civilians in Japan’s government may have recognized the ability of the US to invade the homeland and the associated dangers, but the military government “clearly held

¹⁷³ Hoyt notes that Japan expanded its territory under Tojo through a perceived predominant stature in the region. Japan had assumed a dominate role in the region and “for nearly two thousand years had not once been defeated in battle, nor had any foreign boot ever trod the land” (Hoyt, 1986, p. viii).

the upper hand, rendering the civilian leaders impotent through political intimidation and threats of imprisonment” (Williams, 2002, p. 6).

The ruling military elite, prior to the escalate-to-deescalate strike, viewed the conflict primarily through the lens of a low-danger situation. The early conquests and successful attack on Pearl Harbor contributed to the military leadership’s confidence in their war aims, which “led to an overweening disdain for their enemies – especially the United States” (McPherson, 2011, p. xi). As the Japanese were dislodged from occupied territories like the Philippines and from their own outer island of Iwo Jima, Tojo and his military leaders still claimed Japan, through the ability of its military and civilians, would persevere (Hoyt, 1993). The rhetoric of the senior leadership emboldened the fighters and sailors to take great risk and to fight not only for their survival, but for the honor of the emperor and the country of Japan. In fevered “battle after battle, Japanese troops repeatedly fought to the last man rather than surrender” (Downes, 2008, p. 120).

The Japanese military leadership, “imbued with a racist ideology against all foreigners,” had pursued an expansionist agenda in an effort to secure materials Japan did not possess internally (Haulman, 1993, p. 1). The lands acquired in the attempt expanded the Japanese empire enormously to include Formosa, Sakhalin, Korea, portions of China, French Indochina, the Philippines, Malaya, and Singapore; Japanese forces also consolidated positions on New Guinea and portions of the Solomon Islands (Haulman, 1993). The Allied nations engaged in pitched battles on land and sea to force Japan to retrograde its forces. Naval battles like the 7 May 1942 Battle of the Coral Sea and the 4-6 June 1942 Battle of Midway pushed Japan back towards its internationally recognized sovereign territory, while interdiction efforts in support of China and Burma further degraded Japan’s territorial acquisitions (Clodfelter, 2008; Symonds, 2011). With each battle loss, the Allied forces loomed closer to the home islands, threatening invasion and

occupation. Throughout this process, Japan's navy was diminished through high attrition. Significantly, the naval losses were not confined to battles; Japan's naval force, charged with defending Tokyo Bay, suffered significant attrition as US submarines routinely operated closer and closer to Japan's waters. For example, Japan's Delhi Maru, a new counter-submarine warship manned with an experienced crew was sunk in Tokyo Bay on its first night at patrol by a US submarine (Hoyt, 1986).

Tojo hid the battle losses and the deteriorating danger situation from the public and much of the military throughout his rule. In July 1944, "Tojo's government was still concealing the fall of Saipan from the Japanese people, but could not conceal it from the emperor and his advisors" (Hoyt, 1986, p. 349). The increasing dissonance between Tojo's rhetoric and the reality of the danger situation grew too large, and he was removed from power on 20 July 1944. His views remained represented among the ruling elite, however, as many military hawks remained committed to continuing the conflict despite losing the Marshall and Mariana Islands (Hoyt, 1986).¹⁷⁴ However, these territorial losses demonstrated to many in the Japanese military and the elder civilian statesmen that the true outlook was dire (Feifer, 1992). The ongoing battle for Iwo Jima (19 February – 26 March 1945) would leave Japan on its heels, reeling from the loss of 20,703 soldiers and the recognition that the US now had a base only 700 miles from the imperial city; the high degree of danger in which Japan found itself was becoming clear (Hoyt, 1986, Clodfelter, 2008).

¹⁷⁴ Several military officers remained committed to engaging in the conflict at all costs. Even following the atomic bombings in August 1945, ruling military elites retained the desire to continue the conflict with the US despite the emperor's decision to surrender. In what would be called the Kyujo incident, several young army officers, including Major Hidemasa Koga Tojo's son-in-law, planned to stage a coup on 15 August 1945, assassinate Admiral Suzuki and the Foreign Minister Togo, place the emperor under house arrest, and pursue victory at all costs (Ienaga, 1978; Hoyt, 1986, 1993; Frank, 1999).

The primary threat to Japan associated with its high danger situation was that of conquest by the United States and its Allied partners. The prospect of conquest seemed remote at the beginning of the war, and nearly inconceivable when Japan's empire reached its height in 1942. As the Japanese army and navy were defeated and pushed back toward the home islands, however, the possibility of conquest became increasingly clear. By late 1944, the US had bases on the Mariana Islands of Saipan and Tinian and the Marianas island of Guam. These islands provided the AAF the ability to bomb the home island of Japan, which it did in November 1944, striking Tokyo for the first time (Lemay & Kantor, 1965; Tillman, 2007; Clodfelter, 2008). With the conflict in Europe ending, "other nations declared war on Tokyo, bringing the total to more than fifty. Japan was now at war with over half the world" (Ienaga, 1978, p. 149). The series of defeats Japan suffered continued to build. Each "retreat was another Japanese defeat, costing thousands of lives" (Hoyt, 1993). Conquest seemed less a possibility and more a likelihood.

The populace, the military elite, and even the sovereignty of Japan was in a high-danger situation by November 1944, when the US was able to strike the homeland. This danger situation remained high as the US occupied the Marshall and Mariana islands, defeated Japanese forces at Iwo Jima, and began its occupation of Okinawa. On 16 February 1945, the US fleet was within three hundred miles of Japan's coast and aircraft attacked Tokyo and Yokohama continuously for nine hours (Hoyt, 1993). With the use of incendiary weapons of Operation Meetinghouse, Japan, its populace, and its military remained in their high-danger situation and the US moved continually closer to invading the home islands.

5.3 The Value of Tokyo

The target of the escalate-to-deescalate strike was Tokyo: the capital city, a symbolic target, home to the emperor and the national government, and the political and economic center for Japan.¹⁷⁵ As the US Strategic Bombing Survey (USSBS) notes, Tokyo “was the seat of the national government and the leading city of Japan in manufacturing, commerce, communication, transportation, and amusements” (USSBS, 1947, p. 67). In this section, I explain the value of Tokyo first as a large military industry furthering Japan’s war effort; second, as the seat of governance and command-and-control center for the army and navy; and, third, a population center of vital economic and cultural importance.

Tokyo was, first and foremost, the center of Japan’s war effort (Hoyt, 2000). LeMay’s Operation Meetinghouse post-strike tactical mission report details the importance of the target, identifying it as a target of high value because of its significance in Japan’s war-making effort:

Tokyo, one of the world’s three largest cities with a population of 7,000,000 (1940 population figure), is the hub of Japanese industry and commerce. With the exception of heavy industry, the city has substantial portions of almost every Japanese business enterprise. Concentrations of such key war industries as machines and machine tools, electronics, precision instruments, petroleum, and aircraft and aircraft parts are within the city limits. Tokyo is also a vital transportation and communications center and the terminus of a majority of the main railroads on the island of Honshu. In addition, it is the administrative seat of government and of the great industrial concerns which comprise Japan’s war machine (LeMay, 1945, p. 1).

The industrial sector of Tokyo, which included the Nakajima aircraft plants, offered the

¹⁷⁵ Some, such as Michael Sherry (1987) and William Ralph (2006), argue that the specific target of Operation Meetinghouse was the large civilian population in Tokyo. Others, such as Wesley Craven and James Cote (1981) and Thomas Searle (2002), lean toward the argument that the civilian population was a known potential collateral damage byproduct of the firebombing. The indirect loss of civilian life was acknowledged and a known potentiality but does not appear to be the point of the escalate-to-deescalate strike. Rather, the AAF plan focused on the potential degradation of Japanese war production resulting from the destruction of the war industry, the dislocation of skilled workers, and the reconstitution time required to rebuild (Searle, 2002).

US a target known to produce a large portion of Japan's war materials. The Nakajima factories in Tokyo represented 30-40 percent of all engines produced and was identified on earlier AAF target lists as "the single most important target in Japan" (Ralph, 2006, p. 506).

In addition to the Nakajima aircraft engine plants, Tokyo was home to numerous cottage industry and feeder plants that were crucial to Japan's war effort (Wolk, 2004). As Hoito Edoin notes, "Every sort of small factory had been turned to the production of ammunition and weapons. Hundreds of workers were even building parts of weapons at home or in community factories. In effect, Tokyo had become one huge arsenal" (Edoin, 1987, p. 8). The Nagoya Aircraft Works, a major Japanese producer of engines operated a factory with staff stationed in Tokyo to supervise the subcontractors' work (Okazaki, 2019). The collocated Musashino-Tama plants also produced Japanese combat aircraft engines for the army and navy, which if destroyed, would result in the significant delay of critical components to at least six major aircraft assembly plants (Craven & Cate, 1981). The Ishikawajima Shipbuilding Company and Hidachi Shipbuilding Works operated in Tokyo's harbor producing minelayers and minesweepers for the Japanese imperial navy (CINPAC, 1945). LeMay's target selection also identified the following Tokyo industries known to support the Japanese war effort: Nippon Electric Wire Company; the Sumida River railroad yard, the Joban rail line, and the Shiodome Freight Yards; Japan Machine Industry; Hattori Precision Instruments; Ogura Oil Company; Japan Refining Works; Tokyo Gas Works; Sakurada Engineering Works; Fujikura Electric Works; and the Army Provision Company (LeMay, 1945, p. 37).¹⁷⁶ Also located within the planned target area for LeMay's firebombing were the Tsukiji,

¹⁷⁶ The US Strategic Bombing Survey (USSBS) notes there were "six important targets within Zone 1, the most important of which was the Hattori Co., peacetime manufacturers of Seikosha watches, and wartime manufacturers of fuzes for artillery shells" (USSBS, 1947, p. 70). Tokyo also housed Japan's School of Chemical Warfare, ostensibly "for the study of gas and the perfection of drill in gas defense," which in reality was for offensive chemical war research (Harries & Harries, 1991, p. 356).

Kanda, and Koto wholesale markets, the Ginza shopping district, and the Nagoya industrial belt, which provided provisions, textiles, and groceries for the workers at these factories (LeMay, 1945; Hoyt, 2000).

Tokyo's status as the seat of governance and command-and-control for the Japanese army and navy further raised its value as a target for an escalate-to-deescalate strike. Tokyo served as the seat of civilian and military governance for all of Japan. Japanese civilian and military leadership resided in the city dating back to the summer of 1871, when Emperor Meiji assumed the throne and moved his capital to Edo, subsequently renamed Tokyo (Hoyt, 1986). The ruling class, including subsequent emperors, the military elite, and the civilian ruling elites controlled Japan's internal and external engagements from Tokyo (Hoyt, 1986, 1993). A Smithsonian study published during World War II notes that the leadership within Tokyo "include[s] members of the privy council, the prime minister, and the army and navy ministers, who collectively determine national policy in agreement with Japanese tradition, internal conditions of the country, and the world situation" (Embree, 1943, p. 11).

Emperor Hirohito, and his father Emperor Taisho before him, resided in Kyujo, the centuries old imperial palace that occupied almost a square mile in the center of Tokyo (Feifer, 1992). The emperor served as a nationalist icon, with the populace "believing him to be an absolute monarch" (Large, 1992, p. 102). The emperor represented the divinity of Japan, serving both as a divine ruler and religious icon to the populace which furthered the religious nationalism of Japan (Large, 1992).¹⁷⁷

¹⁷⁷ As Japan's national icon, the emperor served as the supreme commander for Japan, often appearing in military uniforms to review the troops, preside over ceremonies, and honor the sacrifices of the civilian populace – all of which provided an aura desired by the military leadership to make the conflict with the West "a holy war" (Large, 1992, p. 116).

The war cabinets of Prime Minister Tojo, General Kuniaki Koiso, and ultimately Admiral Suzuki controlled the whole of the Japanese empire from their offices in Tokyo (Ienaga, 1978; Hoyt, 1986). These respective cabinets operated out of the multiple civilian and military governmental offices scattered throughout Tokyo, including those that housed the central government and its ministries, the ministries of foreign affairs, nobility members, entrepreneurs, and several governmental organizations (Klemen, 2000).

Tokyo was also home to the imperial army and navy headquarters, ostensibly answerable directly to the emperor (Morgan, 2003). The Imperial Supreme War Command, the Supreme War Guidance Council, various war ministries, the imperial army and navy, and the army arsenal all operated from Tokyo (Klemen, 2000). The Japanese Military Staff College, a military education institution from which Tojo graduated, instructed military officers in Tokyo (Ienaga, 1978; Hoyt, 1999).

The third factor making Tokyo a high-value target for an escalate-to-deescalate strike was its massive civilian population. Tokyo, according to the 1944 census, was the largest city in Japan, with a population of 7,238,569, and was “as great as the five next largest cities of Japan combined” (USSBS, 1947, p. 68). As Robert Dorr notes, Tokyo represented “One of the great capitals of the world, filling an area of twenty-three square miles and with a wartime population of five and a half million” (Dorr, 2012, p. 161). As a capital city, Tokyo was home to numerous religious, economic, and cultural centers. Some of the iconic cultural centers include Toyo Bunko Library, Marunouchi’s first office building, the Iwasaki House Gardens, Kiyosumi Gardens, Tokyo Imperial University, and the Meiji Theater (Ienaga, 1978; Feifer, 1992; Large, 1992).¹⁷⁸ The

¹⁷⁸ Tokyo was also “considered to be preeminent in respect to universities, museums, hospitals, department stores, office buildings, and theaters” (USSBS, 1947, p. 68). The Meiji Theater represented one of Tokyo’s most prominent cultural landmarks. Following the earthquake and subsequent fire in 1923, it was rebuilt in 1928 to be earthquake- and

population of Tokyo lived in and around the factories; Tokyo had a population with “the highest density of any industrial city in the world” (Selden, 2014, p. 3). During the war, Tokyo was “a city four times as densely populated as the average American city” (Haulman, 1999, p. 22). The civilian populace was not targeted outright by the bombers. It was, however, a known fact that this escalate-to-deescalate strike against the numerous industries within the target area would result in the deaths of Tokyo civilians (LeMay, 1945; LeMay & Kantor, 1965). LeMay reflected on the potential loss of civilian life as a component of the high-value target writing,

We were going after military targets. No point in slaughtering civilians for the mere sake of slaughter. Of course, there is a pretty thin veneer in Japan, but the veneer was there. It was their system of dispersal of industry. All you had to do was visit one of those targets after we roasted it, and see the ruins of a multitude of tiny houses, with a drill press sticking up through the wreckage of every home. The entire population got into the act and worked to make those airplanes or munitions of war... men, women, and children. We knew we were going to kill a lot of women and kids when we burned that town. Had to be done (LeMay & Kantor, 1965, p. 384).

Ultimately, Tokyo, as the seat of military and governmental power, a capital city and home to millions, represents a high-value target. As a war-time capital, military center, and home to a substantial portion of Japan’s war-producing industries and vast numbers of civilians, Tokyo represented Japan’s “hub of all power and movement, on which everything depends” (Clausewitz, 1984 [1874], p. 595-596).

fire-proof. It was a modern building, furnished with a basement and standing four stories tall and able to seat over 1,200 people (Hoyt, 2000, p. 23).

5.4 Damage to Tokyo

This case represents an instance in which the escalate-to-deescalate strike decidedly meets the high-damage criteria; indeed, it “proved to be the single most deadly raid of the war” (Biddle, 2002, p. 223). The damage sustained by Tokyo as a result of Operation Meetinghouse represents perhaps the most destructive military strike in history. The B-29s launched by LeMay dropped 1,665 tons of M-69 firebombs, resulting in the burning of approximately sixteen square miles of Tokyo and killing 83,793 men, women, and children.¹⁷⁹ Over forty percent of Tokyo’s wards were severely damaged as a result of Operation Meetinghouse (Hoyt, 2000). In one night, the US destroyed 261,171 buildings, the flames from which were visible for over 150 miles (Clodfelter, 2008). “In a matter of hours one-sixth of the Japanese capital was burned to the ground” (Tillman, 2007, p. 61).¹⁸⁰

Surveys conducted jointly with the Tokyo fire department, various plant managers, police, firemen, and residents after the end of hostilities note that production in Tokyo was reduced drastically. The reasons cited for this decrease include that, first, many of Tokyo’s industrial plants and cottage-industries were heavily damaged or completely destroyed by the firebombing. Second, the normal level of operations were reduced as many workers now found themselves homeless. Third, the facilities providing essential services to the factories were similarly damaged. Finally,

¹⁷⁹ The Doolittle raids of 1942, by comparison, resulted in only 1,292 deaths (Clodfelter, 2008). The atomic bombings on Hiroshima and Nagasaki killed approximately 78,150 and 23,753 in the initial blast, respectively (Clodfelter, 2008, p. 559-560). These figures suggest that the 83,793 fatalities caused during the escalate-to-deescalate strike of Operation Meetinghouse *almost* match those of the atomic attacks on Hiroshima and Nagasaki combined (Craven & Cate, 1981; Nitze, 1989; Feifer, 1992; Clodfelter, 2008). Francis Pike notes that the fatality number of 83,793 represents only the dead counted and identified and the actual number, estimated by the contemporary Japanese Navy, probably exceeds 100,000 when including the number incinerated to ash or washed out to sea (Pike, 2015). LeMay underscores this death toll noting, “We scorched, and boiled and baked to death more people in Tokyo on that night of May 9-10 than went up in vapor at Hiroshima and Nagasaki” (LeMay & Kantor, 1965, p. 387).

¹⁸⁰ With this amount of widespread damage, Saburo Ienaga notes, “No one could ever count the books, documents, paintings, and other treasures that went up in flames” (Ienaga, 1978, p. 202).

the raw materials needed to continue production across both cottage industry and at final processing facilities were lost (USSBS, 1947). Local managers of the larger plants in Tokyo estimate that damages “ranged from five to 100 percent and loss in production was estimated at 50 percent” (USSBS, 1947, p. 102).¹⁸¹

As explained below, the damage inflicted by this escalate-to-deescalate strike clearly fits in the high-damage category. Tokyo’s normal level of operations were severely disrupted by Operation Meetinghouse, and the destruction inflicted upon Tokyo would take years to reconstitute.

5.4.1 Damage From Operation Meetinghouse

The damage inflicted on Tokyo, Japan’s capital city, impacted Japan’s ability to provide monetary and physical resources to its war effort. The B-29s “unleashed a fire that was more severe than the conflagrations that razed Moscow in 1812, San Francisco in 1901, or even the fire that followed Tokyo’s terrible earthquake of 1923” (Dorr, 2012, p. 164).¹⁸² Tokyo’s infrastructure was destroyed; “vast warehouse areas, big manufacturing plants, railroad yards, stocks of raw materials, the whole complex of home factories – all of it was gone, beyond any prospect of salvage” (Dorr, 2012, p. 169). Edwin Hoyt describes the damage from Operation Meetinghouse, noting:

Whole districts were completely razed, and the Sumida River was so full of corpses it looked as if it were blocked by a log jam. The bodies rolled up on the beach in tiers. Tokyo already had become a ghost city – millions had fled – but this night enormous numbers

¹⁸¹ The fifty percent decline in production is believed to be an understatement, as “home industries which accounted for much of the production capacity of the area and which were totally damaged were not included” (USSBS, 1947, p. 102).

¹⁸² As a comparison, the earthquake of 1923 “destroyed 60 percent of Tokyo and 80 percent of Yokohama, and killed an estimated 140,000 people” (Dorr, 2012, p. 164).

were killed, whether one hundred thousand or two hundred thousand no one will ever know. That is because most of whatever records were made eventually were burned, and so many people already had fled Tokyo, some to be killed elsewhere, that reliable statistics could not exist (Hoyt, 1993, p. 208).

Japanese Rear Admiral Toshitane Takata notes that Operation Meetinghouse destroyed many of the feeder plants supporting Japan's fighter aircraft industry. The loss of these smaller factories from the firebombing was "very effective in limiting aircraft output" (Wolk, 2010, p. 168). A US analysis following Operation Meetinghouse notes that "Tokyo's ability to produce war materiel, or any materiel really, was cut in half" (Paridon, 2020, np). As a result of the firebombing, the loss of production hours "rose from 20 percent in 1944 to more than 40 percent in July 1945, by which time industrial production had declined to 35 percent of the Japanese wartime peak" (Clodfelter, 2006, p. 9).

There were contributing factors that led to this high level of destruction, some of which were anticipated while others were symptoms of Tokyo's wartime environment. The US intentionally struck the high-value target of Tokyo after testing its incendiary devices on mockup buildings at Dugway Proving Ground and Eglin Air Base and noting the M-69 incendiary munition was highly successful in igniting wooden structures (Werrell, 1996; Plung, 2018). The US did not plan on, or rather understand, the potential for the firestorm that resulted from the fires intermingling and creating their own weather system, including the formation of a phenomenon some survivors called a fire-blizzard (Edoin, 1987; Werrell, 1996; Hoyt, 2000). The 40-knot winds at ground level are credited with increasing the damage by at least half (Schaffer, 1988; Werrell, 1996).¹⁸³ Also contributing to the widespread damage of Tokyo was the lack of an organic, trained,

¹⁸³ As Robert Schaffer notes, "When the American planes began to drop their incendiaries, the wind whipped the fires they set, driving flames down alleys and through buildings, forcing them across streets and firebreaks, creating huge vortices of swirling, glowing gases that flattened and devoured whole blocks. Tongues of fire like solar flares leaped

and equipped firefighting ability.¹⁸⁴ Robert Dorr notes that the firefighting capacity in Tokyo was unprepared and incapable despite the public pronouncements and rehearsals conducted to extinguish or even control such an attack. He notes that Tokyo's "civil defense, emergency response, and firefighting personnel were shamefully – yes, criminally – unprepared to handle an all-out assault from above" (Dorr, 2012, p. 160). In fact, "the government had placed the responsibility for firefighting on the individual householders" (Edoin, 1987, p. 219). While the government did direct its citizens to create firebreaks around the major industries, the tactics employed by LeMay that mandated B-29s drop their incendiaries in fifteen-meter intervals – with the assistance of the ground winds – enabled the comingled fires to leap the firebreaks (LeMay & Kantor, 1965; Edoin, 1987; Schaffer, 1988; Hoyt, 2000).¹⁸⁵ LeMay notes that, while the aircraft factories were protected by hundred-foot firebreaks, the M-69 incendiaries ensured that, with the help of wind, "firebreaks wouldn't make any difference" (LeMay & Kantor, 1965, p. 351).

One additional factor that was crucial in making the damage of the firebombing as great as it was is that, even when the B-29s were initially sighted on their run to Tokyo, most residents remained in place, unperturbed. Prior to the firebombing of Operation Meetinghouse, and noted above, raids had failed to inflict any real damage on the city. Dorr notes that the citizens of Tokyo largely ignored the arrival of the B-29s as,

into a sky filled with clouds of burning paper and wood... Above the target area a towering wall of fire appeared and began to move across the lowlands of the city, preceded by a turbid mass of heated vapors" (Schaffer, 1988, p. 133).

¹⁸⁴ Tokyo did have a small fire fighting force but, by all accounts, it was understaffed, undertrained, and underequipped (USSBS, 1947; Werrell, 1996; Hoyt, 2000). A fire department chief in a post-strike interview states "that the situation was completely out of control 30 minutes after the first bomb dropped and efforts to combat the fire were futile" (USSBS, 1947, p. 97).

¹⁸⁵ The USSBS provided a technical description of the firestorm and its effects on Tokyo: The chief characteristic of the conflagration... was the presence of a fire front, an extended wall of fire moving to leeward, preceded by a mass of pre-heated, turbid, burning vapors... The 28-mile-per-hour wind, measured a mile from the fire, increased to an estimated 55 miles at the perimeter, and probably more within. An extended fire swept over 15 square miles in 6 hours... no structure or its contents escaped damage" (USSBS, 1947, p. 94-115).

lacking insights from their leaders, everyday people were accustomed to Superfortress missions where bombloads were scattered widely with minimal damage to people and property. They were constantly being reassured in radio broadcasts and newspaper headlines. The war was not going so badly, they were being told. Yes, the western allies were closer to Japan now, but that made the western allies easier to defeat (Dorr, 2012, p. 160).

As the fires began spreading and the remaining B-29 bombers flew overhead and dropped their incendiaries, the reality of the situation hit and the populace clambered for any escape. Some attempted to ride out the firestorms in the air-raid shelters while others hid in concrete buildings such as the Meiji Theater. Still others fled in search of an area free from the intense heat. Some escaped through fire lanes, while others “fled to the canals and were literally scalded to death or died from the effects of hot gases” (USSBS, 1947, p. 102).

The air-raid shelters failed to provide adequate protection, as most consisted of shallow trenches with earthen covers (Werrell, 1996). The larger structures, located near the parks and gardens similarly failed to provide safety, “as occupants died from suffocation or the effects of intense heat even when not exposed to fire itself” (USSBS, 1947, p. 3). Japan’s concrete structures, specifically built to be fire-resistant, proved no match for the conflagration rapidly overtaking Tokyo. A survivor recalled entering the overcrowded Meiji Theater, seeking safety from the oppressive heat. Smoke filled the rooms, forcing her into the basement, which was even hotter than the ground floor. She remembers escaping the theater and noting that “the Meiji Theater, that modern ferro-concrete building was burning from the outside and inside, very rapidly...” In the morning she saw the theater “was still burning. She could hear bodies sizzling inside” (Hoyt, 2000, p. 24).

5.4.2 Normal Level of Operation

Prior to the escalate-to-deescalate strike, the normal level of operations for Tokyo was that of a modern city full of burgeoning commerce and industry.¹⁸⁶ It served as the seat of governance for all of Japan, was the home of the emperor, and the headquarters for the Japanese army and navy. The rural roads of Japan all led to the paved streets of Tokyo, with its modern infrastructure, railyards, harbor, and maintained roads (Embree, 1943). Tokyo served as Japan’s primary city for trade and commerce with Tokyo serving as the hub to the national railway system (Fieve & Waly, 2003). The majority of Japan’s national economy and its war production assets resided in Tokyo (Noguchi, 1998). Francis Pike provides relevant points of comparison for Japan’s baseline level of operation before and after Operation Meetinghouse: “As American bombers would discover, it was only with the mass firebombing of Tokyo that industrial output began to be seriously affected when the residentially based mom-and-pop lathes were incinerated” (Pike, 2015, p. 140). Pike notes that Japanese inventories of oil fell precipitously from almost 50,000 barrels in 1941 to only 5,000 barrels in 1945 (Pike, 2015, chart H5). In 1944, Japan produced almost 30,000 military aircraft – approximately 2,500 a month – for the army and navy, primarily in Tokyo. By comparison, following the strikes of Operation Meetinghouse, Japan produced less than 10,000 military aircraft (Pike, 2015, chart C15).

¹⁸⁶ The USSBS notes that “no overall figures for production loss are available” as many production plants were destroyed in the strike and many plant manager and workers either perished in the firebombing or left Tokyo for other portions of the country. The general estimate of production loss is rated at 50% although that number does not include the small handicraft and domestic establishments totally destroyed by the firebombing (USSBS, 1947, p. 102; Paridon, 2020; Ralph, 2006).

5.4.3 Recuperation Time Required

Following the escalate-to-deescalate strike of Operation Meetinghouse, “Some 65 percent of Tokyo lay in ruins... and only two million citizens remained of the city’s original population of seven million” (Rogers, 2007, p. 172). An estimated one million Tokyo residents were now homeless (Haulman, 1999). The weather, the M-69 incendiary munitions, Tokyo’s densely packed wooden structures created a combination that “resulted in the annihilation of 18 percent of Tokyo’s industrial area and 63 percent of its commercial area” (Haulman, 1999, p. 22). With the war continuing, it would be impossible to restore the city while under the continued threat of further firebombing. It is therefore difficult to estimate the recuperation time required from this specific instance, as Japan did not initially capitulate and the US firebombed Tokyo again in late April and May 1945.

Following the formal end of hostilities, Japan’s emperor cult was uprooted as Japan was democratized and “reformed under the guidance of the US Occupation Army” (Iwatake, 2003, p. 244). Supreme Commander for the Allied Powers Douglas MacArthur led the reconstruction efforts of the US Occupation Army and the British Commonwealth Occupation Force subcommand to provide essential services to the Japanese people (Frank, 1999; Bix, 2000). MacArthur established his general headquarters directly across from the Imperial Palace in central Tokyo and, with the assistance of the subcommand, drafted Japan’s new constitution (Bix, 2000). Tokyo remained the capital of Japan and only began to show economic growth eleven years after its formal surrender (Iwatake, 2003). The US departed Tokyo in 1952, at which point Japan

regained its autonomy (though US troops remained on Japanese lands as part of the US-Japan Security Treaty signed September 1951) (Bix, 2000).¹⁸⁷

Japan was decimated following the end of hostilities and the cost to rebuild the nation “was difficult to comprehend. Things were chaotic and further aggravated by the sheer numbers returning to Japan” (Guiberteau, 2021, np). According to Richard Smethurst, MacArthur immediately set to work to help end the food and housing shortage Japan faced. MacArthur focused on assisting Japan with its recovery efforts and “undertook three sets of programs: providing food, shelter and public health for millions of people in order to avoid famine and epidemic disease in the winter of 1945-1946, demilitarizing a polity dominated by the army and navy, and democratizing Japan” (Semthurst, n.d., p. 1). Emergency food funds, wheat donations, economic interventionism, social and democratic reforms implemented by MacArthur’s command was essential to reconstitute Japan, rescue a nation on the brink of starvation, and help establish Japan as a liberal democracy following the conflict (Beckley, Horiuchi, & Miller, 2018; Guiberteau, 2021).

5.5 The Response

Japan did not capitulate, either tactically or strategically, following the Operation Meetinghouse escalate-to-deescalate strike. It did not attempt to trade space for time, nor did it continue fighting. Instead, Japan attempted to counter-escalate in response to the American attack: “the army, the emperor, and [Japanese Prime Minister Admiral] Suzuki himself believed that Japan

¹⁸⁷ The US-Japan Security Treaty, or Anpo in Japanese, serves as the legal document that continues to allow the US to station troops on Iwo Jima and Okinawa (Kapur, 2020).

should fight an intense battle on the home island rather than accept surrender” (Pape, 1996, p. 111).¹⁸⁸ Desperate, and facing a high-danger situation following a escalate-to-deescalate strike on a high-value target which resulted in high damage, “the Japanese had one recourse: the air” (Lacey, 2015, p. 11). As the US initiated a ground assault against the fortified Japanese island of Okinawa enroute to its planned invasion of Japan, “Japan’s warlords fashioned a modern intervention: aerial suicide crashes aimed at sinking enemy ships – especially aircraft carriers. Multiplied many times, these tactics might prevent Japan’s utter defeat” (Sears, 2015, p. 52). Japan counter-escalated with kamikaze strikes in an effort “to turn the military situation to Japan’s favor” (Frank, 2020, np).¹⁸⁹

In an effort to counter-escalate and disrupt the impending invasion, the Japanese military devised three plans (Operation Kikusui, Operation Ten-Go, and Operation Ketsu Go) to demonstrate its resolve and end the conflict on preferable terms (Hoyt, 1983; Feifer, 1992; Arens, 1996; Earhart, 2005).¹⁹⁰ Specifically, the military leadership:

planned air attacks across the beaches and suicide attacks on invading vessels. Around the Kerama Islands, 15 miles west of Okinawa, the Imperial Navy had tucked more than 350 18-foot plywood boats, each holding two depth charges. These ‘Q-boats’ were meant for one-way runs against American transports and landing craft. A swarm of 355 kamikaze planes would attack the American Fifth Fleet in Operation Kikusui Number One. Operation Ten-Go, a 10-vessel suicide fleet, would include the battleship Yamato and sail from Tokuyama, Japan, to wreak havoc in the enemy armada and distract the Allies from Kikusui’s death-bent pilots” (Lacey, 2015, p. 36).¹⁹¹

¹⁸⁸ One Japanese government official, attempting to inspire the populace for the perceived impending invasion stated, “Now that our houses have been burned down, we can fight with complete freedom” (Hoyt, 2000, p. 72).

¹⁸⁹ The suicide, or kamikaze, techniques utilized by the emperor’s special attack units include: airplanes (ohka), crash boats (Shinto), midget submarines and submersibles (koryu or kairyu), human mines (fukuryu), and piloted torpedoes (kaitens). The seacraft were often loaded with 660 pounds of explosives set to detonate on impact (Feifer, 1992; Skaine, 2013).

¹⁹⁰ None of the operations were successful. As Sharon Lacey notes of the kamikaze attacks during the April 1945 battle for Okinawa, “Kamikazes hit their marks, sinking or damaging 21 ships but hardly denting the fleet’s strength... A 7 April reprise cost the Japanese 100 of its 115 planes and only inflicted minor damage. Operation Ten-Go was an even bigger bust. American submarines detected the one-way fleet almost as soon as the vessels left Tokuyama on April 6, all but defenseless against air assault. By that afternoon 6 of the 10 Japanese ships, including the Yamato, lay at the bottom with approximately 4,250 sailors” (Lacey, 2015, p. 38).

¹⁹¹ The Japanese “Thirty-Second Army’s fatalist mantra, which came to characterize the brutality of the fight that lay ahead: ‘One plane for one battleship; one boat for one ship; one man for one tank or 10 enemy dead’” (Lacey, 2015, p. 37).

While the special attack units existed in Japan prior to the escalate-to-deescalate strike, it was only after the strike against Tokyo that they undertook suicide tactics in earnest (Hoyt, 1983; Feifer, 1992). The first documented kamikaze strike occurred mid-October 1944, when a Japanese rear admiral deliberately struck the USS Franklin in the Philippines (Feifer, 1992). Following the firebombing of Tokyo in March 1945, both the Imperial Army and Navy advocated the practice of divebombing American ships under the belief that “Japanese pilots could stem the whole American advance” (Feifer, 1992, p. 202). On 20 March 1945, “all squadrons from No. 47 to No. 116 were converted to suicide tactics. Officers as well as men would now be subject to suicide duty” (Hoyt, 1983, p. 223). New recruits were fast-tracked through their flight training. Where previous additions to the frontlines had 100 hours of flight training, the new pilots arrived with an average of 30 hours of flight time, with less focus on fundamentals of flight like landing (Hoyt, 1983).¹⁹²

The 26 March 1945 Operation Ten-Go and the 8 April 1945 Operation Ketsu-Go were designed to crush the American advance while the US was still at sea (Arens, 1996). Between 1 and 12 April 1945, “nearly 50 American vessels, including 30 picket or ping-line destroyers, took aerial hits. Twenty-four, including 15 destroyers, were sunk or scuttled. Casualties reached nearly 1,000 killed and 1,500 wounded, for a time dwarfing the toll ashore” (Sears, 2015, p. 53-54).¹⁹³ Emboldened by false reporting of successful kamikaze strikes, more and more Japanese forces

¹⁹² An article written in the *Japan Times* told of the heroics of the kamikaze pilots and compared the attacks on Japan to those made by Kublai Khan centuries before, noting, “The Japanese fighters, then as now, were convinced of the truth of the military adage that in offense lies the best defense. What they lacked in material, they evened up with personal valor” (Hoyt, 1986, p. 362). It was believed that self-sacrifice would stop the American advance, the emperor was calling for “death simultaneously with a mortal blow to the enemy” (Feifer, 1992, p. 209).

¹⁹³ In a following battle on 14 April 1945, the USS Laffey confronted a sustained kamikaze attack consisting of 22 Judys (Yokosuka D4Y dive-bombers), Kates (Nakajima B5N torpedo bombers), and Oscars (Nakajima Ki-43 fighters). “After 80 minutes, the battle, arguably the most concentrated and relentless aerial suicide attack ever endured – and survived – by an American ship, had ended” (Sears, 2015, p. 57).

launched such attacks against US ships, and “American battle casualties dramatically increased as the average monthly rate of loss quadrupled to nearly 13,000” (Crane, 1987, p. 37). As George Feifer notes, following the firebombing of Tokyo, “many [kamikaze] units had twice as many eager candidates than available planes... most truly believed their cherished nation and people would be forever destroyed unless they contributed their utmost” (Feifer, 1992, p. 204). Rosemarie Skaine notes that the kamikaze attacks increased exponentially in the months following Operation Meetinghouse (Skaine, 2013). For example, in February 1945, records note eighteen kamikaze planes; there were 348 kamikaze planes in April 1945 (Skaine, 2013, p. 129).¹⁹⁴

The kamikaze counter-escalation strikes did inflict great damage on US destroyers. Skaine notes that, “Of the 15 destroyers lost in 1945, 12 were lost to kamikazes” (Skaine, 2013, p. 136). On the main island of Japan, “the Japanese had gathered more than 8,000 airplanes to use as kamikazes against the invasion fleet. About two million Japanese troops, supported by twenty-eight million armed civilians, awaited the invaders” (Haulman, 1999, p. 29). Japan’s military elite ordered all “civilian men under sixty-five and women under forty-five into volunteer corps in their neighborhoods or places of work” with the expectation that “the volunteers be home-front equivalents of the kamikaze pilots, who went into battle with meager weapons fully prepared to die” (Havens, 1978, p. 188). The entire population was recruited into the fight to stave off the US invasion; “Old men and women practiced with sharpened bamboo spears, muzzle-loading rifles, even bows and arrows. Children practiced strapping on explosives that would detonate when they crawled under American tanks” (Edgerton, 1997, p. 300). However, the counter-escalation attempt failed to bring about the desired results and, following the atomic bombing of Hiroshima and

¹⁹⁴ The efficiency of the kamikaze attempts diminished over this timeframe as US tactics and responses improved. Skaine’s research notes that “even though the scale of the Japanese suicidal effort increased more than 50 percent for February – May 1945 over October – January 1944-1945, their efficiency dropped” (Skaine, 2013, p. 130).

Nagasaki, as well as the Soviet defeat of Japan's 1st Army in Manchuria, the emperor ordered Japan's capitulation on 15 August 1945 and formally surrendered on 2 September 1945 (Craven & Crate, 1981; Sigal, 1988; Frank, 1999).¹⁹⁵

Japan's response of counter-escalation aligns with my theoretical expectations, as it was facing a high-danger situation and had suffered high levels of damage to a high-value target. Collectively, these three conditions provided Japan with credible evidence that the US had both the willingness and the ability to continue inflicting additional harm, and that such harm would be mortally dangerous if it were not swiftly pushed back.

In general, my theory anticipates that a state in a high-danger situation will respond with violent aggression. Ultimately, the struck state is in a position that it does not want to be in and must seek a means to remedy the current danger situation. As the high-danger situation threatens the very existence of the state in its current form, counter-escalation is especially attractive for a state as a tool to immediately rectify its position. Counter-escalation has the added benefit of signaling to the original escalator that the attacked state is still interested and capable of continuing a bloody fight, and may cause the former to reconsider its approach.

Japan would thus be incentivized to counter-escalate in any case, but the nature of the American attack pushed it further in that direction. Consider first Tokyo's value. The message the US conveyed by striking the capital city of Tokyo indicated US resolve to continue striking additional targets. The violent message offered evidence that the US possessed the will to finish the conflict, with no holds barred. This will was recognized among some of the military elite, who expected further heavy raids and set about to demolish "whole blocks of houses" and leveling the

¹⁹⁵ LeMay recounts that even the atomic bombing of "Hiroshima brought no instantaneous prostration of the Japanese military" (LeMay & Kantor, 1965, p. 388).

ground “to provide open spaces” to prevent the conditions experienced with the conflagration in Tokyo (Hoyt, 1986, p. 377). In such an instance, a state responding to a strike on a high-value target is likely to adhere to its baseline tendency.

Similarly, the message sent through the infliction of high damage to Tokyo provided Japan with evidence that the US possessed the ability, through its various means and methods, to visit significant harm against additional Japanese targets. This recognition is cited as justification for driving the kamikaze movement, as the nation and its people were likely forever lost unless they committed their all to stave off the US advance (Feifer, 1992). The significant loss of life, the impact to Japan’s command-and-control, damage to Tokyo’s infrastructure, and the degradation to the country’s war production capabilities all served to communicate that the US almost certainly had the ability to inflict future equivalent levels of damage – and possibly even more. Japanese elite underscore this recognition of credible violence from the US. For instance, as Admiral Suzuki interviewed potential cabinet members in early April 1945, “Togo surprised his old friend by explaining that he feared Japan would be unable to continue fighting for even one more year” (Morgan, 2003, p. 196).

Combined, the message sent by the targeting of and damage inflicted on Tokyo provided Japan with an especially credible signal that the US possessed the willingness and the ability to inflict similar or greater damage against other vitally important targets. Following the escalate-to-deescalate strike of Operation Meetinghouse, Japan remained firmly in a high-danger situation facing the very real and tangible threat of US occupation. The credible threat faced by Japan, with the US developing plans for the invasion of the country, incentivized the Japanese leadership to counter-escalate in response.

The options of continued fighting and capitulation did not offer Japan a realistic path out of its predicament. Neither response option would alleviate the danger posed by the imminent advance of US forces. Continued fighting would only further deplete the available war materials that were already in both high demand and short supply following the high-damage strike against Tokyo's production capability. Continued fighting would also increase the danger for Japan, as it would increase levels of attrition suffered and not prevent the US military force that had credibly signaled its willingness and ability to continue inflicting punishment from doing so. As Japanese Army Minister General Hajime Sugiyama noted, "Continue fighting and we will be plunging the entire nation into further devastation and distress" (Hoyt, 1986, p. 405). Capitulation would guarantee an end to the regime. There was not space to trade for time, even if Japan had wanted to make concessions. From its vantage point, there was not likely to be a more propitious moment to rebuild or reallocate strength to carry out a future strike and reverse the current high-danger situation. As a result, and as my theory anticipates, the exceptionally powerful American escalate-to-deescalate strike backfired by creating conditions leading Japan to see no recourse but to counter-escalate.

5.6 Alternative Explanations

Alternative explanations for Japan's counter-escalation in response to Operation Meetinghouse include, first, that Japan's military and civilian leaders were hawkish and therefore prone to engage, and remain engaged, in conflict, and, second, that Japan did not have a capacity to continue fighting for an extended period of time and, as a consequence, gambled on the all-out response of counter-escalation. These two explanations are examined below.

5.6.1 Japanese Hawks

Certainly, Japan's collective history and propagandized position in the region bolstered Japan's outlook on success. The Japanese "had never been forced to surrender to a foreign power" and believed nationalist expansion to be its divine right (Crane, 1993, p. 136). As noted, the ruling military elite maintained the decision-making authority over the civilian leadership and even over that of the emperor (Pape, 1993, 2006). Dissent was not tolerated, and those opposed to the will of the military, even within its ranks, were arrested or even assassinated (Pape, 1993).¹⁹⁶

The war cabinets of Tojo, Koiso, and Suzuki each contained contingents of military officers and civilian leaders who believed that the only means to ensure the sanctity of Japan was through continued military aggression against the US (Craven & Crate, 1981; Hoyt, 1983, 1993; Morgan, 2003). However, these same war cabinets recognized the importance of the role of the emperor and, apart from the failed coup attempt during the 15 August 1945 Kyujo incident, adhered to all guidance from the emperor (Ienaga, 1978; Hoyt, 1986; Pape, 1993; Frank, 1999; Bix, 2000).¹⁹⁷ Succinctly, the emperor was unquestioningly "the head of the empire [and] supreme commander of the armed forces" (Bix, 2000, p. 8). The decision to capitulate was that of the emperor's and, despite the hawkishness of the senior military leadership, the war cabinet adhered to the emperor's decision and carried out his orders.

The question remains, was Japan's counter-escalation a product of its specific governing set in 1945? If the emperor was truly in charge, or if a civilian-dominated government was in place,

¹⁹⁶ The military also controlled the police, "a prime instrument for repression of dissent. For instance, in April 1945 War Minister Anami ordered the arrest of some 400 persons suspected of harboring end-the-war sentiments, including a former ambassador to England and a judge of high rank" (Pape, 1993, p. 171).

¹⁹⁷ In frustration at the decision to surrender, and not desiring to take part in a coup attempt, other military elite took to brutally hacking to death or beheading captured Allied prisoners of war (Edgerton, 1997).

would Japan have capitulated or continued fighting after the Operation Meetinghouse escalate-to-deescalate strike? It is unlikely that another government would have behaved differently. Crucially, no matter who was in power, the general regional power position of Japan would remain the same. Japan had succeeded, unimpeded for the previous 2600 years, without being defeated in battle or having a foreign nation occupy its sovereignty (Hoyt, 1986; Iwatake, 2003). This historical context helps to explain its reluctance to capitulate. While there were those in leadership positions contemplating capitulation, they did not believe it was warranted. For example, some scholars suggest that Emperor Hirohito and members of his cabinet were willing to capitulate prior to Operation Meetinghouse, or at least before the atomic bombings. Indeed, Emperor Hirohito was reportedly willing to acquiesce and order his forces home as early as 1 July 1944. However, he did not believe it to be constitutionally viable for him to abdicate (Feifer, 1992).¹⁹⁸ It is also significant to note that the Japanese leadership at the time of Operation Meetinghouse was in fact led by a less hawkish leader than it had been through most of the war: the emperor had changed the leadership of his war cabinet from hawkish Tojo to the middle-ground Koiso. Koiso was followed by the dovish Suzuki in April 1945 and finally Shigenori Togo (Ienaga, 1978; Feifer, 1992; Hoyt, 1986, 1993). Crucially, the Japanese counter-escalation through the use of kamikaze attacks was overseen by these more dovish leaders (Feifer, 1992; Hoyt, 1993). Regardless of whether Japan was ruled by a hawk or a dove, Japan's historical situation would have remained the same where it would see its position in the region as preeminent. As Pape argues, it was only after the military was placed in a position to recognize its own vulnerability was Japan willing to capitulate. Critically, the Japanese military was not placed into this position until the summer of 1945, when

¹⁹⁸ Prince Higashikuni, uncle to the emperor, had opposed Japanese engagement with the US since 1941 when, three weeks after Pearl Harbor, he recommended that Japan sue for peace, only to be reprimanded due to the ongoing string of Japanese victories (Feifer, 1992).

the Allied blockade had eliminated all outside methods of imports, the US occupied Okinawa, and, “finally, the rapid collapse of the Japanese armies in Manchuria under Soviet attack” underscored the fragility of the armed forces (Pape, 1993, p. 156).

5.6.2 Insufficient Capacity

Some might argue that Japan did not have the capacity to continue fighting for an extended period of time, and therefore was limited in its response to either capitulation or counter-escalation. Capitulation was not an option for the reasons discussed above and, in any case, would not have been excluded as a possibility by the material capabilities of the Japanese military. The notion that Japan may have counter-escalated because it did not possess the resources to wage an extended fight is not supported by the evidence. I argued earlier that continued fighting was a strategically suboptimal choice for Japan, but it was an option. As a result of the military’s propaganda campaign, Japanese soldiers and civilians were ready to continue fighting to the last – even if Japan ceased to exist as a sovereign nation (Craven & Cate, 1981; Hoyt, 1983, 1986; Feifer, 1992). On the eve of surrender in August 1945, Japan “still possessed a two-million-man army in the home islands which was prepared and willing to meet any American invasion, as well as other forces overseas” (Pape, 1993, p. 154).

James Holmes notes that Japan could have used this army to drag out the conflict, force the US to spend more national blood and treasure, and raise the political costs the US would have to pay for victory, potentially allowing Japan to end the conflict on more preferable terms. He argues that “Japanese commanders could have husbanded resources, narrowing the force mismatch between the warring sides. They could have made the conflict more costly, painful, and prolonged for America, [potentially] undercutting its resolve” (Holmes, 2019, p. 1). Japan’s war production

capabilities sustained heavy losses from the escalate-to-deescalate strike and its imports were disrupted from the US blockade, and yet Japan continued to fight. As Pape notes, “Despite tremendous damage, the population learned to live under bombing and the government was not influenced at all” (Pape, 1993, p. 199). In effect, Japan possessed a large fighting population with which it could continue fighting even if it lacked the national treasure required for modern armament. It is possible that the military could have dragged out the conflict over a sustained duration, forcing the US to expend its national blood and treasure, creating a situation where the US may have doubted its ability to fulfill its war aims (Holmes, 2019). For example, in late 1944, the US was suffering 65,000 casualties a month and, according to Operation Downfall, the planned occupation called for over six million Allied soldiers (Frank, 1999; Pike, 2015).¹⁹⁹ While Japan lacked in sophisticated military infrastructure, it remained “plentifully supplied with ammunition and powerful discipline. Although Japan was virtually cut off from the Asian mainland, her food supplies were thought to be adequate at least through 1945” (Pape, 1993, p. 168).

Japan thus almost certainly had the capacity to continue fighting for an extended period, if need be. However, as argued here, the escalate-to-deescalate strike placed Japan in a position where, at that moment in time, counter-escalation offered the best response option to potentially create conditions too steep for the US to continue. In this instance, the evidence indicates that, while Japan did have the capacity to continue fighting, the exceptionally destructive escalate-to-deescalate strike placed it in a high-danger situation from which counter-escalation offered the only viable means of snatching victory from the jaws of defeat.

¹⁹⁹ Operation Downfall was the US plan to invade Japan with a tentative start of 1 November 1945 (Frank, 1999). Pike notes that the US Joint Chiefs estimated Operation Downfall’s casualties at 20% while the US Secretary of War estimated a 66% casualty rate (Pike, 2015).

5.7 Conclusion and Implications

Operation Meetinghouse failed as an escalate-to-deescalate attempt because the pressures it created on Japan drove the country to counter-escalate rather than capitulate. The high-danger situation placed Japan in a position it needed to rectify sooner rather than later, while the high-value target struck and the high levels of damage inflicted reinforced Japan’s incentives to do something immediately to achieve a desirable outcome. Facing additional external pressure as the US continued to strike Okinawa and the home islands, Japan counter-escalated in hope it could increase the cost of total victory to a level higher than the US was willing to pay. As history notes, it was not a successful counter-escalation attempt. Japan was subsequently hit with a new marvel of war – the atomic weapon.

Table 5.1 summarizes the key elements of this case study, highlighting how the independent variables acted upon the dependent variable and the outcome.

Table 5.1: Operation Meetinghouse, 1945

Firebreak:	Firebombing of a capital city by 1,665 tons of incendiary explosives.
High-Danger Situation:	Loss of acquired and sovereign territory, loss of infrastructure, war-producing capability, and civilian deaths. Very real threat of impending conquest.
High-Value Target:	Capital city, center of trade, commerce, and culture. Seat of government and military command and control; home to over 7 million people.
High-Damage:	Approximately 16 square miles destroyed, 80,000-130,000 civilians killed and over one million left homeless.
Outcome:	Counter-Escalation. By way of reprisal, Japan increased its use of kamikaze special unit missions, including suicide aircraft, submarines, and boats to change the course of the entire war.

These three in-depth chapters demonstrated the viability of my theory. The chapter on Wuhan demonstrated an instance of a successful escalate-to-deescalate strike, with the anticipated response of capitulation. The next two chapters, Operations Rolling Thunder and Meetinghouse, demonstrated instances of failure following an escalate-to-deescalate strike resulting in continued fighting and counter-escalation, respectively. The following chapter addresses the remaining escalate-to-deescalate scenarios and attacked states' responses.

6.0 Supplementary Case Studies

This chapter evaluates the remaining escalate-to-deescalate scenarios envisioned by my theory with mini-cases, highlighting targeted states' danger situations, the value of the targets struck, and the damage inflicted by escalate-to-deescalate strikes as well the observed responses. By necessity, these vignettes do not go into as much detail and depth as the case studies in the three preceding chapters. Rather, they are plausibility probes intended to ascertain whether my theoretical expectations are likely to match the historical record across the spectrum of case types considered.

In this chapter, I evaluate the escalate-to-deescalate strikes during the 1984 Battle of the Marshes between Iraq and Iran, the 1917 unrestricted U-boat campaign by Germany, the 1552 Siege of Eger, and the 1915 Second Battle of Ypres. These cases cover four of the five categories my theory identifies that are not examined in detail in the preceding chapters. I am unable to examine an escalate-to-deescalate strike in which an attack on a low-value target resulting in high levels of damage placed the targeted state in a high-danger situation, however, because there are insufficient examples of such strikes occurring in a conflict. I do expand on the potential reasons for this missing case before concluding the chapter.

In a similar format as the preceding chapters, albeit in a condensed fashion, I outline the background of each conflict, then analyze the targeted state's danger situation, the value of the target struck, and the level of damage sustained by that target. I then evaluate the respective responses to the escalate-to-deescalate strike and compare them with those expected by my theory. I conclude each case with a brief discussion of alternative explanations that would possibly refute my theory.

6.1 Battle of the Marshes, 1984

The 1984 Battle of the Marshes, as one part of the greater 1980-1988 Iran-Iraq War, is an instance in which an escalate-to-deescalate strike succeeded in compelling capitulation. The success of the strike aligns with my theoretical expectations, as it involved a target state in a low-danger situation capitulating in response to a high-damage attack on a low-value target. In this instance, Iraq conducted a firebreaking attempt utilizing chemical weapons in the form of persistent mustard and nerve agents during the Battle of the Marshes to dislodge Iranian forces from the Majnoon Islands (Potter & Sick, 2004; Murray & Woods, 2014).²⁰⁰ In addition to these chemical attacks, Iraq ran live electric wires and floating landmines through the water, killing an estimated 27,000 Iranian forces during the battle (Johnson, 2011; Corley, Bertrand, & Aboul-Enein, 2012). Iran returned the disputed lands to Iraq, but its capitulation was only to trade space for time, as the Iranian military soon redeployed Mujahedeen fighters into Iraqi territory. Iraq then carried out reprisal attacks, and the war continued (Pollack, 2004; Quillen, 2017).

6.1.1 Background and Conflict Situation

The 1980-1988 Iran-Iraq War began when Iraqi President Saddam Hussein launched an invasion into Iran on 22 September 1980. The attack instigated “one of the longest military conflicts in the 20th century,” as Iraq attempted to acquire at least a portion of Iran’s sovereign territory that would provide it with both control over the Shatt-al-Arab river and access to the

²⁰⁰ The spelling of Majnoon differs depending on the source of literature cited. It is also spelled as Majnoun or Majnun (Hiltermann, 2007; Murray & Woods, 2014).

Persian Gulf as well as allow it to assume a larger role in the Arab world.²⁰¹ In the process, more than a million Iraqis and Iranians fell as casualties (Hiro, 1991; Clodfelter, 2006; Salamati, et. al., 2013; Murray & Woods, 2014).²⁰²

Iraq's incursion began with air strikes deep into Iran to permanently ground its air forces. However, most Iraqi planes were flying too fast to accurately target Iran's planes or infrastructure. Additionally, the Iraqi pilots only made one bombing run in accordance with their mission plans and returned to Iraq. The results of this opening salvo left Iran relatively unscathed, as the 250 Iraqi sorties only destroyed four planes and the damage to the runways was readily repaired overnight (Razoux, 2015).²⁰³ Iraq's ground attack was initially more successful, as Iraqi forces were able to capture the Iranian cities of Khurramshahr, Abadan, and Ahavz. These territorial conquests were abandoned by Iraq, however, following Iran's counterattacks and the mass uprising of Iranian people (Takeyh, 2010). Iran then retaliated, launching air sorties against Iraqi bases and oil refineries. This tit-for-tat fight continued, with both states launching ground forces against the other's fortified positions and trading portions of sovereign territory as the initiative changed sides and the conflict became a war of attrition (Tucker, 2006; Woods, Murray, & Holaday, 2009).²⁰⁴ Throughout the war, there was "an ample supply of feelers and peace proposals put forward by a

²⁰¹ The 155-mile-long river flows from the confluence of the Tigris and Euphrates to the Persian Gulf with the last 62 miles forming the geographical border between Iraq and Iran and hosting Basra and Abadan, the two largest oil refineries in the world (Razoux, 2015).

²⁰² Competition in the region dates back to the Ottoman Turkish empire (Hiro, 1991; Potter & Sick, 2004; Woods & Pease, 2006; Murray & Woods, 2014). Hussein assumed a victory over Iran would lead to his greater influence in the Arab world, potentially leading to the creation of an Arab superpower under Hussein's leadership (Woods & Pease, 2006).

²⁰³ Iraq lost five of its aircraft in this initial strike (Razoux, 2015).

²⁰⁴ Iraq attempted to keep the conflict limited, in the hope that leadership in Iran would be compelled by the strikes. In this same manner, Hussein demanded his forces not incur heavy casualties to assist in the "president's strategy of keeping the war contained" (Pelletiere, 1992, p. 36). Iran, on the other hand, engaged in escalatory reprisals, as "war was the main means for rallying popular support behind the regime" (Karsh, 1989, p. 2).

variety of actors and institutions,” including Iraq, the United Arab Emirates, the United States, and the United Nations (Takeyh, 2010, p. 380).²⁰⁵

Between 1980 and 1983, Iraq suffered a series of defeats “in a number of sharply fought engagements with the Iranian army” (Pelletiere, 1992, p. 38). Following this succession of defeats, Iraq retrograded its military forces to the international border. Iran’s 1983 Operation Kheibar pursued these Iraqi forces in retaliation for Iraq’s aggression, continuously striking Basrah and allowing Iranian forces to establish a foothold in the Majnoon islands (Hiro, 1991; Pelletiere, 1992). During a particularly bloody February 1984 offensive, Iran succeeded in acquiring the sprawling marshlands, as Iraq’s heavy artillery and armored vehicles could not operate in the marshes (Tyler, 1988). This forward momentum quickly stalled, however, because “Iran did not have sufficient tactical dexterity, adequate air cover, or sophisticated arms to carry out a concerted attack” (Takeyh, 2010, p. 373).

Iraq, in an effort to drive Iran from its sovereign territory, employed an escalate-to-deescalate strike with chemical weapons.²⁰⁶ The localized focus of the strike indicates it was akin to that of an escalate-to-deescalate strike and not that of an escalate-to-win strike. The use of chemical weapons is considered as “among the most egregious developments of the war,” and served “as an integral component of Iraq’s war strategy... not to just blunt Iran’s human wave assaults, but also to terrorize the enemy and sap its morale” (Takeyh, 2010, p. 375).²⁰⁷ The strike

²⁰⁵ Iraq began sending feelers and envoys as early as 1982; however, Iran repeatedly “abjured all such entreaties” (Takeyh, 2010, p. 380; Razoux, 2015).

²⁰⁶ During this conflict, a senior Iraq military officer “blithely referred to Iraq’s right to use insecticide to exterminate this swarm of mosquitos” (Hiltermann, 2004, p. 153). Iraq’s chemical weapons use would continue in other battles with Iran. An Iranian systematic review of mortality and injuries among Iranians during the Iran-Iraq War notes that 70 Iranians were killed each day, or 188,015 to 217,489 Iranians between 1980-1988. Further, “At the end of the war, [Iran] had 398,587 veterans who needed follow-up. Among them, there were 52,000 chemical warfare victims” (Salamati, et. al., 2013, p. 542).

²⁰⁷ As Ray Takeyh notes, Iran’s “use of human wave attacks was a particularly callous manner of fighting the war. Young men from impoverished backgrounds were mobilized in Basij units and exhorted to rush out to minefields to

was so devastating that Iran withdrew from the islands and did not continue the conflict until it had recouped its lost forces (Pelletiere, 1992). The strike did not serve to end the greater Iran-Iraq War, however, which would continue for four more years until Ayatollah Khomeini acknowledged the high risk of an Iranian revolution and accepted the terms of the United Nations ceasefire (Herzog, 1989). Khomeini bitterly informed his populace about the end of the conflict on 20 July 1988, stating, “that he had drunk the cup of poison and accepted the humiliating ceasefire” (Tabaar, 2019, p. 503).

6.1.2 Iran’s Danger Situation

Iran was in a low-danger situation following Iraq’s escalate-to-deescalate strike. It suffered a military loss following the strike, yet it remained able to reconstitute its military forces, provide stable and reliable governance to its populace, and engage economically with other nations (Ward, 2009; Razoux, 2015). While there was certainly political and military chaos in Iran following the Iranian Revolution of 1978, at the time of the Iran-Iraq War there was not a direct threat to Iran’s ruling elite (Pelletiere, 1992; Tabaar, 2019).²⁰⁸ As Pierre Razoux notes, “The Kurds, the Azeri, and the Baloch were fighting for their autonomy, potentially their independence, but not to overthrow the regime in Tehran” (Razoux, 2015, p. 6). Iraq’s incursion into Iran further aligned

clear a path for the armed forces. In the misguided belief that their sacrifice would ensure them celestial rewards, thousands perished on the battlefields” (Takeyh, 2010, p. 368). Khomeini utilized the human waves to overcome Iraq’s forces en masse and, “Much to the horror of the international community, Khomeini sent out human waves of 250,000 soldiers, many of them teenagers,” (Wallechinsky, 2006, p. 183).

²⁰⁸ There did exist power struggles in the military and government circles following the overthrow of the Shah. However, by all accounts, Ayatollah Khomeini had secured the highest leadership role. Khomeini was immediately backed by the religious leadership and the populace alike. As Stephen Pelletiere notes, “It was fortunate for the clerics that Iran’s people arose spontaneously to the nation’s defense” at the outbreak of hostilities with Iraq, for this furthered their ability to influence the populace against Iraq (Pelletiere, 1992, p. xiv).

the population with the government (Pelletiere, 1992). It provided the revolutionaries and clerics with an opportunity to continue their revolution and potentially expand their control over the Muslim community. The religious clerics thought the war with Iraq could result in “their revolution spread[ing] throughout the Muslim world and beyond” (Walt, 1996, p. 259). The ruling elite within Iran accordingly had no fear of domestic punishment following the escalate-to-deescalate strike. Khomeini cited Iraq’s encroachment in his mobilization of the populace, stressing that Hussein was fighting to destroy Islam, and “Thus, it was the moral obligation of the citizenry to defend Iran as if they were safeguarding religion itself” (Takeyh, 2010, p. 366).

Similarly, the military did not pose a threat to the Iranian leadership. There was not a risk of a military coup following Hussein’s actions. Two points underscore the low danger of a military coup. First, the military was largely left in disarray after the Iranian revolution and “was no more than a shadow of its former self” (Razoux, 2015, p. 6). Second, the revolutionaries took over key positions in the military and promised their fealty to Ayatollah Khomeini (Tabaar, 2019).

Lastly, Iran was not in a position to be conquered by Iraq. The low risk of conquest resulted partly from Iraq’s inadequate military planning and unsuccessful expansion into Iranian territory. In preparation for the conflict, Hussein directed his military planners prepare a war against Iran, but did not provide a military objective and only gave his generals “a single month to prepare the army and provide him with a coherent battleplan” (Razoux, 2015, p. 7).²⁰⁹ Additionally, Iraq lacked a viable naval force; “knowing that its tiny naval arm could not challenge the superior Iranian fleet, Iraq did not even make the attempt. It conceded control over the gulf to the Iranian forces” (Pelletiere, 1992, p. 36).

²⁰⁹ Hussein dubbed the battle plan “Echo of Qadisiyyah, in reference to the Battle of al-Qadisiyyah (636 CE), at which the conquering Arab armies had crushed the Persian army to the south of Najaf... the battle had since become a symbol of Arab victory over the Persians” (Razoux, 2015, p. 21).

Further contributing to Iran's low-danger situation was: 1) its relatively larger, and younger, population, which provided a ready reserve of soldiers; 2) an available oil revenue twice that of Iraq's; 3) geography, insofar as its most important and populated cities were located far from the border with Iraq and protected by steep mountains; 4) its more modern military equipment; and 5) that it "had more room to maneuver financially than the Iraqi government" (Razoux, 2015, p. 14).²¹⁰

6.1.3 Value of the Marshes

The marshes occupied by Iran were of low value. The low-lying marshland, created by the confluence of the Tigris and Euphrates rivers, comprised narrow strips of land and islets of tall reeds, with water levels three to nine feet deep "running forty miles from east to west and more than thirty miles from north to south" (Ward, 2009, p. 264). Historically, the marshes provided a habitat for the ancient Sumerians who occupied the lands (Ochsenschlager, 2004).²¹¹ The marshes remained occupied into the 1980s, sometimes by those escaping Hussein's rule, and sometimes by the families that occupied the marshes from the time of the Sumerians (Ahram, 2015). It served as fertile ground for grazing cattle or buffalo and net fishing (Ochsenschlager, 2004). Militarily, however, "The island of Majnun possessed no tactical or operational value, but was inside Iraq's territory" (Murray & Woods, 2014, p. 230). The marshes did contain an unknown volume of oil.

²¹⁰ Iran, additionally, had an army of 290,000 soldiers and the Army of the Guardians of the Islamic Revolution "which was entirely devoted to the [Iranian] regime... and only accountable to the Supreme Leader" (Razoux, 2015, p. 1-17). Iran's greater population also provided it a ready pool of conscripts and soldiers to replenish battlefield losses. As Stephen Pelletiere notes, "The Iranians vastly outnumbered the Iraqis (45 million Iranians, 16 million Iraqis)" (Pelletiere, 1992, p. xiv).

²¹¹ Edward Ochsenschlager's ethnographic study of the region notes, "The surrounding marshes consisted of a series of interconnected permanent marshes and lakes covering some 8,800 square km in the dry season and expanding to 20,000 square km when their banks overflowed in the spring inundation" (Ochsenschlager, 2004, p. 1).

However, these oil deposits remained untapped throughout the Iran-Iraq War (Pelletiere, 1992; Murray & Woods, 2014; Ahram, 2015). Finally, the territory occupied by Iran legally belonged to Iraq, necessarily lowering its value for the occupier. The lack of strategic or monetary importance places the Majnoon island area in the low-value category.

6.1.4 Damage to Iranian Forces

Iraq's escalate-to-deescalate strike inflicted high levels of damage on Iran. Hussein launched a violent military campaign to dislodge the Iranian forces from the Majnoon island area, employing persistent chemical weapons containing mustard and nerve agent (Preece, 1988; Tucker, 2006; Quillen, 2017).²¹² This escalate-to-deescalate strike was the first time the nerve agent tabun was used on a modern battlefield (Ali, 2001; Quillen, 2017). Iraq also employed mustard gas against the Iranian front lines, separating them from their resupply points, "targeting Iranian infantry at assembly and staging areas, causing poorly protected or trained [Iranian] troops and volunteers to flee" (Ali, 2001, p. 48). Iraq used Mig-23 fighter planes and Mi-8 HIP attack helicopters as the preferred method of delivery of the nerve and mustard agents, dropping 250kg and 500kg chemical bombs or 1,000-liter spray tanks (Ali, 2001).²¹³

Finding shelter from the gas was impossible due to the lack of protective gear and weather conditions (Preece, 1988; Tucker, 2006). Casualty estimates vary. Figures from both countries

²¹² Eric Croddy notes that "there is also considerable evidence that Iraq employed a dusty form of mustard in the war with Iran" (Croddy, 2002, np). Dusty agents settle faster than vapor agents, allowing for a greater contamination of a specific area, including troops and equipment (Croddy, 2002; Duelfer, 2009; Spiers, 2010).

²¹³ US intelligence reports note that Iraq supplemented the bombing and spraying tactics with artillery and mortars filled with chemical agents, saturating entire areas simultaneously to drive the Iranians out (Ali, 2001). A 1984 United Nations investigation "concluded that mustard gas and a nerve agent known as Tabun had been used," however, these findings were initially denied by Iraq (Preece, 1988, p. 10). The Iraqi regime later admitted "to using 1,800 tons of mustard gas, 140 tons of the nerve agent tabun, and more than 600 tons of sarin" (Quillen, 2017, p. 196).

provide conflicting estimates (Murray & Woods, 2014).²¹⁴ Dilip Hiro's study of the Iran-Iraq War suggests that an estimated 40,000 Iranian soldiers died during the battle for control of the marshes (Hiro, 1991). Another estimate, proffered by Williamson Murray and Kevin Woods, calculates that the Revolutionary Guard "lost between 12,000 and 20,000 killed in action, while the regular army lost a further 6,000. In fact, so heavy were their losses that the Iranians were able to launch only small probing attacks for the remainder of 1984" (Murray & Woods, 2014, p. 230). A CIA report estimates the fatalities from Iraq's use of chemical weapons at 2,500 (CIA, 1988, p.7). A separate report assesses that "Those Iranians not directly injured by the chemical weapons would probably suffer serious morale problems," causing many to flee (CIA, 1984b, p. 3).²¹⁵ Payman Salamati, et. al. offer an estimate of the number of chemical injuries and deaths throughout the entirety of the Iran-Iraq War at 1,000,000 Iranians exposed to chemical weapons, 5,500 Iranians killed by chemical weapons, and 100,000 Iranians injured by chemical weapons (Salamati, et. al., 2013, p. 548). This implies that Iraq noted the successes associated with chemical weapons use during the Battle of the Marshes and applied these weapons and tactics elsewhere as an "important adjunct for the achievement of tactical objectives" (CIA, 1988, p. 6).

6.1.4.1 Normal Level of Operations and Recuperation Time

The normal level of operations of the Majnoon islands was simply a low-lying marshland with minimal infrastructure. The existing buildings and houses were either largely made of clay or

²¹⁴ The US State Department estimates that "20,000 Iranian soldiers were killed in Iraqi chemical attacks from 1983-1988, during the Iran-Iraq War" (DoS, 1999, np). A team of United Nations chemical weapons experts investigated the areas of reported chemical weapons use and discovered that "the use of chemical weapons by Iraq appeared to be increasing despite the publicity of their use. The reports indicated that mustard agent and the nerve agent tabun were the primary agents used" (Sidell, Takafuji, & Franz, 1997, p. 69).

²¹⁵ Through the Iran-Iraq war, Iraq utilized chemical weapons after observing their influence on individuals in battle. Pierre Razoux notes the use of chemical weapons "had a significant psychological impact despite the fact that they were relatively inaccurate and ten times less deadly than regular artillery" (Razoux, 2015, p.481).

tightly woven reed huts. As such, the infrastructure was relatively easy to repair for those living in the marshes (Ochsenschlager, 2004). The normal level of operations for the area historically served as refuge for those seeking to escape Hussein's regime or as a source of sustenance through the rich grasses for grazing cattle and water buffalo or the availability of fish in the area (Ochsenschlager, 2004; Ahram, 2015). The region was largely able to support these endeavors after the conflict.

The Iranian military was slow to recoup its losses and rejoin the fight following the Battle of the Marshes, being "too exhausted to continue" (Pelletiere, 1992, p. 64). Steven Ward notes that, following the Battle of Marshes, Iran's forces "were too debilitated to conduct more than small attacks for the rest of the year" (Ward, 2009, p. 265). Iran would reconstitute its fighting forces in 1985, largely using conscripts for anticipated human wave attacks, managing to enlist approximately 400,000 fighters (CIA, 1984a). The damage sustained in this battle was not limited to the area of battle, but included the Iranian forces and the military equipment they were forced to leave behind – abandoned in the face of Iraq's chemical weapons (Hiro, 1991; Pelletiere, 1992; Razoux, 2015). Iraq's use of chemical weapons resulted in the death and injury to many of Iran's soldiers fighting in the Battle of the Marshes. Seyed Razavi, a professor of infectious diseases, notes the damage inflicted upon Iranian troops by Iraq's chemical weapons "caused extensive physical, mental, emotional and financial losses," producing long-term complications and disabilities on the survivors (Razavi, et. al., 2014, p. 165). This care remains ongoing years after the conflict, with survivors receiving treatments for psychological and neurological disorders directly attributable to the chemical weapons use (Salamati, et. al., 2013; Razavi, et. al., 2014; Satkin, et. al., 2017).

6.1.5 Iran's Response

The Iranian Revolutionary Guards attempted to hold their ground, exhibiting their “usual courage and determination” in a war that resembled many World War I battles, with “troops entrenched behind barbed-wire entanglements cut[ting] down lines of assaulting infantry as they struggled through clouds of poison gas, boggy terrain and with ill-coordinated artillery, air and armored support” (Johnson, 2011, p. 88). However, lacking both training in how to operate in a chemical environment and the necessary protective equipment, the Iranians were driven from the area (Tucker, 2006). This strike significantly disrupted Iran's momentum and, “after the initial surge, Iran was not capable of sustaining its attack. Iraq's heavy use of chemical weapons and the disarray within Iran's command structure did much to undermine the operation” (Takeyh, 2010, p. 377).

Consistent with my theory, Iran tactically capitulated, returning the Majnoon islands to Iraq, and retreated to trade space for time. Following the Battle of the Marshes, Iran's forces were too incapacitated to continue engaging Iraq's better-equipped military and resorted to small inconsistent attacks for much of the remainder of the year (Pelletiere, 1992; Ward, 2009). It would take Iran until 1985 to conscript 400,000 fighters to adequately reengage (CIA, 1984a). Following the Battle of the Marshes, Iranian military leadership pressed the United Nations to condemn Iraq's use of chemical weapons and “accepted a UN-sponsored truce ending attacks on civilian targets... and attacks on shipping in the Persian Gulf” (CIA, 1984a, p. 4). According to CIA analysis, Iran's tactical capitulation resulted from the high casualties which “undercut Iranian confidence. Iranian leaders [were] deeply divided on how to manage the war. Some concluded that Iran cannot win a military victory and cannot afford to continue diverting revenue” (CIA, 1984a, p. 5). In essence,

Iran recognized the disparity in forces and capitulated to trade space for time, with the intention of continuing the conflict at a later more propitious moment.

6.1.6 Alternative Explanations

The alternative explanations for Iran's capitulation, including regime type and capacity, are not persuasive. It is difficult to know with any real certainty how Iran would have reacted under a different type of regime. It was unquestionably a hawkish regime. Khomeini and his clerics gave sermon upon sermon demanding all Iranian peoples undertake their religious duty to rid the world of Hussein and his regime (Pollack, 2004; Razoux, 2015; Quillen, 2017). The underlying conflict history between the two nations dates back "to the days of the Ottoman Turkish empire (1517-1918) and the Persian empire" and continues today with issues "revolv[ing] around boundaries and interference in each other's internal affairs, conducted through ethnic and sectarian minorities across the common border" (Hiro, 1991, p. 7). A dovish, or risk averse, leader would still view Iraq from this historical lens.

Regarding military capacity, Iran certainly had the available resources to retain the Majnoon islands with its available pool of recruits. It possessed a ready pool of willing recruits and conscripts to continue to hold on to the marshes had it desired to do so. In fact, Khomeini utilized waves of human soldiers, many of whom were children, in an attempt to overcome Iraq's defenses "leading to the deaths of 20,000 Iranians in one three-week period alone in early 1984" (Wallechinsky, 2006, p. 183). It was technologically weaker, though its sheer number of available conscripts could serve to compensate for this (CIA, 1984a).

6.1.7 Conclusion

The escalate-to-deescalate strike at the Battle of the Marshes achieved its intended effect – Iran capitulated and withdrew from the area. However, it did not bring the conflict to a rapid conclusion, as Iran merely traded space for time and continued the conflict with Iraq the following year. Iran amassed 300,000 additional troops to reengage in conflict with Iraq’s forces. Fighting continued for another four years (Karsh, 1987; Hiro, 1991; Pelletiere, 1992). **Table 6.1** summarizes the key elements of this case.

Table 6.1: Battle of the Marshes, 1984

Firebreak:	Chemical weapons and electric wires used to dislodge Iranian forces from Iraqi soil.
Low-Danger Situation:	No direct threat to the ruling elite in the form of insurrection, coup, or conquest. A ready reserve of soldiers and conscripts willing to fight.
Low-Value Target:	Iranian military forces occupied nonstrategic Iraqi marshland of little monetary value.
High-Damage:	40,000 Iranians killed in marshes, including high-ranking officers.
Capitulation:	Iran retreated from the Majnoon area, relinquishing it to Iraq.

6.2 Unrestricted U-boat Campaign, 1917

Germany’s resumption of unrestricted submarine warfare in 1917 served as an escalate-to-

deescalate strike to compel the United States to stop its support of the Entente war effort.²¹⁶ Germany utilized its submarines as a form of firebreaking to engage in a commercial war against the US in the hope of making war too costly, under the impression the US would abandon its trade and support for the Entente. German submarines, or *Unterseeboote* (U-boats), exploited their unique advantage and sunk US-flagged merchant ships traversing the Atlantic towards Britain (Bassett, 1919). In response to the strike, the US counter-escalated, rapidly mobilized forces, and joined the war on the front lines in Europe (Roberts, 2018). This response is in line with my theoretical expectations.

6.2.1 Background and Conflict Situation

Between 1914 and 1917, Germany was at war with the Entente forces and the United States, though the US worked strenuously to avoid acknowledging this fact. While there were not active hostilities between the countries, there was an ongoing conflict over the US's shipping efforts, increasingly waged militarily at the instruction of the German government (Bassett, 1919; Carlisle, 2007; Doenecke, 2011). As John Bassett notes, "Germany felt contempt for a nation [the United States] that was habitually unprepared for war" (Bassett, 1919, p. 91). Germany established a war zone around the British Isles on 4 February 1915, declaring that neutral flags, including those of the US, "would be exposed to danger;" Germany asserted the right to "sink all enemy ships, even if it may not be possible always to save their crews and passengers... because of the hazards of naval warfare" (Bassett, 1919, p. 24). Neutral ships were to be sunk because neutral

²¹⁶ The unrestricted submarine campaign was not directed solely against the United States, as Germany simultaneously attempted to strangle Britain's access to commodities by sinking any merchant vessel, regardless of hoisted flag denoting neutral nationality, that was believed to be supporting Britain's war effort (Tansill, 1963; Carlisle, 2009; Dubbs, 2014).

flags could easily be a ruse de guerre to avoid blockades (Tansill, 1963).

The four-masted steel barque, William P. Frye, is the first known American-flagged sailing vessel sunk by the German navy. Bound for Queenstown, Ireland, unarmed, and carrying only 5,200 long tons of wheat, the ship was sunk on 28 January 1915 by the Prinz Eitel Friedrich (Oakely, 1918). Unrestricted strikes on merchant vessels like that made on the William P. Frye continued through the early months of 1916 as part of Germany's war plan to choke off Britain from external support (Gompert, Binnendijk, & Lin, 2014; Dubbs, 2014).

President Woodrow Wilson attempted to keep the US neutral throughout this period, with open shipping to both Germany and Europe despite the German efforts to curtail shipments to Europe.²¹⁷ Even after the 7 May 1915 sinking of British ocean liner RMS Lusitania by a German submarine – which killed 1,198 people, including 128 American citizens – Wilson continued to argue for calm and a pursuit of peace, refusing to build up military forces in preparation for war (Berg, 2013). Wilson believed the US “was called to serve mankind through leadership for peace, democracy, and the uplift of the peoples of the world” (Graff, 1996, p. 385). However, following the 24 March 1916 torpedoing of the SS Sussex, a French-flagged cross-channel ferry, resulting in 25 US civilian casualties, Wilson demanded the Germans abandon their unrestricted U-boat warfare or the US government would “have no choice but to sever diplomatic relations with the German Empire altogether” (Lansing, 1917, p. 107; Carlisle, 2009; Doenecke, 2011). In response to this proclamation, Germany agreed to the 24 April 1916 Sussex pledge, promising to “observe rules of cruiser warfare, including provision for the passengers and crew of unresisting merchant

²¹⁷ Wilson went as far as censoring all non-neutral messages sent across the wireless telegraph to help keep Americans from taking sides. Wilson attempted to keep the US neutral, though the American populace “had shown clearly that they did not like the German way of going into war or of conducting their campaigns after they were in” (Bassett, 1919, p. 16). The sinking of merchant ships, even with only a small loss of life, struck a chord in the heart of the American populace (Bassett, 1919; Doenecke, 2011).

vessels” (Doenecke, 2011, p. 172).

The practice did not last. Despite the Sussex pledge, on 8 October 1916 the U-53 sunk “five vessels and over twenty thousand tons of shipping” off the Atlantic coast (Dubbs, 2014, p. 30).²¹⁸ Despite none of the vessels being US-flagged, there were American citizens onboard, which did raise the ire of Wilson and Congress who believed in the right of sea travel (Carlisle, 2007, 2009; Doenecke, 2011). At the end of 1916, members of the German navy pressured the German government for a return to unrestricted warfare, as an escalate-to-deescalate strike, to rapidly bring about the end of hostilities (Carlisle, 2007). The German logic was that a resumption of unrestricted U-boat attacks against neutral shipping vessels would demonstrate German resolve and provide the best chance to win the war (Compert, et. al., 2014). German leadership, including Kaiser Wilhelm II and Chief of the German Naval Staff Vice-Admiral Gustav Bachmann, shared the belief that, “within the short span of six weeks” Germany would achieve its objectives “if an unrestricted submarine warfare would be waged at once” (Tansill, 1963, p. 242). The German naval chief of staff, Henning von Holtzendorff also assured the kaiser of the wisdom of this strategy, claiming, “that no American will set foot on the Continent” (Compert, et. al., 2014, p. 94). On 31 January 1917, German Ambassador Bernstorff notified his US counterpart, Secretary of State Robert Lansing, that “his nation was about to launch an unrestricted submarine campaign, thereby declaring total maritime war against all neutrals. After February 1, the communique noted, German U-boats would sink without warning belligerent and neutral ships” operating in the waters

²¹⁸ The U-53, operating at the edge of US territorial waters off the Atlantic coast, sank merchant vessels “at what was called the ‘elbow’ in the transatlantic route where all vessels had to turn when making the passage to or from New York” (Dubbs, 2014, p. 29). The U-53 “stopped the ships by firing shots across their bows, then ordered them to bring their papers to the U-boat so their ship and cargo could be identified. If they carried anything that could support the war effort (contraband), their crew was ordered to make a hasty exit aboard lifeboats before the U-boat sank their ship with torpedo, deck gun, or explosive charges planted on board” (Dubbs, 2014, p. 29).

around Great Britain, France, Italy, and the Mediterranean (Doenecke, 2011, p. 250). This resumption of unrestricted submarine warfare served as Germany's escalate-to-deescalate strike, intended to strike a blow hard enough to force the US to abandon its trade and ongoing support for the Entente. The German communique was, in essence, a notification and threat of future violence if the US failed to tactically capitulate and cease its support to Europe.

As Chris Dubbs notes, "the impact was immediate and devastating" (Dubbs, 2014, p. 32).²¹⁹ The US, seeing three US ships sunk over the weekend of 16-18 March 1917 and three more in early April, claimed the German actions were a direct violation of American sovereignty at sea (Carlisle, 2007, 2009). The impact of the ongoing conflict was readily apparent in the media; "scarcely a week went by without newspaper accounts of U-boats sinking merchant ships, passenger liners, and even hospital ships" (Dubbs, 2014, p. 19).²²⁰ It was the sinking of the *Vigilancia*, the *City of Memphis*, and the *Illinois* on 16-18 March 1917 that drove Wilson's response (Carlisle, 2009). The sinking of these US-registered ships "constituted the long-awaited set of overt acts, and constituted the tipping point in the decision for war" (Carlisle, 2009, p. 106).²²¹ After the resumption of unrestricted submarine warfare by the Germans and the discovery of the Zimmermann Telegram, along with increasing political pressure, Wilson responded with a formal declaration of war on 2 April 1917 (Bassett, 1919; Doenecke, 2011; Wyatt & Manning,

²¹⁹ Chris Dubbs claims that "in January 1917, the month prior to this change in policy, U-boats sank 282,000 tons of British shipping. The first month after the start of the new policy this number jumped to 464,000 tons. It would peak in April, when 354 ships fell victim to U-boats for a staggering loss of 834,594 tons of shipping" (Dubbs, 2014, p. 32).

²²⁰ Germany waged its U-boat warfare unconditionally, even sinking vessels transiting the Atlantic Ocean without cargo. The merchant vessels the *City of Memphis* and the *Illinois*, for instance, were at ballast (empty) and on the return trip to the US when they were stuck by German torpedoes (Carlisle, 2007).

²²¹ Historian Rodney Carlisle notes, "it was clear from the discussion that the death of American seamen aboard an American-flagged [vessel] and the attacks on the other two ships were the events that had changed the minds of even the most convinced neutralists in the cabinet" (Carlisle, 2009, p. 121).

2011; Berg, 2013).²²²

6.2.2 Danger Situation

The US was in a low-danger situation during the war. The US watched the opening salvos of the war with relative disinterest. There was little political support for engaging in a conflict so far from US shores (Dubbs, 2014). Separated from Europe by the vast Atlantic Ocean, there was no danger to US interests, no threat from a military coup, and no threat of territorial conquest by Germany.

The US did suffer economic setbacks resulting from the conflict. For instance, the US stock market rapidly fell in July 1914, with banks closing their doors as a flood of selling orders poured in (Bassett, 1919).²²³ Also endangered at the opening of the war were approximately two hundred thousand American “tourists caught in belligerent countries on the declaration of war,” with no opportunity to escape to neutral countries on account of the exchange of currency being suspended (Bassett, 1919, p. 3).²²⁴ However, by 1916, most US citizens had returned to the US and the stock

²²² Justus Doenecke argues that President Wilson acknowledged the Imperial German Government was engaged in war against the United States despite the lack of a formal declaration from either side. Wilson’s advisor, Edward “Colonel” House, acknowledged in the summer of 1915 that American entry to the war in response to German actions was inevitable (Doenecke, 2011). The famous Zimmermann Telegram refers to a communiqué between Berlin’s foreign minister, Arthur Zimmermann, and the Mexican government, offering Mexico the opportunity to recover the lost territories of Texas, New Mexico, and Arizona if it joined the war on Berlin’s side. It was intercepted by British intelligence and provided to the US ambassador Walter Page (Bassett, 1919; Boghardt, 2012).

²²³ On 31 July 1914 the New York Stock Exchange “sold 1,300,000 shares at a decline of from six to seventeen points. The early cables brought a flood of selling orders, and when these were poured forth on the floor regardless of price, a great crash was sure to follow, with the result that many a solvent American firm would be carried away in disaster. Leading bankers and operators sought the governors of the Exchange and besought them to stay ruin by closing the doors” (Bassett, 1919, p. 2).

²²⁴ John Bassett notes that Americans in Germany at the outbreak of the conflict were often treated as diplomatic prisoners, required to offer concessions or to sign papers affirming support of German interests. Even James Gerard, the US Ambassador to Germany, was wrongfully detained for refusing to sign articles “specifically designed to make it impossible for the United States in event of war to take over the German ships in [US] ports” (Bassett, 1919, p. 99). Reading the German demands, Ambassador Gerard became indignant, stating, “After your threat to keep Americans

market had rebounded. These setbacks did not result in the US population demanding a change in US leadership.

The only potential danger of conquest came with the arrival of the German U-boats on the Atlantic coast. The German submarine force demonstrated it could reach the eastern shores of the US on 9 July 1916, when the U-boat *Deutschland* arrived in the Chesapeake Bay, proving that Germany possessed the technology and capability to cross the Atlantic (Dubbs, 2014). The German submarine had successfully avoided the British blockade and its naval patrols, traveling over 4,000 miles to appear in an American port – credibly demonstrating to the US military that Germany had the ability to avoid detection and reach the shores of the US (Dubbs, 2014; Gompert, et. al., 2014). The US danger of external conquest remained extremely low, however, as the U-boats did not have the ability occupy US territory.

6.2.3 Value of American Civilians, Vessels, and Supplies

To the United States, civilian lives, the materials bound for war-torn Europe, and the US-owned shipping vessels were all considered high value. It was not since the War of 1812, or, perhaps, the US Civil War ending in 1865, that the US experienced civilian deaths resulting from combat in an interstate war. The loss of civilian life as a result of foreign hostilities was deemed unconscionable across the US (Carlisle, 2007, 2009; Dubbs, 2014). Wilson believed that sea travel was a right of all US citizens and strongly condemned any threatening action (Carlisle, 2009; Doenecke, 2011). Historian Justus Doenecke argues that Wilson would have largely acquiesced to

here, and after reading this document, even if I had the authority to sign it, I would stay here until hell freezes over before I would put my name to such a paper” (Gerard, 1917, p. 382).

Germany's demands, provided "Germany limited its U-boat attacks to armed ships or merchantmen belonging to the belligerent powers" as a modification to the Sussex pledge; however, "by declaring war on peaceful neutral shipping, Berlin engaged in a campaign of terror" to which Wilson would not concede (Doenecke, 2011, p. 251-252).

In a matter of weeks, from 3 February 1917 to 4 April 1917, the German U-boats sank ten US merchant ships (Carlisle, 2007, 2009). Aboard the *Vigilancia*, six Americans drowned. On 21 March 1917, the *Healdton* was sunk, with seven Americans.²²⁵ On 1 April 1917, eleven American civilians drowned on the *Aztec*, which was sunk by the German U-boat U-46 (Carlisle, 2007, p. 61). Wilson, in addressing the Congress noted the high value of American life stating,

Vessels of every kind, whatever their flag, their character, their cargo, their destination, their errand, have been ruthlessly sent to the bottom without warning and without thought of help or mercy for those on board, the vessels of friendly neutrals along with those of belligerents. Even hospital ships and ships carrying relief to the bereaved and stricken... have been sunk with the same reckless lack of compassion or of principle... It is a war against all nations. American ships have been sunk, American lives taken, in ways which it has stirred us very deeply to learn of, but the ships and people of other neutral and friendly nations have been sunk and overwhelmed in the waters in the same way. There has been no discrimination. The challenge is to all mankind. Each nation must decide for itself how we will meet it (Wilson, 1966, p. 519).

The American vessels and supplies were of high value. The vessel *Vigilancia* was worth \$85,000 in 1916, which, at an inflation rate of 3.07 percent, roughly equates to \$2,042,946 in 2022 (Carlisle, 2007).²²⁶ The *Algonquin* freighter was significantly more valuable. It was constructed at a cost of \$195,000 (\$4,686,758 in 2022) and carried a cargo valued at \$1.25 million (\$30,043,319 in 2022). The schooner *Lyman M. Law* carried a cargo valued at \$31,200 (\$749,881 in 2022). The tanker *Illinois* was valued at \$250,000 (\$6,008,664 in 2022). The *Housatonic* freighter was valued

²²⁵ The sinking of the *Healdton*, with a crew of 41 – of whom 21 drowned, was initially attributed to a German U-boat. Later investigations would find the damage was a result of the vessel striking a sea mine (Carlisle, 2007, p. 61).

²²⁶ The inflation rate and 2022 conversion were calculated from www.dollartimes.com.

at \$210,000 in 1917 (\$5,047,278 in 2022), with a cargo of \$5,000 (\$120,173) (UN, 2006; Carlisle, 2007). The cost of the vessels and their cargo is not the only factor contributing to the high value of the targets, however. The future earnings cost, or foregone income, as a result of the ship being no longer available for transport was considerable.

6.2.4 Damage to American Civilians, Vessels, and Supplies

The damage to this target was low. Even with the loss of American civilians, the damage was low. For example, according to compiled reports in *New York Times*, US Consular Affairs Reports, and German submarine records, of the 362 crew manning the merchant vessels sunk between February and April 1917, only 64 sailors (only 24 of whom were Americans) perished at sea as a result of the torpedo attacks (Carlisle, 2007, p. 61). In most, albeit not all, instances, the German U-boat provided some warning of the impending sinking, thereby allowing the crew to escape via lifeboat (Carlisle, 2007, 2009; Gompert, e.al., 2014).²²⁷

The ability of the US to absorb the material losses at sea, coupled with the very minimal loss of life by US citizens, places the harm sustained in low-damage category. The US was able to rapidly produce additional ships and war-effort materials to compensate for the vessels sunk. The increasing production capacity of the US underscores this point. For example, the US in 1916 was producing fifty-seven percent of the world's pig iron, with an annual production of approximately forty million tons. Comparatively, Britain was producing twenty percent and Germany only produced twelve percent (Brigham & McFarlane, 1925, p. 409). A US Department of the Interior

²²⁷ German Lieutenant Hans Rose of U-53, for instance, even towed the crew of the Housatonic in lifeboats north for over an hour until they spotted a British patrol boat capable of rescuing the crew (Carlisle, 2007).

survey notes “that the iron ore mined in the US in 1917 reached a total of 75,288,851 gross tons, and exceeded the former record output of 1916 by 121,179 tons” (Wiley, 1918, p. 861). The US also led the world in cotton production, at over fourteen million bales, or sixty-five percent of the total global output; the next closest grower of cotton was India, at seventeen percent (Brigham & McFarlane, 1925, p. 406). Similarly, the US led global production of corn, at over eight hundred million bushels as well as coal, amounting to forty-four percent of the world’s total; copper, at sixty-two percent; and petroleum at sixty-six percent (Brigham & McFarlane, 1925, p. 403-410). The increase in trade and production resulted in a drop in unemployment across the US from roughly 16 percent in 1914 to 6 percent in 1917 (Douglas, & Director, 1931, p. 28). The increase in manufacturing and production output across these exports allowed the US to absorb the loss at sea. Succinctly, the damage in this case was low.

6.2.4.1 Normal Level of Operations and Recuperation Time

According to John Hutchins, “In 1914 the United States had less than 5 percent of the merchant shipping tonnage of the world” (Hutchins, 1954, p. 105). This is largely a result of the lack of available vessels (Hutchins, 1954; Clements, 1992; Striner, 2014). In 1915, the US output at its shipyards was 155,000 tons; the output in 1916 increased to 174,000 tons (McKeller, 1962, p. 270).²²⁸ President Wilson and Congress enacted the Shipping Act to operate a merchant fleet to meet the export requirements and transport draftees (Clements, 1992; Striner, 2014). The US seized “700,000 tons of German ships interned in American ports” at the outbreak of the war to augment the initially slow shipbuilding process (Clements, 1992, p. 149). The act also authorized

²²⁸ Norman McKeller notes that the expansion of US shipyards in 1916 and 1917 drastically increased the US tonnage output annually, allowing the US to commit to a contract with the British government in 1917 to produce 700,000 tons of new ships (McKeller, 1961, p. 270).

the US to admit foreign vessels wrecked off US coasts or adjacent waters into service following repairs (Hurley, 1927; Striner, 2014). This resulted in the US increasing its export capabilities despite the German attempt to scuttle US merchant ships and stifle US trade.

The US readily replaced the goods and commodities lost to German submarine action at sea. While the British factories for destroyer production were inadequate, “the United States, using her tremendous facilities for mass production and prefabrication, was building destroyers in six weeks” (Brodie & Brodie, 1973, p. 185). The US ports were teeming with supplies to trade or support the Allied war effort. German unrestricted submarine warfare did not significantly impact the US’s ability to reconstitute losses, as replacements were readily available. The minimal setback and ability to absorb losses to US shipping operations leaves this case in the low-damage category.

6.2.5 The Response

Following the German escalate-to-deescalate strike through the resumption of unrestricted warfare, the US response was to counter-escalate and rapidly deploy a military force in unprecedented fashion. The anger at Germany’s U-boats and the sinking of merchant vessels created a demand for action; “it was the comparatively miniscule loss of civilian lives in the submarine war that time after time drove the American public to outrage” (Dubbs, 2014, p. 23).²²⁹ This demand for action precluded any potential for a tactical US capitulation or for maintaining the status quo. George Creel, Wilson’s chairman for the Committee on Public Information, cited the sinkings of merchant vessels and the earlier torpedoing of the *Lusitania*, noting,

²²⁹ Wilson, noting that “the proximate cause of US entry was German violation of American maritime freedom and international law,” now understood that the circumstances required the US to enter the war. The resulting declaration for war by Congress passed with overwhelming majorities: 82-6 in the Senate and 372-50 in the House (Gompert, et. al., 2014, p. 76).

[O]ur principal controversy with the German Government, and the one which rendered the situation at once acute, rose out of their announcement of a sea zone where their submarines would operate in violation of all accepted principles of international law... This attack upon our rights was not only grossly illegal, it defied the fundamental concepts of humanity [and] was a crime against the civilized world which could never be settled in any court (Creel, 1917, p. 9).

In less than a year, the US transformed the world's 17th largest military (then tied with the Danish army at 100,000 troops), and recruited, drafted, trained, equipped, and deployed a million-man force to the battlefields of France (Roberts, 2018). The US established the Council of National Defense, an experimental and "unusual quasi-federal" organization designed to coordinate civilian assets for the war effort (Breen, 1984, p. xvi). The council served two purposes: to "coordinate industries and resources for the national security and welfare" and, second, to organize the US civilian morale for war, including convincing the populace to give up luxuries and prevent waste (Bassett, 1919, p. 131). The US cut off all diplomatic relations with Germany and adopted transatlantic convoys with US Navy escorts, which "slowed and then reversed the U-boat threat" (Gompert, et. al., 2014, p. 95). As David Gompert, Hans Binnendijk, and Bonny Lin note,

Although the Americans entered the war grossly unprepared for large-scale fighting in Europe, they mobilized their forces and ramped up their industrial base much faster than the German military had forecast... Six months after the declaration of war, the first US division entered the trenches (Gompert, et. al., 2014, p. 95).

Led by General John "Black Jack" Pershing, the US's skeleton force of 127,000 active soldiers was soon bolstered by the drafting of able-bodied men between the ages of 18 and 45 and deployed to Europe (Yockelson, 2016). Winston Churchill credits the American military response as the deciding factor in ending the war on terms favorable to the Entente (Churchill, 1923).

In this instance, the US responded to the escalate-to-deescalate strike of unrestricted U-boat warfare with counter-escalation. Instead of serving to keep the US out of direct conflict, the resumption of unrestricted U-boat warfare brought the US fully into conflict against Germany. The

US response of counter-escalation coincides with the theory presented in this dissertation.

6.2.6 Alternative Explanations

The alternative explanation that President Wilson was hawkish and therefore prone to counter-escalate is not viable. There is direct evidence in President Wilson's memoirs and other scholarly writings underscoring his desire to keep the US neutral, and even act as a mediator (Bassett, 1919; Clements, 1992; Doenecke, 2011; Striner, 2014). Wilson was clearly attempting to keep the US out of a major war (Carlisle, 2009). However, the circumstances the US faced "convinc[ed] President Woodrow Wilson and Congress that neutrality was no longer strategically, politically, or morally sustainable" (Gompert, et. al., 2014, p. 92). A more hawkish president, by comparison, would have almost certainly joined the war earlier. Without the US formally entering the war, it is likely "the war would have ground on, for mounting casualties had made both sides more bellicose, not less" (Gompert, et. al., 2014, p. 71). If the German U-boats had avoided sinking US merchant vessels off the coast of the Atlantic and allowed freedom of maneuver for the vessels, it is conceivable, and perhaps probable, that the US would not have counter-escalated.

6.2.7 Conclusion

This case study addressed an instance in which a low-danger state counter-escalated in response to an escalate-to-deescalate strike against a highly valued target that inflicted low levels of damage. Germany utilized a punishing tactic against the US merchant fleet, promising more pain to come if the US continued to support the British war effort. In line with my theory, the attacks on US-flagged merchant ships and civilian deaths had the opposite of their intended effect,

as the US counter-escalated, rapidly fielding a deployable military force against German forces. The escalate-to-deescalate strike failed. **Table 6.2** summarizes the key elements of this case study.

Table 6.2: Unrestricted U-Boat Campaign, 1917

Firebreak:	Resumption of unrestricted submarine warfare.
Low-Danger Situation:	No threat to the US from internal forces and geographical separation from Germany limited any chance of conquest.
High-Value Target:	US citizens, property, and materials.
Low-Damage:	Readily replaceable ships and resources due to vast prefabrication and production abilities; minimal loss of civilian life.
Counter-Escalation:	A massive buildup of military forces through mandatory draft, and deployment of an unprecedented million-man combat force to France.

6.3 Siege of Eger, 1552

There are few examples of states in high-danger situations responding to an escalate-to-deescalate strike on a low-value target that inflicted low levels of damage. This is perhaps unsurprising, as few actors are likely to intentionally carry out an escalate-to-deescalate strike that places their foe in a high-danger situation simply by striking a target of low value and inflicting only low levels of damage. The historical case that most closely fits this situation is the 1552 Siege of Eger, when a Hungarian village comprised of untrained peasant men and women repelled a significantly larger and better-trained and -equipped force of Ottoman soldiers.²³⁰ The obscurity of this case underscores the point that such instances of escalate-to-deescalate strikes with these particular characteristics are likely to be rare.

Unfortunately, due to the antiquity of the battle, there is relatively little scholarship on the

²³⁰ The recognition of the peasant “women as heroic defenders is present in several historical and literary works related to the 1552 Siege of Eger” (Zrinyi, 2019, p. 453).

fight, particularly in English. Accordingly, it is necessary to be creative in investigating the case. A best-selling Hungarian work by Geza Gardonyi (1901) titled *Egri Csillagok* (Eclipse of the Crescent Moon), is a historical novel that focuses on the Siege of Eger by the Turks and the events surrounding the battle.²³¹ The author is credited with his deep research into the battle, including the use of primary sources written in Hungarian, Turkish, German, and Latin. Gardonyi's work cannot be relied on for specific details like words uttered by participants, but it does serve as a useful source of historical context for this case. As education expert Grace Fleming notes, "Historical context deals with the details that surround an occurrence. In more technical terms, historical context refers to the social, religious, economic, and political conditions that existed during a certain time and place" (Fleming, 2019, np). This information helps clarify the dynamics of the escalate-to-deescalate strike, and the response of the Hungarians, at Eger.

6.3.1 Background and Conflict Situation

The Siege of Eger started on 16 September 1552, following the summer fighting campaign by Turkish military forces seeking to expand the Ottoman empire into Hungarian territory (Gardonyi, 1991 [1901]; DoDo, 2008). During the summer campaign, two invading Turkish forces captured thirty Hungarian provinces, expanding Ottoman rule (Agoston, 2017). Arriving at Eger

²³¹ Additionally, Gardonyi utilized chronicler Sebestyen Tinodi's 1554 eye-witness account of the battle to inform his depiction of the fight. The historical novel is often referenced in literature related to the battle and is credited with helping construct a Hungarian national identity. Two screenplays (both called *The Stars of Eger*) and several paintings were produced from the book highlighting the role of the women defenders. The folklore states one woman picked up her dead husband's sword continuing to fight, and another depicts a girl who hurled the heavy stone that killed her mother back at the enemy killing several Turks (Papp, 2016). For a truly exceptional trailer of the 1968 film see: <https://www.youtube.com/watch?v=PhyD6osK9zQ&list=PLf4RWkqEwXFGBE1irQkJAgm1JA63UIAg6>.

with roughly 70,000 soldiers and supporting artillery, the Ottomans engaged in battle against a motley group of only 2,200 trained soldiers, peasants, and women (Kafkadesk, 2021).²³²

Expecting an easy victory, the Ottomans initiated the battle with a barrage of artillery fire against the town and castle (Erdelyi, 1986). The defending elements of Eger, having been forewarned of the approaching fighters, fortified their defenses by hardening the walls, constructing or emplacing obstacles to stymie the Ottoman advance, and gathering provisions to survive an extended siege (Gardonyi, 1991 [1901]; DoDo, 2008). Recognizing the ability of the Ottomans to inflict potentially damaging strikes with cannon fire, the commander of Eger prepositioned repair items along with the required experts inside the fortress (Gardonyi, 1991 [1901]; DoDo, 2008).²³³

During the fighting, the Ottomans constructed siege towers and employed over 150 artillery pieces, including large siege cannon, to destroy Eger's fortifications. In anticipation of the impending cannon salvo, much of the town evacuated to other areas of the country or sought safety behind the walls of the Eger castle (Agoston, 2017). The castle walls were built on existing earthen works, contributing to their resiliency and allowing the remaining population of Eger to resist the artillery fire. Additionally, the earthworks included a labyrinth of tunnels, allowing the citizens to shelter in relative safety from the cannon fire (Doder, 1975; Erdelyi, 1986).²³⁴

The Ottomans crossed a firebreak on 4 October 1552 by tunneling and detonating a large gunpowder charge under a tower holding the defender's gunpowder. The strike was accompanied

²³² Estimates on the number of forces for both sides vary. For example, the number of Ottoman forces ranges as low as 20,000 and as high as 100,000 (Doder, 1975; Erdelyi, 1986; Gardonyi, 1991 [1901]; DoDo, 2008; Agoston, 2017).

²³³ Included in this effort were fitters, blacksmiths, carpenters, millers, and barbers (essentially early battlefield surgeons) to provide medical aid to any of those suffering injury (Gardonyi, 1991 [1901]).

²³⁴ The tunnel complex, which included a reservoir and stable for 240 horses, stretches approximately 61.2 miles and supported Hungarian resupply efforts during the siege, allowing the besieged forces to harass Turkish rear elements (Doder, 1975).

with messengers and letters calling for capitulation, lest the defenders face the destruction of the castle (Gardonyi, 1991 [1901]; DoDo, 2008). Reportedly, the captain-in-chief of the Ottoman army sent several messages to the commander of Eger demanding capitulation or both the defenders and their children would all perish by death. The messages noted that the Turkish military would launch unparalleled violence upon the castle if capitulation was not immediate. Throughout the siege and subsequent strikes, the captain would send messengers to the gates or attach letters to arrows and launch them over the walls, highlighting the ability of the besiegers to inflict greater levels of violence (Gardonyi, 1991 [1901]). Additional attempts to topple the castle walls were thwarted by the citizens of Eger conducting counter-sapper operations and inventing novel anti-siege weapons, including one of the first primitive hand grenades and an improvised fire wheel (Agoston, 2017).²³⁵ The battle lasted for roughly 33 days, with the Hungarians surviving against overwhelming odds and repelling five major assaults and continuous cannon fire. The defenders relied on everyone within the castle, “including the women of Eger, who threw stones and poured hot water, molten bitumen, and lead down the siege ladders” (Kafkadesk, 2021, np). The siege lasted until the Ottomans expended their resources and abandoned their attempt to take control of the castle. The Ottoman army then attempted an occupation of the castle with roughly 70,000 soldiers, but departed after suffering heavy losses on 18 October 1552 (DoDo, 2008).

²³⁵ Bornemissza’s Fire wheel is described as a set of flour mill wheels used to crush grain into flour, stuffed with explosives and fuses and then were rolled into the oncoming enemy to panic and disperse them. Gardonyi describes the fire wheel in action as “a gigantic smoking wheel,” the center of which emitted smoke and with flashes of flame shooting 300 feet into the air, spitting burning oil and sulfur, burning those to the bone and emitting stifling smoke (Gardonyi, 1991 [1901], p. 509-510; Agoston, 2017). See also, Hungary’s Tourism website: <https://www.ieger.com/eger-1552.html> and Kings and Generals historical documentary of the siege at: https://www.youtube.com/watch?v=5ic_zqSkwsI&feature=emb_title.

6.3.2 Danger Situation

The leadership of Hungary was in a high-danger situation. The Hungarian ruler, Ferdinand I, was embroiled in a trilateral conflict for control of Hungary. Ferdinand's military resources "were insufficient for driving the Ottoman Empire out of Hungary, but were nevertheless decisive when it came to protecting dynastic interests and slowing down [the Ottoman] expansion at the cost of enormous efforts" (Korpas, 2019, p. 165). The Ottomans occupied large portions of central Hungary, including the capital Buda and the strategically important Szolnok castle; the Austrian House of Habsburg occupied a section in the northwest; and, finally, a vassal state to the Ottomans contested for areas in the east (Fallon, Kaminski, & Sieg, 2013). Facing these challenges, Ferdinand did not have additional forces to levy in support of the imminent siege at Eger.²³⁶ Ferdinand was attempting to defend the region on multiple fronts, from multiple aggressors capable of overtaking and occupying sovereign territory through sheer military might (Gardonyi, 1991 [1901]; DoDo, 2008; Veszpremy, 2016; Agoston, 2017, 2019). This danger of conquest is evident in the historical records, which list "no less than 262 towns, castles, and manor houses that the Ottomans had captured between 1526 and 1556" (Agoston, 2019, p. 303). Additionally, prior to the Siege of Eger, the capital of Hungary, Buda, was captured, placing all of Hungary in danger (Gardonyi, 1991 [1901]; Setton, 1976; Veszpremy, 2016; Agoston, 2017, 2019). The Siege of Eger represented "a clash of imperial ideologies" and the last stand for the kingdom of Hungary against the invading Ottoman army (Agoston, 2017, p. 67). That the defenders present at Eger were

²³⁶ Priority of effort for Ferdinand's available troops was to retake Buda "and the waterway on the river Danube leading to it and the military road along the river" (Hegy, 2019, p. 309).

comprised of peasants, untrained civilians, women, and very few trained military members, with little equipment simply increased the danger for the Hungarians.

The danger to the leadership of Eger from internal forces was minimal. Those who perceived the opportunity to depart the land for more opportunities did so ahead of the Turkish invasion. Those who stayed were left with the options of fighting or capitulating. Similarly, the danger from the forces tasked with guarding the region did not pose a threat to the leadership. The impending conquest, however, placed the defenders squarely in a high-danger situation.

6.3.3 Value of Eger

The value of Eger was low. To the national Hungarian leaders, Eger was a small section of land not worth the loss of valuable soldiers, as indicated by their refusal to contribute resources to the fight (Gardonyi, 1991 [1901]; Agoston, 2017, 2019). The Hungarian king, Ferdinand I, was embroiled in dynastic disputes with the leader of Transylvania and his brother Emperor Charles V, as both leaders were supported by different factions across the lands; Eger did not represent an area worthy of contention with other pressing matters requiring the crown's attention (Agoston, 2017, 2019). The king was overextended in attempting to protect his "inherited conglomerate of sovereign kingdoms, principalities, independent cities, and states" (Korpas, 2019, p. 164). Facing the incursion by Ottomans, inherited wars in other countries, Ferdinand did not perceive Eger as a vital interest (Korpas, 2019).²³⁷

²³⁷ Historian Zoltan Korpas notes that Ferdinand I "inherited multifaceted, deeply intertwined and inextricable conflicts on three major fronts: the Netherlands/Duchy of Burgundy, the Pyrenees and Naples/Italy," which constrained available fighting resources for the defense of Eger (Korpas, 2019, p. 166). Effectively, the defenders were left to their own resources as Ferdinand focused on securing other areas of his kingdom.

The castle and the surrounding land were of little strategic military or economic significance. Eger was a picturesque town surrounded by rolling hills and vineyards on the edge of lowlands that “extend from Budapest east toward Transylvania” (Doder, 1975, p. A12). Situated at the foothills of the 1,200-foot, steeply sloped Berva-Volgy mountain range, the castle offered nothing in the way of strategic value for either side. Indeed, as the foothills around the town rise to the east and north, they provided the attacking Ottomans with opportune placement of cannon and even a view inside the city walls (Holtz, 2018). The land, being roughly parallel in latitude with Champagne, France, was rich for cultivation and the production of grapes for wine (Gardonyi, 1991 [1901]; Holtz, 2018).²³⁸ This richness of soil quality was the only notable aspect of the area. The value of the target was low, despite the dedication of the defenders – who certainly valued the area – as capture by the Ottomans would not provide any strategic value for further conquests. Additionally, the lands, if occupied, would not provide the Ottoman Empire with meaningful additional revenue.

6.3.4 Damage to Eger

The damage sustained to the castle during the siege was minimal.²³⁹ While the number of defenders lost during the battle is not known with certainty, the accounts of Gardonyi (1991 [1901]), DoDo (2008), and Agoston (2017) claim figures amounting to roughly one third of the

²³⁸ Grapes are native to the Eger region with a 30-million-year-old wine fossil *Vitis Hungarica* found there. Stories from the battle claim the defenders drank bulls’ blood for courage, though in true the libation was merely red wine. For a historical account of the wine producing history of Eger see: <https://ebht.hu/en/>.

²³⁹ There is no direct evidence outlining Ferdinand’s assessment of the damage to Eger. He was not present at the siege and there is nothing suggesting he visited the area post-conflict. Ferdinand did, however, provide riches and rewards to the defenders, as highlighted below (Fazekas, 2019).

force.²⁴⁰ Losing a third of the fighting force is not insignificant, though this measurement is skewed because it includes all wounded – including those who were able to continue fighting.

The fortified rock walls withstood the attacks and the attempted Ottoman breach. The damage to the fortress walls was minimal. In areas where the cannon balls struck, the defenders rapidly repaired damaged sections during lulls in the battle (Gardonyi, 1991 [1901]). Kenneth Setton notes that, despite the “ceaseless cannonading,” the walls stood and “the Turks failed to take the [castle] in three assaults” (Setton, 1976, p. 585). The final assault to breach the walls, “being the greatest of all, but to no avail,” resulted in the Turks abandoning the siege (Setton, 1976, p. 585).

6.3.4.1 Normal Level of Operations and Recuperation Time

The normal level of operations of Eger was that of a small rural village, although it was the seat of one of the ten bishoprics (Khalid, 2022). The castle was constructed in approximately 1470 on an existing chapel partially destroyed by the Mongol invasion in 1240. The walls and outer defenses of Eger castle were fortified prior to the siege following earlier battles, including the 1526 Battle of Mohacs (Gardonyi, 1991 [1901]; Agoston, 2017; Khalid, 2022). During the 1552 Siege of Eger, skilled laborers and willing peasants repaired or rebuilt damaged sections during the night and between battles to reconstruct the defensive measures. The intentional inclusion of barbers, butchers, fitters, blacksmiths, carpenters, and millers into the defenses enabled the defenders to rapidly mitigate damages incurred by the attacking Ottomans (Gardonyi, 1991 [1901]).²⁴¹

²⁴⁰ Gardonvi’s account states, “Of the defenders three hundred were now at rest in the common grave below, and two hundred lay severely wounded on hay or straw all over the inner parts of the fortress... not a man or woman among the defenders was without wounds” (Gardonyi, 1991 [1901], p. 553-554).

²⁴¹ Medieval barbers served as medical practitioners providing support to the wounded by setting broken bones, sewing or cauterizing wounds, and even amputations (McGrew, 1985; Gardonyi, 1991 [1901]).

6.3.5 The Response

Reportedly, the citizens of Eger defended the walls by collecting trash, rocks, debris, and even the opponent's cannon balls to fire back at the Turks (Agoston, 2017). The far-seeing commander of the castle had "stockpiled large quantities of sulfur and saltpeter" (the explosive potassium nitrate) in the underground vault, allowing the defenders to continue fighting (Setton, 1976, p. 585). The defenders held out against a larger force, successfully defending the castle.

Ferdinand, unable to be "present everywhere simultaneously whenever he was needed," bestowed titles, property, and promotions upon Eger's leadership following the successful defense of the castle (Gardonyi, 1991 [1901]; DoDo, 2008; Fazekas, 2019, p. 183). Further, with the proximity of the Ottoman threat, Ferdinand "provided aid for the strengthening of the military border against the Ottomans and sent troops to the Hungarian fortresses when such help was needed" (Fazekas, 2019, p. 189). This refusal to even tactically capitulate, and willingness to hold fast in the face of overwhelming odds is consistent with my theoretical expectation of continued fighting by a state in a high-danger situation when an escalate-to-deescalate strike against a low-value target inflicts low levels of damage.

6.3.6 Alternative Explanations

The primary alternative explanation for Eger's continued fighting is associated with the conflict occurring late into the fighting season. It is noted by Gabor Agoston that Hungarian defenders usually "managed to withstand Ottoman sieges only if the siege started late in the year and the cold, rainy weather hindered the investment of the besiegers" (Agoston, 2005, p. 35). Given that the 1552 Siege of Eger occurred during October, when "Ottoman troops were usually

disbanded to their winter quarters for overwintering,” the timing of the fight could explain the Hungarians’ dogged defense (Agoston, 2005, p. 35). Arguably, the Ottomans could have initiated the attack against Eger earlier in the fighting season. Even if they had, however, the defenders were poised to remain on the defensive indefinitely, with the stocked provisions and access to water from within the tunnels (Doder, 1975; Setton, 1976; Erdelyi, 1986; Gardonyi, 1991 [1901]). Additionally, the Ottoman armies were divided, focusing on separate areas of the Hungarian empire prior to the attack on Eger. This implies the defenders could have continued to fight had the siege occurred early in the summer.

The option of capitulation was available to the defenders of Eger. The Ottoman messages prior to and accompanying the escalate-to-deescalate strike noted the defenders had an opportunity to lay down their arms and leave the area on their own accord. Other Hungarian cities had capitulated in previous conflicts with the Ottomans; some citizens even freely departed the cities of Miskolc, Kassa, and Buda and, trading space for time, made their way to Eger to fight again at Eger (Gardonyi, 1991 [1901]). The defenders had the ability to depart the region, either through the front gates per the Ottoman message or through the existing tunnels beneath the castle, yet they remained and continued fighting. So, too, did the Hungarians generally, for another decade.

6.3.7 Conclusion

This case represents an instance in which a state in a high-danger situation experienced an escalate-to-deescalate strike that resulted in low levels of damage to a low-value target. As anticipated by my theory, the response by the defenders was to continue fighting. Though there was opportunity to depart the region, the defenders remained and repulsed the Ottoman invaders following the escalate-to-deescalate sapper strikes. The Hungarian leadership mirrored the Eger

defenders and continued resisting the Ottoman push for years after the siege. **Table 6.3** summarizes the key elements of this case study.

Table 6.3: Siege of Eger, 1552

Firebreak:	Siege weapons and employment of sappers to dig mines under the fortified castle.
High-Danger Situation:	Contested lands, inherited conflicts, external pressures, and persistent danger from the Ottoman Empire. Limited resources available for the defense of Eger.
Low-Value Target:	Small village of nonstrategic value.
Low-Damage:	Estimates include only 300 dead Hungarian defenders, many of whom were civilians – and insignificant to national Hungarian leaders, compared to 8,000 dead attacking Ottomans.
Continued Fighting:	The peasants improvised with materials found in the castle, and even repurposed Ottoman shells to return fire and repel the considerably larger force.

6.4 Second Battle of Ypres, 1915

During the First World War, forces from Entente and Central Powers faced off near western Flanders, Belgium, engaging in trench warfare, with neither side gaining significant advantage. The opposing sides attempted to acquire the territory for their own strategic advantage during the Second Battle of Ypres. In an escalate-to-deescalate attempt to break the stalemate, German forces deployed the first major use of chlorine gas, dispersed from 5,730 cylinders along a six-kilometer front at Ypres at five o'clock in the evening on 22 April 1915 (Cook, 1999; Spiers, 2017; Gregory & Peniston-Bird, 2018).²⁴² Favorable winds swiftly moved the 160 tons of chlorine along the

²⁴² A comprehensive minute-by-minute accounting of the Second Battle of Ypres is available at: <http://www.greatwar.co.uk/battles/second-ypres-1915/index.htm>.

ground into the Entente trenches, “stripping the lining of the bronchial tubes and lungs” of the unsuspecting troops and ripping a hole in the Entente front (Harris, & Paxman, 2002, p. 4). Despite the unprecedented use of chemical warfare, the Entente forces rapidly closed the gap in their defenses and continued fighting against the Germans, consistent with my theory’s expectations.

6.4.1 Background and Conflict Situation

The infamous Second Battle of Ypres is an instance in which Germany resorted to a form of warfare in direct violation of established norms and legally binding torts, in open disregard for international order (Bull, 1977; Cassar, 2014; Shinohara, 2014).²⁴³ The Germans initiated the Second Battle of Ypres at five o’clock in the evening on 22 April 1915, and the fighting lasted until 29 May 1915 (Cook, 1999; Gregory & Peniston-Bird, 2018). The Entente forces, comprised of troops from Belgium, France, the United Kingdom, and Canada, fought to block Germany’s offensive.²⁴⁴ The brunt of this novel chemical attack fell primarily on the 45th Algerian (Colonial) Division and the 87th French Territorial Division, leaving the also-afflicted 1st Canadian Division to fill the gap in one of the First World War’s most selfless acts of heroism (Garrett & Hart, 2007;

²⁴³ The Second Battle of Ypres is often overshadowed by the more costly events in World War I. The 1 July 1916 Battle of the Somme, for instance, resulted in roughly 50,000 British killed in action on the first day of the battle, and is generally recognized as resulting in one of the highest casualty rates in the history of the British Army (Gregory & Peniston-Bird, 2018). The Hague Declarations of 1899 and 1907, to which Germany was a signatory, specifically outlaw the use of poison gas and projectiles with the asphyxiating or deleterious properties. Germany attempted to justify their use, stating that the “letting loose of smoke clouds, which, in a gentle wind, move quite slowly toward the enemy, is not only permissible by international law, but is an extraordinarily mild method of war” (Edmonds & Wynne, 1927; SIPRI, 1971, p. 232; Cassar, 2014).

²⁴⁴ While Belgium initially attempted to remain neutral and invested little of its gross domestic product into the military, the king of Belgium and his son fought in the trenches, taking personal command of the army to liberate the country and reestablish its independence. The Belgian king and his army held their ground approximately ten miles to the north of Ypres at the Battle of the Yser, and were largely spared from the impact of the chemical weapons, although the same cannot be said for civilians living around the town of Ypres (Velaers, 2017).

Travers, 1996).²⁴⁵ This battle is of particular significance to Canada, as it represents “the first time a Canadian army defeated a European one on the battlefield and because the battle inspired John McCrae’s poem *In Flanders Fields*” (Gregory & Peniston-Bird, 2018, p. 572). Subsequent attacks with chemical weapons by the Germans attempting to take Ypres also impacted Canadian forces, though those attempts also failed to break the stalemate.²⁴⁶

Germany sought to dislodge the Entente forces entrenched at Ypres with chemical weapons (Cook, 1999). Starting on 22 April 1915, the Second Battle of Ypres represented one of the “longest and bloodiest engagement on the western front in 1915” (Cassar, 2014, p. xi). Fritz Haber, head of the German Ministry of War’s Chemistry Section, “convinced the German Kaiser to use chlorine gas to end the war quickly” (Harigel, 2001, p. 2). Haber noted that the use of chlorine gas would bring about “the end of the war and would save lives in the long run” (Cassar, 2014, p. 31).²⁴⁷ The 5,730 emplaced cylinders of chlorine gas were released “along a 3.75-mile front, mainly opposite the French 87th and 45th Divisions” (Cassar, 2014, p. 32). The Germans hoped the gas would create a wedge in the Entente forces, allowing Germany to advance a mile and a half and secure a bridgehead at Pilckem Ridge (Cook, 1999; Cassar, 2014).²⁴⁸ The German General von Deimling hoped the use of gas irritant “would bring a successful conclusion to the deadlock

²⁴⁵ The 13th Canadian Infantry Battalion was closest to the hole created by the initial gas attack and, under the leadership of then-Lieutenant Colonel Frederick Oscar William Loomis (no known relation), managed to hold the critical ground and keep the Germans from exploiting their escalatory chemical attacks. Credited with steady and courageous leadership during the Second Battle of Ypres, Loomis was promoted to the rank of brigadier-general and, by 1919, he held all divisional commander’s expected decorations, including being made an officer in the Legion of Honour, a companion of the Order of St Michael and St George, and a knight (KCB). More revealingly, he was granted the Distinguished Service Order twice for his gallantry and brilliant leadership at the battle of Ypres (Brennan, 2002, 2018).

²⁴⁶ On the night of 17 August, for example, roughly 15,000-20,000 mustard gas shells detonated on the Canadian batteries (Walthert, 2010).

²⁴⁷ With the trench war stalemate, Haber anticipated “that chemical substances, in addition to high explosives” could “drive the enemy from casemates, dug-outs, and trenches” bringing about a panic on the side of the defenders (Haber, 1986, p. 24).

²⁴⁸ Over a mile of territory is massive in a war in which gains were previously measured in yards, with “tens of thousands of men within a mile of each other, but not one person ever seen above the ground” (Cook, 1999, p. 17).

on the Western Front,” noting that, “if these poison gases were to bring about the fall of Ypres, perhaps the victory would decide the whole campaign” (Lee, 2009, p. 7). Similarly, Haber argued that the trench warfare had brought the belligerents to deadlock. The effective use of chemical gas, he noted, would save countless human lives and bring the war to a rapid end (Tucker, 2006). Trench warfare had effectively deadlocked both sides. The use of novel gas, the Germans chemists believed, “could produce temporary and local demoralization, useful [in] trench warfare,” resulting in the Entente forces abandoning their defensive positions (Haber, 1986, p. 264). That is, the dispersal of gas would provide the impetus for the Entente to initiate a tactical capitulation out of a fear of future strikes. Gas, if employed properly, was thus thought likely to result in the Entente abandonment and capitulation of contested areas, thereby allowing German infantry to advance and secure key objectives – ultimately creating conditions ideal for a German victory over the Entente (Haber, 1986; Harigel, 2001; Cassar, 2014).

The Entente forces, having received intelligence reports from their headquarters and from German prisoners of war about the impending use of chemical gas, largely concluded “that the rumors were baseless and were intended to inspire terror among the [Entente] troops” (Cassar, 2014, p. 32).²⁴⁹ Edmond Ferry, the French divisional commander did take heed of the reports, however, “ordering his troops to thin out their ranks in the front-line trenches to reduce casualties” in the event gas was utilized (Lee, 2009, p. 10).²⁵⁰ Canadian and British commanders in the 1st Canadian and British V Corps also discussed alerting their medical officers and placing them on a

²⁴⁹ Personal reflections note that leadership did not comprehend the threat of gas. Canadian Major Victor Odum recounted later that, “We couldn’t visualize an attack with gas, we could not guess where the gas would come from or how we could recognize it when it did come, and we did not know what were the necessary precautions” (Cook, 1999, p. 19).

²⁵⁰ Ferry also notified his higher corps and army commanders, in addition to the British 28th Division and the two Canadian divisions about the possibility of German gas. In turn these military leaders provided the warnings to French Generals at Headquarters and to the King of the Belgians (Lee, 2009).

heightened state of alert (Lee, 2009).

The battle began with Germany releasing chlorine gas against the dug-in Entente forces. The thick green cloud of chlorine drifted, “four miles wide and a half a mile deep,” across no-man’s-land with the densest portion of gas passing through the 45th and 87th French Divisions to the left of the Canadian sector (Cook, 1999, p. 20). The afflicted French divisions, “Taken by surprise and with no protection against the new horror... retreated in panic, opening a gap of over four miles in the [Entente] line” (Cassar, 2014, p. xi). Facing this unprecedented terror,

The hapless Zouaves and Algerians stood no chance. As the gas rolled over their trenches, they choked and gasped for breath, feeling a stabbing pain in the chest, with some vomiting a yellow substance and others staggering, falling, and rolling on the ground in their death throes. A number unknowingly sought relief by lying facedown at the bottom of the trench where the gas (being heavier than air) was in its most concentrated form and suffocated to death within minutes. The rest, half-asphyxiated, dazed, their purple-colored features grimacing in pain, threw away their rifles and equipment and took to their heels (Cassar, 2014, p. 33-34).

The French soldiers sought escape from the gas throwing themselves into the Canadian trenches, “struggling for breath and grunting Asphyxiate! Asphyxiate! [sic]” (Cook, 1999, p. 21). The rapid departure of the French divisions created a gap in Entente defenses that extended almost four miles, leaving the Canadian division open to German attack (Cassar, 2014).

Canadian soldier Percy Leland Kingsley describes the events of 22 April 1915 as he recalled them:

They turned the gas on the French [Algerian] troops, who held the trenches on our left, and they retired in disorder leaving 4,000 yards of the line open, and this left the Canadian division cut off. We extended at right angles to our line, and blocked the German advance. It was here that our boys were gassed badly, and it was here that 8,000 of us held 60,000 Germans for 22 hours without supports, and under the most terrific shellfire during this war. Just fancy shells of all kinds bursting over and around at 100 per minute and you will have some idea of it. It is marvelous how anyone ever lived under it (Carthy, 2005, np).²⁵¹

²⁵¹ The Canadians were subsequently attacked with chemical weapons on 24 April 1915, “which they faced with only rags or handkerchiefs soaked in urine or water as improvised respirators. Gasping, their eyes running, struggling to

6.4.2 Entente Danger Situation

The Entente forces were in a high-danger situation following the escalate-to-deescalate strike. In this instance there was no danger of the populace rising up in an insurrection against the Entente leadership or of the Entente military forces staging a coup. The populace in the Entente nations were largely supportive of their leadership and many actively volunteered for military service to defend their homelands or to support their neighbors (Creel, 1917; Breen, 1984; Bell, 1996). There was, however, a very real possibility of conquest by the Central Powers. This fact is readily evident, as Germany was already occupying parts of French and Belgian sovereign territory and seeking to acquire more (Edmonds & Wynne, 1927). The Entente “found themselves thrown onto the defensive and battered by powerful German attacks” (Lee, 2009, p. 3). At this stage, Germany was already occupying parts of northern France and most of Belgium territory. As John Lee notes, for the Entente “to abandon this last corner of Belgium to the invader would have been intolerable and damaging to [Entente] prestige throughout the world” (Lee, 2009, p. 1).

More dangerously, the release of chlorine gas resulted in two French divisions fleeing a critical defensive juncture, leaving open, albeit momentarily, an avenue directly to Paris (Edmonds & Wynne, 1927; Duguid, 1938; Cassar, 2014). This opening, if exploited, might very well have allowed the conquest of the Entente nations.²⁵² As it unfolded, however, the Entente forces, and specifically that of the Canadian 13th Highlanders Battalion, rapidly closed the vacated lines. George Cassar explains,

Hugely outnumbered and outgunned and with ranks thinning, McCuaig’s Highlanders

breathe and see, the Canadians fought and died amid the swirling gas cloud but, incredibly, managed to hold the line” (Cassar, 2014, p. xi).

²⁵² As Canadian Colonel Archer Fortescue Duguid recalls, those fleeing the gas recognized the danger from the gas as stragglers from the French 87th Territorial Division arrived in the rear area clutching their throats, gasping for breath, and sobbing, “Pauvre France! Pauvre Paris! – Poor France! Poor Paris!” (Duguid, 1938, p. 229).

refused to budge. About eight hundred yards in the rear two platoons of C Company, 13th Battalion, fought tenaciously until practically wiped out. Nearby a Canadian Field Battery was brought into action, raining exploding shells on Germans making for St. Julien and compelling them to retreat after their ranks had been shredded (Cassar, 2014, p. 36).

The rapid response by the Canadians is heralded as the primary reason the Entente forces were able to repulse the German advance following the four-mile break in their defensive lines (Edmonds & Wynne, 1927; Duguid, 1938; Harris, & Paxman, 2002; Cassar, 2014). In short, the overall danger situation, through threat of conquest, was high.

6.4.3 The Value of Ypres

The strategic importance of the Entente defenses at the Battle of Ypres places this case in the high-value category. The conflict area around the town of Ypres, rather than the town itself, is considered high value. Ypres was strategically important to the British “because of its role in protecting the Channel ports” (Gregory & Peniston-Bird, 2018, p. 572). An official British military history of 1915 notes, “the villages on the actual battlefield were no more than a few cottages bordering the road passing through them;” it was the passage to central France these defenses protected that were of value (Edmonds & Wynne, 1927, p. 175; Duguid, 1938).²⁵³ To the King of Belgium, fighting alongside his entrenched forces, Ypres represented a remaining piece of sovereign territory, as Germany was already occupying much of the Belgian east of Ypres (Hilmas, Smart, & Hill, 1997). Possessing Ypres would also provide Germany with an elevated fighting position and control over all the major roads into theater.

²⁵³ The Battle of Ypres took place at a salient between four to eight kilometers outside of the actual town (Stichelbaut, et. al., 2017).

6.4.4 Damage to Entente Forces

The damage the Entente forces suffered during the escalate-to-deescalate strike was low. Unlike the Battle of Wuhan or the Battle of the Marshes, this chemical attack did not result in the loss of capability on the side of the Entente forces. The German use of nonpersistent chemical agents at the Battle of Ypres only provided a small and transitory gain. Granted, those forces exposed “turned as quickly as their tortured bodies would allow,” as the release of gas “was too novel an experience for any ‘doctrine’ to have developed” (Lee, 2009, p. 20). Recognizing the gap in the line created by the chlorine gas, however, the forces to the left and right responded with traditional tactics in trench warfare and worked to interlock their fields of fire and maintain their defensive front (Harris, & Paxman, 2002; Lee, 2009; Cassar, 2014).

In contrast to the Battles of Wuhan and the Marshes – where persistent nerve agents were used – the troops at the Battle of Ypres held their ground and closed the gap as the nonpersistent gas dissipated. While persistent agents, like nerve agents, are highly toxic and remain in the environment for considerable periods upon release, nonpersistent agents, as a class, evaporate and disperse as rapidly as 15-20 minutes after release leaving no lingering hazards (DoD, 1996; Garrett & Hart, 2007; Ganesan, Raza, & Vijayaraghavan, 2010). As a nonpersistent agent, the chlorine gas released during this attack dissipated in a matter of minutes with the wind.²⁵⁴ Accordingly, the three cases involving chemical weapons as a firebreak had much different outcomes. The gas was released at 5:00pm on 22 April 1915 and the Germans advanced in the wake of the cloud at 5:15pm, settling into the vacated French trenches. The British and Canadian divisions swiftly

²⁵⁴ A German chemical engineer notes the gas spread toward the French upon release, bringing retaliatory gunfire as the cloud approached the trenches, within fifteen minutes the firing became sporadic, “after a half hour, only occasional shots were heard. Then everything went quite again” (Hill, 1997, p. 81).

formed flanks to stop the advance and, by 8:00pm, formal Entente counterattacks began (Hill, 1997; Harris, & Paxman, 2002; Lee, 2009).

There were some isolated areas in which the effects of the gas lasted longer than in the trenches along the front. Brigadier General Edmonds and Captain Wynne (1927) note in their *History of the Great War: France and Belgium, 1915* that the chlorine gas affected the front-line troops differently based on their reactions. Those that fled with the wind endured the greatest impacts. They highlight this difference stating:

It early became evident that the men who stayed in their places suffered less than those who ran away, any movement making worse the effects of the gas, and those who stood up on the fire step suffered less – indeed they often escaped any serious effects – than those who lay down or sat at the bottom of a trench. Men who stood on the parapet suffered least, as the gas was denser near the ground. The worst sufferers were the wounded lying on the ground, or on stretchers, and the men who moved back with the cloud (Edmonds & Wynne, 1927, p. 178).

These instances were sufficiently few, however, that they do not merit changing the overall coding of damage from low to high.

It is difficult to accurately ascertain the direct damages, in terms of soldiers killed and wounded, attributable to the chemical weapons. The novelty of the gas, coupled with the shell shock, or traumatic neurosis, by those experiencing life in the trenches and the rapid fluctuation of the battle resulted in varying reports of casualties with afflictions attributed to myriad causes (Edmonds & Wynne, 1927; Cook, 1999; Leese, 2002; Lee, 2009; Spiers, 2010).²⁵⁵ A common casualty estimate of the initial release of chlorine gas is approximately 5,000 killed and another

²⁵⁵ The US Army's *Textbook of Military Medicine: Military Aspects of Chemical and Biological Warfare*, for example, notes that "the exact number of injuries and deaths are unknown" (Urbanetti, 1997, p. 248). Tim Cook notes that there is "no way to quantify accurately the number of men affected by the gas cloud, or how many finally succumbed, because there was no way to count during the chaos of battle. Some historians have remarked that the gas casualties at 2nd Ypres included 5,000 dead and another 10,000 wounded, but that is a serious exaggeration. On the other hand, the figures must surely be higher than the number given by German doctors, who for propaganda reasons claimed they came across fewer than a dozen gassed men" (Cook, 1999, p. 33).

10,000 wounded (Harris & Paxman, 2002; Spiers, 2010; Cassar, 2014). In this instance, the damage from chemical weapons was low, comparatively, to the deaths and injuries associated with the remainder of the Second Battle of Ypres. At the conclusion of the Second Battle of Ypres, 59,000 British and Canadian soldiers died in addition to an estimated 22,000 French soldiers (Roy & Foot, 2006). In contrast with the Battle of Wuhan in which over 100,000 Chinese were killed or wounded from chemical weapons, there are only 15,000 such casualties in the Second Battle of Ypres (SIPRI, 1971; Harris, & Paxman, 2002; Clodfelter, 2008; Spiers, 2010).

While the Germans successfully created a gap roughly four miles wide in the Entente defenses, “no strategically decisive breakthrough was attempted or achieved” (Trumpener, 1975, p. 460). While the Canadians “had been lucky enough to miss the full force of the enemy’s gas, they had been victims of the first gas cloud attack; yet they had not broken and run but rather had counterattacked and prevailed” (Cook, 1999, p. 24).

6.4.4.1 Normal Level of Operations and Recuperation Time

The Ypres salient was simply a geographical position where the topography offered a defensive line for the Entente to excavate the ground into defensive fighting positions to keep the Germans at bay (Edmonds & Wynne, 1927; Stichelbaut, et. al., 2017). The trench systems began before the First Battle of Ypres (19 October to 22 November 1914) as nothing more than foxholes or slit trenches, and evolved into fortified defensive positions with communication trenches behind them (Edmonds & Wynne, 1927; Yorke, 2014; Stichelbaut, et. al., 2017). The landscape was untraversable as a result of the continual shelling during the Second Battle of Ypres and the subsequent Third Battle of Ypres (31 July to 10 November 1917), forcing travelers to utilize the “extensive [Entente] network of (plank) roads and duckboard tracks” (Edmonds & Wynne, 1927; Stichelbaut, et. al., 2017, p. 246). The passage of time and the elements would largely restore the

area to its pre-war condition. The chlorine gas, being denser than air, settled in the low-lying areas in thicker concentrations, but dissipated in relatively short order, as it not a persistent agent (Urbanetti, 1997; Spiers, 2010).

In a similar fashion, the damage to the Entente forces was readily absorbed by the available pool of reserve forces from the contributing nations (Edmonds & Wynne, 1927). The French forces suffering the brunt of the chlorine strike rushed away from the cloud of gas, generally to the rear of the battle and closer to the Entente-controlled areas with battlefield hospitals and the reserve troops (Cook, 1999; Leese, 2002). The Canadians, with forces closest to the release of the chlorine gas, possessed an ample supply of reserves to augment the loss of French forces. With the artillery guns of the 10th Canadian Battery, the Canadian forces stopped the German advance at 6:30pm with additional Canadian reserve battalions moving into line at 7:10pm (Edmonds & Wynne, 1927). In addition to the 13th Canadian Battalion, the 14th and 15th Canadian reserve battalions immediately moved forward from St. Julien to retake the area. The 4th Rifle Brigade of the 17th Canadian Division “took action without waiting for orders, so that already parts of their reserves were on the move” to reinforce the line (Edmonds & Wynne, 1927, p. 180).

6.4.5 The Response

The Entente forces responded with continued fighting and continual counterattacks following the German escalate-to-deescalate strike. The immediate response by the French divisions was to flee the area as the chlorine gas flowed into the trenches, turning to acid with the contact of the moisture in the soldiers’ eyes, nose, and mouth (Smart, 1997; Harigel, 2001; Garrett & Hart, 2007). The response by the 3rd Canadian Brigade adjacent to the departed French forces, however, was to hold the line and close the gap at all costs – at task which the 13th Canadian

Battalion heroically performed (Edmonds & Wynne, 1927). The day following the chlorine release, “the British had leisure to improve their position, and could even, with such small forces as might be collected, proceed to counterattack” (Edmonds & Wynne, 1927, p. 195). The Entente forces began counter-operations the night of 22 April 1915 and continued throughout May. The final counterattacks by the 80th and 84th Brigades on 25/26 May 1915 and the 8th and 85th Brigade on 28/29 May 1915 were met without a heavy German response (Edmonds & Wynne, 1927; Cassar, 2014).

Following the release of the chlorine gas, Lieutenant General Edwin Alderson, the Commander of the Canadian Expeditionary Force, and General Henri Putz, Commander of the 87th Territorial and 45th Divisions, agreed to launch a counterattack with concerted efforts against the German position (Cassar, 2014). The Canadians fixed bayonets and advanced toward the German line. Upon making contact with the Germans, the Canadians surged forward into the trenches, showing no mercy and engaging in hand-to-hand fighting. Those who attempted to surrender were not spared, and the Canadians “bayoneted the Germans who remained in the trench and chased the balance who had made for the wood in the rear of the trench” (Cassar, 2014, p. 40). The commander of the Canadian 16th Battalion, Lieutenant Colonel Edward Leckie, wrote “the counterattack had given the Germans a holy scare and checked their advance” (Cassar, 2014, p. 41). Field Marshal Sir John French, the Commander-in-Chief of the British Expeditionary Force, concurred with the decision for rapid counterattacks and provided available reserve battalions to drive the Germans back (Cassar, 2014).

The Canadians launched savage counterattacks while simultaneously establishing a defensive flank. The Germans heavily shelled the new trenches as the Canadians fought to hold their position, dug in, returned fire, and refused to retreat. Assaulted on all fronts,

The men of the devastated Canadian Division grimly clung to their positions, even though they had endured the terrible confusion induced by two gas clouds, piecemeal counterattacks, the destruction of their lines of communication, and fighting against overwhelming forces while having their lines incessantly shelled (Cook, 1999, p. 29).

French reserves contributed to repelling the Germans, and “launched localized counterattacks and succeeded in capturing part of the German trench system, which they incorporated into their own field defenses” (Stichelbaut, et. al., 2017, p. 239). The Canadian artillery supported French forces with a barrage of fires, with one artillery officer claiming “he heard more shells fired in one hour than he had witnessed in the whole of his service in the Boer War” (Lee, 2009, p, 23). In addition to these responses of continued fighting, “the commanders of the 28th and 27th British Divisions had already begun measures without waiting for any instruction from above” to recover the lost position (Lee, 2009, p. 25).²⁵⁶

In this instance, the Entente – facing a high-danger situation fostered by Germany’s potential conquest of Belgium and France – responded to an escalate-to-deescalate strike against a target of high value sustaining low-damage with continued fighting. This response aligns with my theory.

6.4.6 Alternative Explanations

The alternative explanation in this case is that the Entente forces only responded to the escalate-to-deescalate strike with continued fighting because they did not possess a means of counter-escalation. Certainly, in April 1915, the Entente forces did not have chemical weapons

²⁵⁶ John Lee notes there is an “accepted military wisdom that an immediate counterattack, carried out with rapidity, determination and courage, can often, or even invariably, ‘bounce’ and enemy out of a newly won position before he has time to consolidate” (Lee, 2009, p. 27).

available for a counter-escalatory response (Hilmas, Smart, & Hill, 1997).²⁵⁷ The Entente forces did possess, however, large- and small-caliber artillery, howitzers, trench mortars, hand and rifle grenades, and machine guns (Cook, 1999; Yorke, 2014). They utilized all of these in counterattacking the Germans. The very nature of trench warfare, however, hindered the effective use of artillery apart from when troops attempted to cross open space (Yorke, 2014).²⁵⁸ During such attempts, as on the evening of 22 April, field batteries were “brought into action, raining exploding shells on Germans making for St. Julien and compelling them to retreat after their ranks had been shredded” (Cassar, 2014, p. 36). All of this notwithstanding, it is important to note that a response of counter-escalation would have also been in line with my theoretical expectations for a struck state responding to these conditions.

6.4.7 Conclusion

As unprecedented as this chemical attack was, the Germans failed to capitalize on the success. Some claim the Germans “bungled the strategic potential of poison gas at Ypres,” failing to anticipate the disarray, and achieving “only a limited tactical success” (Spiers, 2017, p. 153). The Entente forces had ready reserves available to shift to the temporary break and rapidly closed the defensive line (Lee, 2009). The chlorine gas used was nonpersistent and therefore had no long-term implications for the region. Coinciding with my theory, the Entente forces readily closed the break in their defensive lines and continued fighting in response (Smart, 1997; Harigel, 2001;

²⁵⁷ The Entente forces recognized the utility of chemical weapons and began planning a chemical retaliation weeks after the Second Battle of Ypres, launching a chlorine attack of their own in September 1915 at Loos, Belgium (Hilmas, Smart, & Hill, 1997).

²⁵⁸ Treavor Yorke writes that the major offenses along the Western Front, such as at the Second Battle of Ypres, initiated with artillery bombarding enemy trenches followed by infantry soldiers with fixed bayonets. Often the infantryman “would find that only superficial damage had been caused by the shelling” (Yorke, 2014, p. 49).

Spiers, 2017). **Table 6.4** summarizes the key elements of this case.

Table 6.4: Second Battle of Ypres, 1915

Firebreak:	Chemical weapons used to dislodge Entente forces from defensive positions.
High-Danger Situation:	Very real danger of conquest by the Central Powers. Large portions of French and Belgian sovereign territory already under control of the occupying forces.
High-Value Target:	Strategically important sector, the loss of which would allow free passage directly to Paris and central France. Possessing Ypres would provide Germany with an elevated fighting position and control over all the major roads.
Low-Damage:	Nonpersistent gas afflicted only those in low-lying areas or those fleeing with the wind. The scattered French troops were readily backfilled with the available reserve units.
Continued Fighting:	The Entente forces continued fighting, launching counterattacks on German trenches and reinforcing their defensive lines with available reserves of Entente forces.

6.5 The Missing Case of High-Danger, Low-Value, and High-Damage

Overall, there are relatively few historical instances of escalate-to-deescalate strikes. As a result, the universe of cases available for analysis in this dissertation is small. In this universe, I was unable to discover a strike in which a low-value target was hit and, by inflicting high levels of damage, it put the targeted state in a high-danger situation.

After reviewing several existing datasets and other resources detailing modern warfare, including the Correlates of War Project’s “Inter-State War Dataset v.4.0,” Michael Clodfelter’s (2007) reference book, *Warfare and Armed Conflicts: A Statistical Encyclopedia of Casualty and Other Figures, 1494-2007*, even the newer dataset, “Belligerents in Battle: 1900-2003,” compiled by Rosella Zielinski and Ryan Grauer (2022), there are no obvious candidates. There are several

plausible reasons for this absence of cases. First, escalate-to-deescalate strategies are not often employed as a military tactic. There are other military and diplomatic strategies that a state may employ to bring about an end to a conflict on potentially beneficial terms. Second, almost by definition, an escalate-to-deescalate strike against a low-value target is unlikely to result in a high-danger situation. Certainly, there are other factors that could result in the struck state being in a high-danger situation. However, it is not likely that the escalate-to-deescalate strike against a low-value target alone will place the state in such a situation. The responding state may be in a high-danger situation as a result of an internal threat, such as from that of a coup or insurrection. Similarly, a state could be in a high-danger situation prior to the escalate-to-deescalate strike as a result of earlier conquest by attacking nations.

Logically, it stands to reason that this particular combination of variables simply may not exist in the universe of cases. Escalate-to-deescalate strikes are not universally attempted as a specific strategy. Instead, states employ escalate-to-win strategies, wars of attrition, proxy battles, and engage diplomatically with both the targeted state and potential allies and partners to influence the outcome of the conflict.

6.6 Conclusion

This chapter addressed four instances of escalate-to-deescalate strikes. I examined two cases with a state in a high-danger situation and two cases with a state in a low-danger situation. This chapter included a variety of target values and damages sustained to those respective targets. Overall, the state response for each escalate-to-deescalate strike aligned with the response anticipated by my proposed theory. For example, Iran, in a low-danger situation, capitulated during

the 1984 Battle of the Marshes following the highly damaging strike against a target of low value. My theory suggests that, had the circumstances of the battle been altered slightly, Iran would likely have behaved differently. For example, I would anticipate Iran to continue fighting in this instance if the damage to the target was low instead of high. Conversely, I would anticipate that Iran would counter-escalate if the Marshes had been more valuable. Neither of these alternate conditions obtained, however, and, in line with my theoretical expectation, Iran capitulated in this instance. Importantly, however, it did so to trade space for time. Iran reconstituted its fighting forces and launched new offensives in the following year.

The other cases similarly fit my theoretical expectations. The US, responding to Germany’s resumption of unrestrained submarine tactics during the First World War, counter-escalated. Secure from internal insurrection, coup, or external conquest, the US had a target of high value struck with low damage. As my theory anticipates, the US hit back, hard. The defenders at Eger continued fighting in response to the Ottoman escalate-to-deescalate strike. In a high-danger situation in which a low-value target was struck with low damage, they did not capitulate. Similarly, the Entente forces, in a high-danger situation, continued fighting in response to Germany’s escalate-to-deescalate strike that inflicted low damage against a target of high value.

Table 6.5: Mini-Cases

	High-Danger Situation	Low-Danger Situation	High-Value Target	Low-Value Target	High-Damage Sustained	Low-Damage Sustained	Observed State Response
Battle of the Marshes			X		X	X	Capitulation
WWI U-Boat Campaign			X	X			Counter-Escalation
Siege of Eger	X				X		Continued Fighting
Second Battle of Ypres	X		X				Continued Fighting

The cases addressed in this chapter, depicted in **Table 6.5**, occurred as early as 1552 and as late as 1984, all while involving a wide array of governments, tactics, methods of war, and danger situations. The state responses in this chapter align with my predicted outcomes, indicating that baseline tendencies of states in high- and low-danger situations are reinforced, or altered, by the value of the target struck and the damage sustained to that target. The escalator's plausible demonstration of its willingness and ability to perpetrate additional compellent harm through the value of the target and the damage inflicted appears to provide a credible message to targeted states. The findings of the cases considered in this chapter thus indicate that my theory is robust across the spectrum of escalate-to-deescalate strikes. It is therefore reasonable to think it would be useful to employ this model in analyzing other historical and potential escalate-to-deescalate situations.

One striking point to note is that in only one instance did an escalate-to-deescalate strike achieve the desired state response of capitulation. In each of the other three cases considered in this chapter, the attacked state responded to the escalate-to-deescalate strike with either continued fighting or counter-escalation. This point is explored in greater detail in the final chapter. It aligns with Schelling's (1966) claim that possessing the power to hurt does not guarantee the success of an escalate-to-deescalate strategy.

7.0 Conclusions and Implications for Nuclear Escalate-to-Deescalate Strikes

In this dissertation, I sought to theorize and assess the viability of a low-yield nuclear escalate-to-deescalate strike as a means of compelling an adversary to capitulate in war.²⁵⁹ I did so not only because many nuclear states are increasingly developing the capabilities and doctrines necessary to conduct such strikes, but because 1) the United States' 2018 Nuclear Posture Review; 2) the Donald J. Trump administration's call for "the renewed development of flexible, low-yield nuclear weapons to deter the possibility of Russian nuclear aggression;" and 3) the American announcement of the new, ██████████ low-yield nuclear warhead, the W76-2, all seem to point to an increasing American willingness on the part of policy makers in Washington, DC, and commanders in the field to consider such strikes in future wars (Hyten, 2018; Mattis, 2018; Kristensen, 2020b; Taylor, 2022, p. 208).

Since I began working on this study, the significance of the question posed has only grown. At the time of this writing, the world is watching an unfolding war in Ukraine in which invading Russian forces are struggling to secure their stated objectives. More than six months into Russia's invasion, Moscow finds itself "with meagre territorial gains, an army in tatters and severe reputational damage, not to mention an economy buckling under some of the heaviest sanctions ever instated on a nation" (Mitzer & Oliemans, 2022, np). President Putin first rattled his nuclear saber on 24 February 2022, stating that Russia would impose historically unprecedented consequences on Ukraine. Russia then tested a new Sarmat nuclear-capable intercontinental

²⁵⁹ Soviet and Russian scholar Jacob Kipp notes the Russian escalate-to-deescalate concept "assumes the actual use of nuclear weapons to demonstrate resolve" in successfully bringing about the end of a conflict (Kipp, 2001, p. 29).

ballistic missile on 20 April 2022. On 27 April 2022, Putin threatened a lightning-fast retaliation against any country interfering in Russia's objectives or creating a strategic threat. These statements and actions have fostered concerns that Russia may utilize a low-yield nuclear escalate-to-deescalate strike to force a return to the status quo ante (Ross, 2018; Ryan, 2020; Allison, 2022; Sokov, 2022).²⁶⁰ Writing about the ongoing conflict in Ukraine, Graham Allison recently warned:

Ukraine is now unambiguously Putin's war, and the Russian leader knows that he cannot lose – without risking his regime and even his life. So as the fighting continues, if he is pushed to choose between making an ignominious retreat and escalating the level of violence, we should prepare for the worst. In the extreme, this could include nuclear weapons (Allison, 2022, np).

Just because nuclear weapons have not been used since 1945, their non-use is “not something we can ever take for granted” (Carter, 2016, np). There is always a chance a low-yield nuclear weapon will be used in a conflict, potentially in an escalate-to-deescalate strike to demonstrate resolve. Accordingly, it is essential to understand whether, and under what conditions, such strikes could achieve their intended ends.

My theoretical argument and the evidence reported in this dissertation suggests that escalate-to-deescalate strikes are likely to succeed only under specific circumstances. To understand why, it is helpful to remember that escalate-to-deescalate strikes are best understood as a form of compellence, the success of which is dependent on the threatener effectively communicating its willingness and ability to continue to inflict ever-greater levels of violence in the future if the threatened actor does not submit (Schelling, 1966).²⁶¹ Put differently, the intent

²⁶⁰ In a recent Stanford interview, scholar Scott Sagan called President Putin the most dangerous man in the world, claiming, “Putin could order the Russian military to drop a single nuclear bomb on a Ukrainian city to try to coerce the Zelensky government into immediately surrendering. This frightening scenario is not fanciful. It is, after all, effectively what the United States did to Japan in 1945” (DeWitte, 2022, np). Russia, according to NATO's 2022 Strategic Concept, “is modernising (sic) its nuclear forces and expanding its novel and disruptive dual-capable delivery systems, while employing coercive nuclear signalling (sic)” (NATO, 2022, p. 4).

²⁶¹ Richard Smoke's definition of escalation mirrors that employed here: “escalation is an action that crosses the saliency which defines the current limits of a war, and that occurs in a context where the actor cannot know the full

behind an escalate-to-deescalate strike “is to shock or otherwise stun opponents, making them realize the economic, political, and military costs they will pay for further aggression, but also to offer them off-ramps” (Kofman & Fink, 2020, np). This is a difficult task – much more difficult than simply escalating-to-win, which involves an escalator bludgeoning an opponent into a state in which it is unable to continue the fight and submits. Escalate-to-deescalate strikes communicate resolve and determination “through deed rather than by word” and seek to end conflicts by convincing the adversary to choose to give up, even if it has the capacity to fight on (Schelling, 1966, p.137; Kahn, 1984).

Against this backdrop of compellence, which is difficult to achieve in any setting, the danger situation faced by the attacked state, the value of the target struck by the escalator, and the damage inflicted by the strike all further complicate the probabilities that any given escalate-to-deescalate strike will succeed. If a state’s danger situation makes it inclined to capitulate and the escalator’s strike effectively conveys its willingness and ability to continue inflicting greater levels of pain in the future if the targeted state does not give up, then the escalate-to-deescalate strike may work. If, however, the targeted state is predisposed against capitulation and/or the escalator leaves room for doubt as to its willingness or ability to continue to inflict punishment, then the former may continue fighting or even counter-escalate in response.

This final chapter offers a summary of the findings previously outlined across the escalate-to-deescalate cases I examined in Chapters 3 through 6, representing the range of conditions under which responses to an escalate-to-deescalate strike are selected. I then discuss the concept of trading space for time, limitations in this research, implications for further scholarly research, and

consequences of his action, including how his action and the opponent’s potential reaction(s) may interact to generate a situation likely to induce new actions that will cross still more saliencies” (Smoke, 1977, p. 35).

potential policy implications. I end with final comments and thoughts on low-yield nuclear escalate-to-deescalate strikes.

7.1 Findings

Central to this dissertation is the question: *What conditions are necessary for a low-yield nuclear escalate-to-deescalate strike to achieve its intended response of capitulation?* To test my theory in a world in which such a strike has never been employed, I looked to the use of escalate-to-deescalate strikes in conventional conflicts. I surveyed the universe of escalate-to-deescalate cases and utilized a small-*n* comparative case method to assess the relationship between my three independent variables (the target state's danger situation, the value of the target struck, and the degree of damage inflicted on the target) and my dependent variable (the targeted state's response to the escalate-to-deescalate strike), as evidenced in the historical record. I exploited congruence testing and process-tracing to ascertain the degree to which the alterations in the independent variables drove decision maker's choices. The initial independent variable, the attacked state's danger situation, provides a baseline response tendency following the escalate-to-deescalate strike. The state is either in a high-or low-danger situation due to the risk of a civilian uprising, a military coup, or foreign conquest. The value of the target struck, and the subsequent damage, affirms or potentially alters the state's baseline response tendency. This is a result of the credibility of the message sent through the application of violence about the escalator's willingness and ability to inflict additional harm if capitulation is not forthcoming.

The findings of my case studies, reported in the preceding chapters, highlight the difficulty of achieving success with escalate-to-deescalate strikes. In the cases studied in this dissertation,

escalate-to-deescalate strikes rarely worked, as the requisite conditions for success themselves are both rare and difficult for the escalator to foment on their own. Targeted states' danger situations are often conditioned by characteristics internal to the state rather than the threat posed by the escalator. The violent messaging conveyed by striking particularly high- or particularly low-value targets, and the resultant high or low levels of damage is inevitably noisy and messy. Perhaps unsurprisingly, then, escalate-to-deescalate strikes are difficult to effect successfully.

Chapter 3 examined the 1938 Battle of Wuhan, in which China capitulated after a Japanese escalate-to-deescalate strike using chemical weapons (Yoshimi & Matsuno, 1984; Grunden, 2017). China was not in danger of imminently succumbing to Japan's attempt at hegemony or its politico-military dominance. China's military and its citizens largely supported the Chinese government's attempt to prevent the Japanese territorial conquest (Long-hsuen & Ming-kai, 1971). The target, the high-value strategic city and war-time capital of Wuhan, suffered high damage in the form of destruction of over 70% of its industrial capacity and the relocation of 43% of its population (MacKinnon, 2008; Paine, 2012). Facing a low-danger situation but having a high-value target struck with high damage, China traded space for time. The Chinese leader, Chiang Kai-shek, used the time secured through tactical capitulation at Wuhan to shift combat forces into the interior of the country, train and equip them, increase their combat effectiveness, and modify China's military engagement strategy to target Japan's overextended logistical lines (Williamsen, 1992). Chiang emphasized that the tactical capitulation was temporary, noting that the pivot "must not be mistakenly viewed as a military reverse or retreat;" rather, it had to be seen as a turning point in the conflict that allowed the Chinese to ensure the survival of the nation (Eastman, 1984, p. 133-134). As a state in a low-danger situation, my theory suggests China would have been inclined to capitulate at Wuhan, no matter what. That the Japanese sent a credible message about

their willingness and ability to inflict future pain by hitting a high-value target quite hard reinforced the strategic attractiveness of capitulation for China.

Chapter 4 examined the initial escalate-to-deescalate strike of Operation Rolling Thunder-5 in 1965. In this case, North Vietnam, enjoying a low-danger situation with broad support from its military and civilian populace, faced an escalate-to-deescalate strike in the form of an air power strike against the Ho Chi Minh Trail, a low-value target (Prados, 1999, 2009). The resultant damage was also low and did not interfere with North Vietnam's operations or its freedom of maneuver (Van Staaveren, 2002). As a result, North Vietnam continued fighting; it was not compelled to capitulate in the face of escalatory strikes (Prados, 1999, 2009; Frankum, 2006; Tin, 2006). In this case, North Vietnam, as a low-danger state, deviated from its baseline tendency of capitulation because the American escalate-to-deescalate strike did not provide credible evidence of the United States' willingness or ability to inflict significant levels of future harm. It had no need to trade space for time.

Chapter 5 examined Operation Meetinghouse, executed in 1945. In this instance, Japan counter-escalated in response to the United States firebombing its capital city with 1,665 tons of incendiary explosives (LeMay & Kantor, 1965). Embroiled in a lengthy war, Japan was in a high-danger situation, with the very real threat of impending conquest. The capital city, a high-value target, had a population of over 7 million people (LeMay, 1945). The US firebombing destroyed 16 square miles of the city, killing 80,000-130,000 individuals (LeMay & Kantor, 1965; Tillman, 2007). In response to this situation, seeing no opportunity to trade space for time to achieve a preferred outcome, Japan counter-escalated with kamikaze special unit missions in a desperate bid to change the course of the war (Lacey, 2015). My theory holds that a state in a high-danger situation, seeing no opportunity to trade space for time, is likely to either continue fighting or

counter-escalate. Japan counter-escalated because the brutal American strike against a very high-value target credibly communicated its willingness and ability to push harder and allow the Japanese no quarter in the future, thereby eliminating the option of continued fighting, since such an approach would only serve to heighten the danger to the regime (Feifer, 1992; Skaine, 2013).

Chapter 6 addressed cases conforming to the other combinations of my three independent variables, ranging from high-danger situations with low- and high-value targets and levels of damage to low-danger situations with low- and high-value targets and levels of damage. Collectively, the cases covered escalate-to-deescalate strikes executed in a broad range of eras, with a variety of tactics and weapon systems, and by and against states with different governance systems. They also featured a variety of responses to the escalate-to-deescalate strikes. In each case, the state response was that which my theory expects, given the targeted state's danger situation, the value of the target struck in the escalate-to-deescalate strike, and the resultant level of damage from the strike. Despite reviewing multiple datasets and resources detailing modern warfare, I was unable to locate an instance in which a low-value target was hit and, by inflicting high levels of damage, it put the targeted state in a high-danger situation. This is explained by the realization that there are not only relatively few historical instances of escalate-to-deescalate strikes, rendering the universe of cases available for analysis small, but also few reasons why a would-be escalator would carry out a strike of that particular form.

In the aggregate, the findings from these case studies offer strong support for my theoretical claim. A state in a high-danger situation was apt to respond with continued fighting or even with counter-escalation, especially if the threat of future harm was credibly communicated, as this often left the struck state in the position to "gamble for resurrection" (Downs & Rocke, 1994, p. 362). Japan's response to Operation Meetinghouse is the case in point for a state in a high-danger

situation responding to an escalate-to-deescalate strike against a high-value target with resultant high-damage. The Siege of Eger provides an example where a high-danger state continued fighting when responding to a strike against a target of low value with similarly low damage. The Entente's response to Germany's use of chlorine gas also provides an instance in which a state in a high-danger situation adhered to its baseline tendency and continued fighting when a high-value target was struck with only low damage. In instances in which the attacked state was in a low-danger situation, it tended to capitulate, albeit only tactically, provided the escalator demonstrated an ability to credibly damage future targets. This dynamic was evident in the Battle of Wuhan and the Battle of the Marshes. In instances in which the attacked state was in a low-danger situation, but the escalator did not demonstrate the ability to inflict high levels of future pain, the former went against type and did not trade space for time. The North Vietnamese response to Operation Rolling Thunder-5 and the US's response to a resumption of unrestricted submarine warfare are the cases in point. **Table 7.1** summarizes the case studies reported in this dissertation, highlighting the theoretically relevant conditions effected during the escalate-to-deescalate strike, the target state response, and the ability of my theory to account for what is observed in the historical record.

Table 7.1: Escalate-to-Deescalate Case Studies

	High-Danger Situation	Low-Danger Situation	High-Value Target	Low-Value Target	High-Damage Sustained	Low-Damage Sustained	Observed State Response	Corresponds w/ Theory
Battle of Wuhan			X	X		X	Capitulation	X
Rolling Thunder			X		X		Continued Fighting	X
Meetinghouse	X			X		X	Counter-Escalation	X
Battle of the Marshes			X		X	X	Capitulation	X
WWI U-Boat Campaign			X	X			Counter-Escalation	X
Siege of Eger	X				X		Continued Fighting	X
Second Battle of Ypres	X			X			Continued Fighting	X

7.2 Capitulation, or Trading Space for Time

In five of the seven case studies considered in this dissertation, the escalate-to-deescalate strike resulted in continued fighting or, even worse for the escalator, counter-escalation. This fact in itself suggests that escalate-to-deescalate efforts are fraught with peril for those who would attempt them. That the two instances in which the escalate-to-deescalate strike successfully resulted in capitulation featured the targeted state retreating solely to trade space for time, rather than to end the war, should give even more pause. At the Battle of Wuhan, Chinese forces withdrew to consolidate forces and preserve strength. Chiang was explicit in noting that the pivot was not a military retreat (Eastman, 1984). By moving his command further to the interior, where Japanese forces would have a longer logistical tail that the Chinese could target, Chiang merely altered his approach (MacKinnon, 2006, 2008; Paine, 2017). At the Battle of the Marshes, Iran withdrew its forces “to restock munitions and acquire new weapons” (Razoux, 2015, p. 290). Iran had largely

reconstituted its forces by 1985, at which point it continued its fight against Iraq (Pelletiere, 1992; Wallechinsky, 2006; Ward, 2009).²⁶²

The French military general Napoleon Bonaparte recognized the importance of space and time as fundamental to a strategic calculation, noting that “strategy is the art of making use of time and space” (Chandler, 1966, p. 149). Military scholars S.W. Foote (1951) and Michael Jones (2020) also note that trading space for time is a common military tactic utilized as a delaying or defensive action to preserve strength and/or mobilize industry and forces. This tactic of trading space for time was employed by the US in Korea following a surprise attack by North Korea immediately into the war and a second US retrograde followed an attack by the Chinese near Manchuria (Foote, 1951). Arguably, the act of capitulation, at least in the cases studied here, was a strategic decision, making the utmost use of space and time to ensure the longevity of the state and best position it for attaining its preferred outcome.

As revealed in these cases, it seems likely that even a “successful” escalate-to-deescalate strike may only result in initial capitulation while the attacked state bides its time to reengage at a more advantageous moment.

7.3 Research Limitations

The findings from the assessed escalate-to-deescalate cases under study here appear robust, though there is a need for additional research to build upon what has been laid out in this

²⁶² Indeed, Iran grew its forces after the Battle of the Marshes. By 1986, Iran had acquired 300,000 Basijis – often only 14-years old – and provided them with expedited military training before sending them to engage in battle with entrenched Iraqi forces (Razoux, 2015).

dissertation.²⁶³ Such work will be challenging for a few reasons, however. First, there is a lack of historical escalate-to-deescalate cases from which to draw inferences, especially when compared to escalate-to-win attempts. This dearth is complicated further by the fact that historical sources are spotty in their coverage on relevant characteristics of escalate-to-deescalate strikes, the context of the strikes, as well as leaders' thought processes. Second, primary sources for potential escalate-to-deescalate cases are often recorded in foreign languages. For instance, many sources that would have been useful in documenting the cases under study in this dissertation were written in Chinese, Japanese, German, Hungarian, and Arabic, among other languages. Observations in this study were drawn from English scholars with expertise in the respective regions, and building on them will require additional linguistic expertise. Further, I also found it necessary to use nonofficial sources, including – in the instance of Eger – historical fiction, to aid in determining targets' values and damage sustained. This type of source material does not always perfectly reflect historical fact, and thus should be supplemented with deeper investigation of contemporary and official records.

Finally, utilizing a mixed methods approach could offer deeper insight into the requisite conditions necessary for obtaining capitulation from an escalate-to-deescalate strike. As this dissertation is purely qualitative, an expansion of the research through a mixed methods approach or a game theoretical model akin to Robert Powell's (1987) or Bruce Bueno de Mesquita, James Morrow, and Ethan Zorick's (1997) studies, among others, may offer unique perspectives.²⁶⁴ The findings of this research, while robust, are by no means definitive. This dissertation offers one

²⁶³ Complicating the issue of simplifying a state's response to an escalate-to-deescalate strike down to three variables ignores the important fact that war "is not a once-for-all decision – rather, it unfolds across time, with many opportunities to continue [increase] or reduce the level of conflict" (Downs & Rocke, 1994, p. 374).

²⁶⁴ These models focus on leader perceptions, uncertainty, and decision making during a crisis situation, which are all potentially fruitful extensions of my analysis of responses to escalate-to-deescalate strikes.

method of analyzing escalate-to-deescalate strikes, based on examples in history that meet my definitions of firebreaking by an escalator for the purpose of signaling a willingness and ability to inflict greater future levels of compelling harm. Given the strength of the current findings, it is likely that such additional research will bolster confidence in the validity of my theory, providing additional nuance and sophistication to our understanding of the conditions under which escalate-to-deescalate strikes are likely to achieve the desired result, but further efforts to confirm this suspicion are warranted.

7.4 Implications for Future Scholarship and Policy

This dissertation research provides an important starting point for the evaluation of the requisite conditions necessary for a potential low-yield nuclear escalate-to-deescalate strike to result in the desired outcome of capitulation and avoid the potential failures of continued fighting or even counter-escalation. It also cautions that the likelihood of success is dependent upon several factors that are difficult for the escalating state to control with any certainty. This dissertation research thus contributes to the literature on security studies, conflict, escalation, nuclear war strategies, and conflict termination. Acknowledging the above-noted need for additional research, the findings presented here suggest several potential avenues of research for scholars and implications for policymakers.

7.4.1 Scholarly Research

This dissertation examined a states' responses to escalate-to-deescalate strikes under various conditions defined by their danger situations, the value of the target struck, and the damage sustained. The findings leave several questions unanswered, including: Do these findings remain consistent across all cases of escalate-to-deescalate strikes? Do an individual's prior experiences or desires matter? Does regime type (i.e., autocratic or democratic) matter or influence the response? Does the risk tolerance of the state leadership matter? Does target type (i.e., military, civilian, industrial, etc.) matter more than, or in addition to, the target value? What impact does a taboo against use have on a state contemplating a strike? Finally, a question continuously contemplated by many nuclear scholars: does the type of weapon used, such as a nuclear, chemical, biological, or conventional weapon, matter? A truly comprehensive study of these escalation dynamics would engage and evaluate many of the questions left unaddressed in this dissertation. In closing, I will highlight four such issues: individuals, regime type, the impact of weapon type, and the impact of norms or taboos.

7.4.1.1 Do Individuals Matter?

An underlying assumption in this research is that individuals tend to behave in consistent, predictable ways when responding to the conditions outlined here. Essentially, when facing these specific conditions, leaders, regardless of experience, background, or risk tolerance, should respond to escalate-to-deescalate strikes as predicted in my theory. Some scholars, such as Amos Tversky and Daniel Kahneman (1979), Barry Staw and Jerry Ross (1989), Elizabeth Saunders (2011), Michael Horowitz, Allan Stam, and Cali Ellis (2015), and Rachel Whitlark (2017), among many others, would contest this assumption, arguing that individuals do not necessarily behave in

consistent predictable manners when confronted with risk and loss.²⁶⁵ Bueno de Mesquita, for instance, notes the response of a leader to an escalate-to-deescalate strike is unlikely to be the result of a straightforward, objective calculation of risks, interests, and expected utility, as many presume (de Mesquita, 1981, 1985). If true, this claim in itself undermines a key premise behind escalate-to-deescalate strikes, that “it is possible to ‘sober but not enrage’ an enemy by inflicting precisely the ‘prescribed dosage’ of pain” (Roberts, 2020, p. 81). Richard Smoke seems to concur with Bueno de Mesquita, noting that escalation in violence and the increase in the stakes of the conflict potentially creates “a rise in feelings of threat and anxiety among decision-makers” (Smoke, 1977, p. 288). These decision makers could therefore “yield to emotions like rage or fear” in enraged response to the escalate-to-deescalate strike if said strike does not inflict the precise dose of pain (which may be unknown, or unknowable, to the escalator) (Brodie, 1966, p. 119). Jeffrey Friedman’s (2019) study of leader decision making finds leaders are often reactionary and make unsound decisions and employ military strategy without assessing the viability of success. The collective argument of these types of scholars is that divergent prior experiences, emotions, and other individual-level factors can, and often do, cause different leaders to respond differently when facing similar choices (Whitlark, 2017).

A similar strand of argument places emphasis not on the individuals themselves, but on the situation in which they find themselves in times of war. As George Downs and David Rocke (1994) note, state leadership may risk escalation during a conflict as a gamble to preserve their hold on power and achieve a more desired, or individually beneficial outcome. It is theoretically possible,

²⁶⁵ Amos Tversky and Daniel Kahneman (1979) find that humans employ a complex system of cognitive shortcuts and heuristics that condition the lens through which they view and respond to the world. Elizabeth Saunders (2011) notes leader type often does matter and affects the range of choices the leader has in response to an event. Similarly, Rachel Whitlark (2017) argues that the decision to use force in response to nuclear developments depends on a leader’s prior beliefs and the perceived threats posed by the adversary.

they argue, that the leader facing a high-danger situation like an insurrection or coup may attempt to salvage victory through continued fighting or even counter-escalation rather than to capitulate (Downs & Rocke, 1994; Cochran 2018).

While these potential reasons to doubt the validity of my underlying assumption about leaders' reactions to escalate-to-deescalate strikes are superficially compelling, the cases under study in this dissertation reveal that leaders – at least those examined – responded as if their choices were consistent and predictable in the terms laid out in my theory. While improving our understanding of leaders' risk tolerance, emotional states, and other such factors would undoubtedly provide a richer view of the cases, and is a well-warranted path for future research, my argument, as presented here, appears to provide a reliable and repeatable framework with which we can assess leaders' potential responses to escalate-to-deescalate strikes.

Consider, for example, the responses of capitulation by China at the Battle of Wuhan and by Iran at the Battle of the Marshes, which run counter to the claim that individual leaders will be especially likely to pursue victory at any cost, even under conditions when we might expect them to do so. Chapter 3 demonstrated that a leader – in this case Chiang – who was experiencing a low-danger situation and had a long history of engaging in conflict could nevertheless capitulate rather than continue fighting over a target of high-value after suffering high damage in an escalate-to-deescalate strike. The Iranians, similarly, capitulated during a battle against an enemy they viewed with unbridled vehement hatred. According to the arguments of the aforementioned scholars, these leaders should have feared the domestic consequences of capitulation or experienced loss aversion and therefore should have continued fighting in response to the escalate-to-deescalate strike (Tversky & Kahneman, 1979). Yet, they did not. While individuals are unique, with different experiences and inclinations, the danger to a state by threat of insurrection, coup, or conquest,

when combined with considerations of target value and damage, appears to have a way of focusing the mind and conditioning responses to escalate-to-deescalate strikes. Further investigation into the strength and any possible scope conditions of the findings reported here, however, would be welcome in helping to better understand the efficacy of such attacks in war.

7.4.1.2 Does Regime Type Matter?

Just as some may hold that individual leaders matter in shaping responses to escalate-to-deescalate strikes, others may contend that there could be systematic variation in response along the lines of regime type. After all, there are many types of existing regimes, from autocracies like monarchies and dictatorships with one individual holding power to democracies with many individuals holding power, and it stands to reason that the dynamics of internal decision-making could affect the outcomes of such processes in the wake of such strikes. Such systematic variation would align with robust findings in the study of international relations that, for example, the likelihood of conflict between dyads is greater when at least one belligerent is autocratic and less between two democracies (Bremer, 1992; Oneal, et.al., 1996; Ward, Siverson, & Cao, 2007). Similarly, Alexander Debs and H.E. Goemans (2010) postulate that the potential consequences of losing office would condition a regime's response to an escalate-to-deescalate strike. They suggest "that civilian leaders should be least warprone (sic)," and therefore possibly be more likely to capitulate following an escalate-to-deescalate strike, whereas a military dictator may be more likely to continue fighting or counter-escalate (Debs & Goemans, 2010, p. 430).

While there may be a relationship between regime type and larger conflict behavior, there does not appear to be one between regime type and intra-war choices. Alexander Downes (2006, 2008), for instance, notes democracies are prone towards violence with the explicit targeting of civilians to end a conflict quickly. There is no guarantee of democratic civilian victimization,

though; such tendencies were in evidence during LeMay's firebombing of Tokyo, but they were not indulged in the American response to the German resumption of unrestricted U-boat warfare (Downes, 2006, 2008).²⁶⁶ The essential point here is that regime type does not appear to condition how a state responds to an escalate-to-deescalate strike. As with considering the potential impact of individual-level variables on states' responses to escalate-to-deescalate strikes, however, further research on the question could help bolster or establish the scope conditions of this claim.

7.4.1.3 Does Weapon Type Matter?

The cases under study in this dissertation explicitly focused on the potential use of low-yield nuclear weapons in escalate-to-deescalate strikes all feature conventional uses of force. This begs the question, why should we be confident that my findings are transferable to how targeted states might respond to nuclear escalate-to-deescalate strikes? As Alain Enthoven notes, "there is a very great difference between nuclear weapons and non-nuclear weapons. Nuclear weapons are not simply high explosives writ large. Their destructive power makes them a completely new kind of military force" (Enthoven, 1965, p. 123).²⁶⁷ Contrary to Hollywood depictions of nuclear explosions such as those depicted in *Terminator 2: Judgment Day* or *Dr. Strangelove*, there is wide variance in the explosive effects resulting from nuclear weapons. Elements of the US military charged with ensuring the forces are ready to fight and win the nation's wars are proactively highlighting and attempting to remove the myths associated with nuclear detonations and the

²⁶⁶ Similarly, the Entente continued fighting at the Second Battle of Ypres in response to the escalate-to-deescalate strike, rather than victimizing German civilians.

²⁶⁷ Notably however, Enthoven also cautioned that developments in small nuclear weapons, on the order of a few thousand tons of TNT equivalent, would bring a day "when there will be nuclear weapons of smaller yield than the largest high explosive weapons. When that day comes, will there no longer be a distinction between nuclear and conventional weapons?" (Enthoven, 1965, p. 123).

ability of the US military to survive, function in, and win following a nuclear detonation.²⁶⁸ This includes crafting and refining military options tailored to provide senior leadership with decision space while operating in a contested environment – including a nuclear detonation (Haney, 2015; Armagost & Murphy, 2020). Additionally, recent academic, government, military, and think tank publications, such as Louisiana Tech Research Institute’s (2020) *Guide to Nuclear Deterrence in an Age of Great Power Competition*, highlight the rigorous thought decision makers apply to the issue of a nuclear conflict.²⁶⁹ Other researchers, such as Katarzyna Zysk (2018) and Michael Kofman, Anya Fink, and Jeffrey Edmonds (2020), provide insight into Russian concepts of engaging militarily in a nuclear conflict. Analyzing Russian military literature, Kofman, Fink, and Edmonds find that while the impact of low-yield nuclear weapons “continues to be the subject of some debate, their role appears largely codified as complementary to that of nonnuclear weapons” (Kofman, Fink, & Edmonds, 2020, p. 19). Survey literature, as highlighted in the nuclear taboo section below, also provides evidence that public opinion supports the use of nuclear weapons under certain circumstances. Sarah Kreps and Jacquelyn Schneider (2019), for instance, found that individuals responded similarly to foreign conventional or nuclear attacks “on a power plant that supplies a major American city” (Kreps & Schneider, 2019, p. 4).²⁷⁰ These examples highlight the ongoing efforts of the nuclear powers to survive and engage in nuclear conflict and the general

²⁶⁸ For instance, Lieutenant Colonel Jim Gifford, assigned to the Defense Threat Reduction Agency’s Research and Development Directorate, supports military exercises and war games incorporating realistic expectations of nuclear weapon effects, dispelling myths and overestimations of nuclear weapon effects in the joint military exercises. See <https://www.dvidshub.net/video/853114/nuclear-weapons-effects-101>.

²⁶⁹ The US Army also recently published *Field Manual 3-0: Operations* (2022) detailing how the US Army will prepare for, fight, and win with renewed emphasis of operating in a nuclear conflict. This revision includes substantial updates to address the US Army’s ability to prepare for adversary use of chemical, biological, or nuclear weapon employment.

²⁷⁰ The original experiment of Sarah Kreps and Jacquelyn Schneider addressed escalation firebreaks in the cyber, conventional, and nuclear domain, “focusing on the American public, a key actor in debates about nuclear escalation and deterrence” (Kreps & Schneider, 2010, p. 4).

populace support for the use of these weapons. As such, it is plausible that states would respond to a nuclear escalate-to-deescalate strike in ways akin to how they behave in the conventional cases under study here.

First, targeted states may experience a high- or a low-danger situation in the wake of a nuclear escalate-to-deescalate strike. A state may face domestic costs and be under threat of insurrection or military coup if the internal actors felt the current leadership was unable to secure their security and interests. Further, the escalating state may be in possession of or positioned to acquire the targeted state's sovereign territory, placing the struck state in a high-danger situation. Conversely, a struck state may not be in danger from an internal power struggle or fear territorial loss. The use of a nuclear weapon in an escalate-to-deescalate strike may even create a rally around the flag effect, with the populace and military backing the current leadership (Waltz, 1967; Mueller, 1970).

Second, it is possible to employ nuclear escalate-to-deescalate strikes against target types of high or low value. Just as in the conventional cases examined here, it is possible to strike targets of high or low value in a nuclear escalate-to-deescalate strike. The range of target types (i.e., critical infrastructure, civilian or military populations, and sea or landmasses) is theoretically the same; it is only the weapon system utilized that is different.

Lastly, it is possible to have a range of damage, from high to low, following a nuclear escalate-to-deescalate strike. The nuclear yield of the weapon, the height or depth of the burst, and the levels of prompt or residual radiation impact the level of damage. The yield of the weapon can vary in potential destructive force while the height or depth of the detonation similarly impact the

damage inflicted through the resultant fireball and blast overpressure, contributing to potential radiation hazards (Glasstone & Dolan, 1977).²⁷¹

Given the variance in each of these independent variables for a nuclear escalate-to-deescalate strike, it stands to reason that there should be variation on the dependent variable: the targeted state's response. Effectively, the use of a nuclear weapon in an escalate-to-deescalate strike can plausibly induce a similar state response, as outlined in this dissertation, dependent upon the state's danger situation, the value of the target struck, and the damage resulting from the escalatory strike.

7.4.1.4 The Impact of Norms or Taboos

A conflict with low-yield nuclear weapons has never occurred. There has never been a limited nuclear ground war. This fact has led many to conclude that there is a constraint on nuclear weapons use. Nina Tannenwald (1999, 2007) argues that a nuclear taboo exists preventing nuclear use while T.V. Paul (2010) alters this claim slightly, noting that it is a tradition of nonuse rather than a full-fledged taboo.²⁷² Frank Sauer contends the current nonuse of nuclear weapons is a result of “the fear of death en masse,” rather than constraints or considerations to any taboo (Sauer, 2015, p. 127). Others, however, are less confident that nuclear weapons – including low-yield weapons – or limited nuclear ground wars will never occur. In their 2013 Atomic Aversion experiment, Daryl Press, Scott Sagan, and Benjamin Valentino found a willingness of US citizens supporting nuclear first strikes against critical targets. This finding was supported in their 2017 research

²⁷¹ Samuel Glasstone and Philip Dolan (1977) annotate a wide variety of nuclear explosion characteristics, recorded from US nuclear tests, all of which influence the potential damage inflicted upon the respective target.

²⁷² T.V. Paul argues that “a tradition is a less stringent form of social phenomenon than a taboo is” and that “a tradition is less absolute” (Paul, 2010, p. 854). As such, a tradition is altered easier than a strict taboo allowing for nuclear use if material or political circumstances change. See also, Michal Smetana and Carmen Wunderlich's (2021) *Forum: Nonuse of Nuclear Weapons in World Politics: Toward the Third Generation of “Nuclear Taboo” Research*.

article, in which “nearly 60 percent of the US public would approve of a nuclear attack on Iran that would kill 2 million civilians” under certain conditions (Sagan & Valentino, 2017, p. 58).²⁷³ Lauren Sukin’s (2019) survey experiment also notes the weakness of the nuclear taboo, demonstrating that participants in the US and in South Korea support a nuclear first strike if a protagonist state (Russia or North Korea in the study) signals a nuclear threat. Sukin notes state rhetoric concerning potential nuclear weapon use erodes concerns with the nuclear taboo, increasing the respondents’ willingness to employ nuclear weapons preemptively (Sukin, 2019). Most recently, Sukin and Alexander Lanoszka (2022) polled 1,385 Central and Eastern Europeans and found that the majority believe that Putin’s nuclear saber rattling is *more* than just talk.²⁷⁴ Whether constraints exist or not remains contested.

Even if there is currently some form of constraint on nuclear use, however, modern technological advances make it more likely that such limitations will be shed moving forward. For instance, Michael Klare (1985) notes the sheer momentum of technology, simultaneously creating larger conventional weapons and smaller nuclear weapons, is eroding the firebreak between the two types of armament, with the result that low-yield nuclear weapons are becoming increasingly easier to use. John Keegan noted the blurring of the distinction between low-yield nuclear weapons and conventional weapons, claiming, “A high-intensity conventional war and a low-intensity nuclear war might inflict very much the same level of damage on any given piece of inhabited landscape” (Keegan, 1983, p. 10). Even Tannenwald herself recently wrote, “making nuclear

²⁷³ A recent survey experiment with Russian citizens finds the Russian public holds adverse attitudes towards nuclear use, especially escalate-to-deescalate strikes, even if only used as a demonstrative tactic. The findings suggest the Russian populace would disapprove of a limited nuclear escalate-to-deescalate strike which may serve to constrain the Kremlin from employing such a strike (Smetana & Oderco, 2022).

²⁷⁴ The Sukin and Lanoszka study focused on the views of nuclear threats and found attitudes towards proliferation eroding with almost two-thirds of Polish citizens favoring a national nuclear weapons program (Sukin & Lanoszka, 2022).

weapons smaller and the targeting more precise, their use becomes more thinkable. Paradoxically, while this makes deterrence threats more credible, it also makes the arms more tempting to use first, rather than simply in retaliation” (Tannenwald, 2022, np).

Further undermining the notion that there are constraints on nuclear use is the fact that nuclear nations repeatedly practice nuclear readiness exercises and nuclear wargames for both the military and political elites. States have also attempted to model low-yield nuclear strikes in various exercises. Russia, having introduced the concept of escalate-to-deescalate in 2000 following a recognition of the US’s superiority in conventional military power in conflict zones like the Gulf War and Kosovo, conducts nuclear wargames yearly (Kipp, 2001). Nikoali Sokov notes Russia incorporated this escalate-to-deescalate concept with the use of limited nuclear weapons in all large-scale military exercises beginning at the turn of the century (Sokov, 2022).²⁷⁵

Apart from Nagasaki and Hiroshima, nuclear weapons have not been used in war. Yet, they still exist and remain available for use today. In 2016, then President Trump reportedly asked three times during a briefing, “If we have nuclear weapons, why can’t we use them?” (Perry & Collina, 2020, p. 3). Russian president Vladimir Putin reminded the world that Russia possesses nuclear weapons as he placed his nuclear forces on heightened alert in February 2022. Putin doubled down on 27 April 2022, promising a lightning-fast response against any country that interferes with his special military operation in Ukraine following a meeting in Germany during which military officials from 40 countries promised to increase Ukraine’s arsenal.²⁷⁶ The nuclear powers are

²⁷⁵ Interestingly, apart from the heavily scripted Russian *Zapad* exercises, most nuclear wargames do not end as desired. Following the US Strategic Command’s 2018 Global Thunder wargame, for example, General John Hyten reflected that, “It ends bad. And the bad, meaning, it ends with global nuclear war” (Hyten, 2018b, np).

²⁷⁶ CIA Director William Burns commented on 14 April 2022 that, “given the potential desperation of President Putin and the Russian leadership, given the setbacks that they’ve faced so far militarily, none of us can take lightly the threat posed by a potential resort to tactical nuclear weapons or low-yield nuclear weapons” (Burns, 2022, p. 15).

modernizing their respective nuclear weapons, with the US developing low-yield nuclear warhead options, ostensibly to foster greater deterrence credibility: a claim similar to one that was made in support of low-yield nuclear weapons at the height of the Cold War (Klare, 1985; Ashley, 2019; Berrier, 2021, 2022). The simple, undeniable fact remains: nuclear weapons exist and therefore so too does the potential for use in an escalate-to-deescalate strike.

The mere possession of nuclear weapons can “offset deficiencies in conventional arms,” potentially leading a state to employ a nuclear escalate-to-deescalate strike to end a conflict on preferable terms (Elliot, 1986, p. 164). Russia, for instance, has not (to date, at least) successfully achieved its objectives in its attempt to subjugate Ukraine. The high failure rate of Russia’s long-range precision weapons, coupled with its high expenditure rate, is likely to induce or foster a greater reliance on its nuclear weapons to offset NATO forces (Michaels & Luxmoore, 2022; Starr, 2022).²⁷⁷ A valid concern exists that Russia, out of frustration, may utilize a low-yield nuclear weapon if its war continues going badly. Its declining conventional arsenal, and its purported military doctrine incorporating nuclear weapons, may give Putin the impetus to use a low-yield nuclear weapon against a Ukrainian fortified position. While the concept of a taboo or tradition of nuclear nonuse exists, on a long enough timeline, history often repeats itself. The taboo or tradition only exists until it is broken.

²⁷⁷ DIA Director, Lieutenant General Scott Berrier, testified to the House Intelligence and Special Operations Subcommittee that, as the conflict in Ukraine weakens Russian conventional strength, “Russia likely will increasingly rely on its nuclear deterrent to signal the West and project strength to its internal and external audiences” (Berrier, 2022, p. 22). Berrier noted the Russian perception is that “the United States is a nation in decline [which] could prompt Russia to engage in more aggressive actions not only in Ukraine itself, but also more broadly in its perceived confrontation with the West” (Berrier, 2022, p. 23).

7.4.2 Policy Implications for Low-Yield Nuclear Escalate-to-Deescalate Strikes

Policy implications stemming from my research are plentiful. Policy makers and military commanders on either side of a modern conflict face a broad array of questions surrounding preparing for, preventing, or responding to an escalate-to-deescalate strike. The broader international community is also faced with multiple questions about such strikes. I discuss some of the implications for these questions that arise from my research below.

7.4.2.1 Policy Implications for the Escalating State

There are multiple issues on which a would-be escalator should focus when considering an escalate-to-deescalate strike. These issues arise from the need to understand, among other things, 1) the targeted state's danger situation prior to the strike, 2) their own military capabilities to execute an escalate-to-deescalate strike, 3) the available targets, 4) the response capabilities of the opposing state, and 5) ideally, the opposing leadership's decision-making calculus. When considering a *nuclear* escalate-to-deescalate strike, would-be escalators must also know their own and their target's nuclear capabilities, planning processes, options for integrating nuclear with conventional operations, and capacities for operating in a nuclear environment. This would include an understanding of the respective authorities, capabilities, postures, and response times.

Understanding the targeted state's danger situation is arguably the most critical of these tasks. A state in a low-danger situation, for example, is inclined to capitulate in instances in which it remains in that low-danger situation following the strike, conditional on the target struck and the damage inflicted. Comparatively, a state in a high-danger situation is inclined to continue fighting, at a minimum. Accurate intelligence and on-the-ground atmospheric data will assist in determining the conditions and the initial danger situation of the targeted state.

No matter what the adversary's danger situation, target selection and destruction are vital. To that end, it is necessary to cultivate ranked lists of high value targets, mechanisms for accurately striking those targets, and reliable methods for evaluating and verifying the results of the inflicted strike. A would-be escalator's policy makers and military leadership should accordingly focus on ensuring target accuracy to accomplish the strike objective and minimize collateral damage to ensure that they are able to send the cleanest and clearest message possible. This may require increasing weapon systems' firing and functioning mechanisms for precision strikes upon the intended target while also circumventing or defeating potential countermeasures, especially if they are operating in a GPS-contested environment and/or considering striking deeply buried or hardened targets (Tompkins, 2018).²⁷⁸ The US, for example, is increasing the accuracy of the modified B61-12 reduced-yield nuclear gravity bomb through an improved guided tail kit assembly (NNSA, 2020). Similarly, the US Air Force's GBU-57E/B Massive Ordnance Penetrator bomb represents an effort to improve America's capacity to hold deeply buried or hardened targets at risk (Trevithick, 2019). Crucial to all of this, however, is understanding how target state leadership values certain potential targets; without such knowledge, perfectly conducted escalate-to-deescalate strikes may fall flat for their failure to influence decision-making processes in the ways intended.

Related to this last point, it is essential to understand the targeted state's response abilities. This level of insight would provide the escalator a view of the potential repercussions if the escalate-to-deescalate strike fails to result in capitulation. As noted, the difficult task at hand is to

²⁷⁸ Emerging technologies are enabling states to challenge existing methods of command and control over intelligence, surveillance, and reconnaissance in contested, degraded, and operationally limited domains, including air, land, sea, space, and cyberspace. Increasing or obtaining assured command and control in such degraded environments will assist the escalating state in targeting and mitigating potential retaliatory responses (Kresge, 2017; Tompkins, 2018).

inflict the requisite amount of damage that encourages the struck state to back down rather than double down. As Eric Schlosser recently wrote of the conflict in Ukraine, a leader can determine if, where, and when an escalate-to-deescalate strike will occur in a conflict. However, that leader cannot control, with any true certainty, what the response will be (Schlosser, 2022). If the strike does not result in capitulation, understanding the targeted state's capabilities will enable the escalator to at least prepare for retaliatory actions. One method for determining the targeted state's response abilities is through the practice of net assessment.²⁷⁹

Lastly, a core component of an escalate-to-deescalate strike is the credible demonstration of a willingness and ability to inflict greater future violence. Actually possessing – and demonstrating – the tangible weapons and infrastructure to carry out the future violence is vital. Regular strategic-level exercises with full-sequence simulation can thus help make escalate-to-deescalate strikes work. Exercises demonstrate capacity, competency, and preparedness. Andrew Bowen notes Russia, in particular, utilizes exercises as a form of coercive signaling “to demonstrate its military capabilities to foreign audiences,” including its ability to “quickly and forcefully respond to threats” (Bowen, 2021, p. 1). Military exercises enhance training, readiness, and preparation for a conflict and are a crucial component of a state's ability to demonstrate its tools of compellence. Further, military exercises allow for the testing and refinement of operational concepts, assess readiness, improve command and control, and evaluate new capabilities. In conjunction with the actual effects of escalate-to-deescalate strikes, they help send a message about what may lay in store for a targeted state that does not capitulate.

²⁷⁹ A net assessment incorporates historical analysis, alternative futures, and speculative predictions of enemy and friendly environments to advise senior military policy makers (Bracken, 2006).

These are high hurdles that not all would-be escalators can even hope to clear. Accordingly, a clear understanding of what is required to execute a successful escalate-to-deescalate strike in the current context can incentivize a state leader to select one of the multiple options available short of such an attack to resolve a conflict. Military force is but one option available alongside diplomatic efforts, “economic policy, foreign economic and military assistance, alliances, and many other activities,” which can all contribute to securing a state’s national security interests (Enthoven, 1965, p. 120). As my research has demonstrated, it is often more advantageous for states embroiled in a conflict to avoid an escalate-to-deescalate strike than to carry out such an attack; unless leaders can be certain that they have the requisite knowledge and that they are in a situation in which they can expect capitulation, they are better off selecting some other policy tool to achieve their goals.²⁸⁰

7.4.2.2 Policy Implications for the Struck State

A state suffering, or in fear of, an escalate-to-deescalate strike has similar, but separate, issues to consider. A primary consideration for all such states is preventing such an event from occurring in the first place. To do so, the state must work to position itself so that, from a danger situation, target value, and damage vulnerability perspective, it is a less attractive candidate for an escalate-to-deescalate strike. Accordingly, I first address several pre-strike options available to states to protect against the possibility of an escalate-to-deescalate strike before focusing on what states that fail to forestall such an attack may choose to do.

²⁸⁰ To this end, I would caution US military leaders against expressly espousing an escalate-to-deescalate strategy, either for deterrence or for a response in kind, as once advocated in the US Army’s *Field Manual 100-30: Nuclear Operations*. This outdated manual noted the ability of the US to employ the restricted or limited use of nuclear weapons in a conflict to “allow the belligerent to recognize the ‘signal’ of limited response and to react accordingly” (DOD, 1996b, p. vi). As noted in this dissertation, despite a state’s best efforts to signal a will and ability to inflict greater harm, the attempt often does not result in the desired response of capitulation.

A state in danger of being targeted in an escalate-to-deescalate strike should pursue a variety of options *ex ante*. Foremost, such a state should enhance national and collective resilience.²⁸¹ In general terms, resilience “is the ability to persist in the face of challenges and to bounce back from adversity” through the development and usage of factors including “optimism, problem solving, self-efficacy, self-regulation, emotional awareness, flexibility, [and] empathy” among others (Reivich, Seligman, & McBride, 2011, p. 25). Enhanced resilience will increase the odds that the state in a low-danger situation will remain so if an escalate-to-deescalate strike is carried out, as it will help ensure the populace, military, and political elite are of like mind and of mutual support. The enhanced resilience, if adequately established, will assist in preventing the emergence of a high-danger situation through the removal of any fomented civilian uprising or military coup. This improved capacity to withstand an attacker’s assault may be brought about through myriad options, including obtaining and prepositioning medical supplies, hardening critical infrastructure, duplicating and dispersing critical infrastructure, conducting senior leader and whole-of-government exercises, establishing and testing early warning systems, and developing multiple methods of intelligence gathering, among others.

The hardening of critical infrastructure is essential. Effective hardening of critical infrastructure will make valuable targets difficult to damage. This may be accomplished through duplication to ensure redundancy, dispersion to complicate targeting attempts, and reducing vulnerability with defensive mechanisms like increasing construction or burying critical nodes.²⁸²

²⁸¹ The University of Pennsylvania’s Positive Psychology Center, in collaboration with researchers at the Walter Reed Army Institute of Research, and sports psychologists at the US Military Academy at West Point developed a two-week Master Resilience Training course for the US Army based on materials developed by the Penn Resilience Program, and other empirically validated work in the field of positive psychology. While resilience has multiple definitions, the underlying essence “is a set of processes that enables good outcomes in spite of serious threats” (Reivich, Seligman, & McBride, 2011, p. 25).

²⁸² The dispersion, duplication, and hardening efforts undertaken by North Vietnam during Operation Rolling Thunder-5 (Chapter 4) provides a good example of this concept.

Duplication and redundancy essentially reduces the value of the target and reduces the recuperation and reconstitution time required, if struck. This has the additional benefit of allowing the target to resume normal operations rapidly, post-strike. Establishing early warning systems, including detection and alerting, assists in identifying incoming threats and notifying leaders and the populace to seek cover and help mitigate losses. All of this serves to make it more difficult for an escalator to credibly signal its ability and willingness to inflict greater violence in the future and, thereby, perhaps injects doubt into their pre-strike calculus.

Increasing intelligence capabilities assists states with recognizing changes in a belligerent's posture. Improved early warning indicators can allow states time to alert the population and armed forces of a possible strike, which is crucial for the repositioning of command and control nodes and military units, with the ultimate goal of lowering the value of the target and reducing the potential damage. For instance, being able to identify and recognize changes in nuclear readiness postures would provide an early indicator of a potential strike. A joint venture with commercial and open-source satellite capabilities would offer high-resolution observation of potential pre-strike indicators – something that was undertaken to great effect during the massing of Russian forces along the Ukrainian border prior to their February 2022 invasion (Moric, 2022). Assessing and understanding how a state's nuclear stockpile meets the national leadership's policy goals, and the extent to which it reflects threat perceptions, would provide key insight into potentially ominous changes. Acquiring advanced computing, artificial intelligence, and integrated intelligence surveillance and reconnaissance platforms would all assist in obtaining an understanding of, and changes to, an adversary's escalatory ability.²⁸³ Finally, the intelligence

²⁸³ As Ryan Grauer cautions, however, while these systems allow a state to observe “places and situations [they] previously could not, they often foster an overdeveloped sense of situational awareness” in which context and perspective is lost (Grauer, 2016, p. 224).

practice of Red Teaming potential events will provide states with an array of conflict situations to evaluate and develop comprehensive solutions to deter, respond, and mitigate.²⁸⁴ Initiating a program akin to the US's Foreign Military and Cultural Studies is prudent.

Just as they can help would-be escalators send signals, senior leader and whole-of-government exercises and simulations can help potential victims of escalate-to-deescalate strikes to demonstrate capacity, competency, and preparedness. Exercises provide a warning message to the would-be escalator about how the state might respond to the escalate-to-deescalate strike. Whole-of-government exercises should be conducted with regional partners and allies, and conducted as if under duress. Further, the participants in the exercise, whether at a tabletop or in the field, should not simply treat a nuclear strike “as a terminal part of the exercise” – a common practice (Anderson & McCue, 2021, p. 46). Rather, the elements should continue fighting through the event. Lastly, the state should announce or advertise the conduct of the military exercises, which would serve the dual purpose of preventing an adversary from fearing that the exercises are actually a mobilization in advance of an attack and demonstrating capabilities and competencies.

Collectively, these technological abilities, civilian-military operational concepts, and capabilities contribute to what the US calls integrated deterrence, and may help prevent a would-be escalator from attempting an escalate-to-deescalate strike (Austin, 2021). These elements collectively contribute to reducing the attractiveness of potential targets. Further, these collective

²⁸⁴ Red Teaming refers to a now defunct US world-class program that was designed to educate military planners on recognizing biases and offered a means to assess warnings and signals despite their relative implausibility. Unfortunately, the US Army Combined Arms Center's University of Foreign Military and Cultural Studies (UFMCS) was recently canceled to reallocate the \$2.5 Million to other national defense priorities such as a southern border wall. The UFMCS was widely regarded as the gold-standard for formal Red Team training worldwide. The 18-week program emphasized critical thinking skills, fostered empathy for divergent cultures, self-awareness and introspection, groupthink mitigation strategies, and Red Team methodologies. See UFMCS tri-fold at: https://usacac.army.mil/sites/default/files/documents/UFMCS_Tri-fold_v7.pdf.

elements may serve to counter the threat of an escalate-to-deescalate strike by convincing a potential escalator that such an attack would incur, not impose, costs.

Unfortunately, these attempts at deterrence might fail. In such an event, a state suffering an escalate-to-deescalate strike will need to address mitigation, consequence management, civil-military cooperation, and humanitarian issues. A comparatively limited low-yield nuclear detonation may have a severe impact on a state's population, requiring the demands of the government and military authorities, expenditure of considerable resources to mitigate impacts, and complicate military responsiveness. Imperative, post-strike, is the continuity of government. An established, coordinated effort is vital to ensuring "that governance and essential functions continue to be performed before, during, and after an emergency" (FEMA, 2021, p. 4). Within this concept is civil-military cooperation – and medical cooperation in particular – to address the immediate lifesaving requirements of the populace. Post-strike messaging by the government, for the populace, further serves to mitigate the immediate hazards following, in particular, a low-yield nuclear strike. Strategic messaging, including shelter-in-place messages can mitigate the deaths of a large number of individuals.²⁸⁵ Exercising the specific authorities and understanding which entities will support which efforts, pre-strike, will enable a timely response to mitigate the impacts of an actual escalate-to-deescalate strike. Proper mitigation measures thereby contribute to lowering a state's recouperation time.

Post-strike, the leaders of a struck state will also need to respond to the escalate-to-deescalate strike with one of the available options (e.g., capitulation, continued fighting, or

²⁸⁵ The unfortunate reality of any escalate-to-deescalate strike is the fact that individuals will likely perish. There are, however, three different groups of the populace: those that will die regardless, those that will survive, and those that *may* survive with medical intervention. The results of nuclear weapons testing demonstrated that sheltering in place can significantly reduce the number of casualties (Glasstone & Dolan, 1977). The state may assist mitigating potential fatalities provided it has a method to transmit shelter-in-place orders and the like, post-strike.

counter-escalation). As noted in Chapter 2, the leaders of struck states will consider the immediate danger situation, the value of the target struck, and the damage sustained. The first is likely to be readily apparent, but the latter two are especially important, as they speak to the credibility of the promise of future violence sent through the escalate-to-deescalate strike; swiftly determining and accurately assessing the target value and damage is therefore crucial. Leaders, armed with this understanding of the escalator's credibility, must then consider the resources available and the state's goals for the current conflict. The state should evaluate each potential response option and examine how it would further the aims of the state. Capitulation, for instance, affords the struck state with space and time, allowing for rest and rearmament prior to reengagement at a more opportune moment. Notably, however, the leader must consider how to capitulate while retaining control over the state's military and resources. Near-simultaneously, and in collaboration with the military leadership, the state leadership would need to develop plans for reengaging in the future. Conversely, if the state's goals involve continued fighting or potentially necessitate counter-escalation, state leaders would need to consider the availability of resources to pursue such paths, along with understanding the potential escalatory repercussions.

7.4.2.3 Policy Implications for the International Community

The international community, observing an escalate-to-deescalate strike, also has a potential role to play. Generally, it is better for the international community, writ large, to foster a resolution to an existing conflict and ending humanitarian suffering. Importantly, preventing the conflict from escalating horizontally and pulling in states on the periphery is crucial (Smoke, 1977). Diplomatic engagement, sanctions, cessation of friendly trade status, removal from alliances, and even naming and shaming offer methods for the international community to ensure

escalation is mitigated (Krain, 2012).²⁸⁶ Finally, the international community will need to consider what level of resources are necessary to ameliorate the humanitarian suffering and blunt the impact of the conflict on the civilians caught in the crossfire. Identifying available joint foreign consequence management elements to assist in reconstitution would reduce or temper the impacts of an escalate-to-deescalate strike and potentially facilitate a cessation of hostilities. Demonstrated international cohesion may even contribute to reducing the viability of an escalate-to-deescalate strike, particularly one that employed low-yield nuclear weapons.

7.5 Conclusion

At present, there are nine nuclear-armed states. South Africa remains the only state in history to have divested its nuclear arsenal. Belarus, Kazakhstan, and Ukraine inherited nuclear weapons with the dissolution of the Soviet Union, though the devices were never entirely under the control of the breakaway republics.²⁸⁷ The current nuclear-armed countries are all modernizing nuclear infrastructure, enhancing or increasing the resiliency of command and control facilities, and conducting nuclear wargames or exercises. Russia is even pursuing a nuclear-propelled transoceanic unmanned nuclear-armed torpedo and a nuclear-propelled intercontinental cruise

²⁸⁶ Studies in conflict resolution find the practice of calling out belligerents can impact their behavior in the international community. Specifically, as Matthew Krain notes, “the power of naming and shaming lies in its ability to signal the increased likelihood of more costly negative sanctions in the near future” (Krain, 2012, p. 575).

²⁸⁷ Counter to John Mearsheimer’s (1993) argument that Ukraine needed to retain the weapons to ensure they possessed a nuclear deterrent, Cheryl Rofer notes these born-nuclear countries “never had the ability to launch those missiles or to use those warheads. The security measures against unauthorized use were under Moscow’s control” (Rofer, 2022, np). Then-Soviet President Mikhail Gorbachev retained sole launch authority and the new countries did not have either the access to, or the infrastructure for maintaining, the weapons (Potter, 1995; Rublee, 2015; Rofer, 2022)

missile (Ashley, 2019; Berrier, 2021, 2022).²⁸⁸ Escalate-to-deescalate strikes are thus in many ways more imaginable now than at any point in history.

In this dissertation, I set out to determine the circumstances under which low-yield nuclear escalate-to-deescalate strikes are likely to succeed in compelling capitulation. Such information and understanding would aid both military planners attempting to provide military strike options to commanders and leaders of states embroiled in a conflict. In carrying out my research, I focused closely on the dangers and uncertainties associated with escalate-to-deescalate strikes and the potential for unintended consequences, including enraging the enemy to counter-escalate (Roberts, 2020). While the use of a low-yield nuclear weapon in an escalate-to-deescalate strike has not occurred, the conclusion I draw from my investigation is that any such use is unlikely to achieve its desired effects. In the cases studied in this dissertation, only two escalate-to-deescalate strikes resulted in capitulation. The other five escalate-to-deescalate attempts resulted in continued fighting or counter-escalation. Crucially, even the two instances of capitulation eventually resulted in a return to conflict, as the struck states simply traded space for time to return to the fight at a more opportune moment. The risk of counter-escalation is very real and apparent. Looking forward, any escalate-to-deescalate strike is unlikely to achieve its desired response outcome, as continued fighting and even counter-escalation remain possible – and in some cases likely – responses. An escalate-to-deescalate strike using low-yield nuclear weapons is likely to be catastrophic, for reasons beyond simply the use of nuclear weapons in anger.

²⁸⁸ Russia's nuclear-propelled missile, dubbed Skyfall by NATO, was tested in August 2019. It did not perform as expected, causing the death of seven Russian scientists and a spike in radiation in the region (Mizokami, 2019; Webb, 2019; Hackett, 2021). The US contemplated a similar nuclear-powered weapon in the 1950s, but determined it was too dangerous to even test (Mizokami, 2019).

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