War So Terrible:

The Informal Theory of Interstate Warfare

and the Determinants of Interstate War Outcomes

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by

MATTHEW T. KNUTH

Dr. Stephen Quackenbush, Thesis Supervisor

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The undersigned, appointed by the dean of the Graduate School, have examined the thesis entitled:

War So Terrible:

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presented by Matthew T. Knuth,

a candidate for the degree of Master of Arts in Political Science,

and hereby certify that, in their opinion, it is worthy of acceptance.

Professor Stephen Quackenbush

Professor Cooper Drury

Professor Jay Dow

Associate Dean Stephen Ferris

DEDICATION

This is dedicated to my wife, Leann, daughter Brianna, my parents, and my sister. Thank you for supporting me on this project.

This is also dedicated to all those who go in harm's way in defense of the United States of America. For as Winston S. Churchill's stated, "Never… was so much owed by so many to so few."

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ABSTRACT

This thesis puts forth a theory of how interstate wars are fought and how certain outcomes and their determinants occur. It begins with an overview of military theory and military science, followed by an overview of the relevant literature in political science.

Next the Informal Theory of Interstate Warfare is put forth, along with its implications for how interstate wars are fought and won, lost, or fought to a draw. The theory and its several hypotheses are then tested qualitatively in two case studies, that of the Russo-Japanese War, and World War II. The theory and its hypotheses are further tested quantitatively using a data set that contains strategic level, operational level, doctrinal, economic, population, and political variables with an emphasis on ground, naval, and air warfare in order to determine how and why certain war outcomes occur, the determinants of those war outcomes, and the overall validity of the Informal Theory of Interstate Warfare.

Table of Contents

Tables and Figures

Chapter 1:

Introduction

"It is well that war is so terrible- we should grow too fond of it"

- Robert E. Lee, General, Confederate States of America

"This war differs from other wars, in this particular. We are not fighting armies but a hostile people, and must make old and young, rich and poor, feel the hard hand of war"

- William T. Sherman, General of the Army of the United States

"The main thing in true strategy is simply this: first deal as hard blows at the enemy's soldiers as possible, and then cause so much suffering to the inhabitants of a country that they will long for peace and press their Government to make it. Nothing should be left to the people but eyes to lament the war"

- Philip H. Sheridan, General of the Army of the United States

"The one great element in continuing the success of an offensive in maintaining the momentum."

- George C. Marshall, General of the Army, United States Army

"The U.S.'s major strength factor and weapon is its economy. If you cripple it, you cripple the military."

- Chester W. Nimitz, Fleet Admiral, United States Navy

"In war there is no substitute for victory."

- Douglas MacArthur, General of the Army, United States Army

The Study of Warfare: Problems of Perspective

This thesis is a study of the state at war. This thesis will attempt to expand the study of warfare both within political science and military science by combining the best both fields have to offer into a new combined view of the state. This new view is of the state at war, specifically through the lens of the state at the organizational and structural level.

This thesis differs greatly from the current works within political science and military science. The study of warfare is study of different perspectives; however its study has been uneven in both its progress and its perspectives. Currently within political science, the study of warfare revolves around three main areas. The first area is that of the interaction of states within a larger international system. The second area is that of leaders in time of war. And the third are the factors and determinants to war onset, outcomes, termination, and duration. In each of these areas, the state is recognized as key actor in interstate war and has at its disposal the resources of the state to prosecute a war to achieve some stated political aim. However, while in each of these areas the state is the recognized actor, no theory really portrays the entirety of the state at war. Instead, the state is reduced to proxies, both in theory and in application and tests, with the hope that someday, all the various small proxies can be added up into some grand formula or view of the state, which in turn will produce the state in its entirety. Thus what is being forgotten in the study of warfare by political science is the state is at war, not just certain elements or proxies. This problem is further compounded by a general lack of understanding or exploration of military affairs below the strategic level of war.

In the fields of military arts/science and military history, the approaches of the study of warfare has occurred from a multitude of perspectives. Historians study wars at both the microscopic and macroscopic levels of war. Some histories offer a broad sweep of an entire war, while others concentrate on certain events, weaponry, or person involved in a specific war. Further, the goal of the study of military art/science is mainly in teaching its students how to wage war. It focuses mostly on one state (most likely their own state's concepts of warfare) attempt to defeat an enemy state. Research in this specific area is vast and interrelated, falling into such areas of military strategy, national security strategy, doctrine, training, weaponry, moral codes, operational analysis, etc. Its focus is not what occurs beyond that of the armed forces role in wartime. Thus both fields are lacking in detail. While describing in detail political science, political scientists gloss over the variables of military science, and the same is true with military science in its glossing over of political variables.

Because of this, I felt that there was something missing in both fields of study. What is missing is not that fact that they are inseparable, but that there were few efforts out there to combine both fields of study into one with levels of detail from both fields. Thus this thesis seeks to bridge the gap between both fields of study, while expanding upon the research already conducted in both fields.

As in physics, field of study, the search for greater understanding occurs only through changes in (and the development of) different perspectives. Political science is dominated by looking at the view of leaders and their decision making processes, and strategic level determinates of warfare. What is missing or glossed over are the component of the states in both theory and in applicable tests of how the state affects

decision making processes, how the state fights wars, and the determinates of warfare below the strategic level (i.e. the operational and tactical levels of war). Military science is dominated by how armed forces fight wars, with an emphasis on the operational and in particular, the tactical levels of war. The study of national and military strategy however is relegated only to a few political leaders, military commanders, war planners, and civilians in practice, and its study is left to historical treatments and mostly long dead theorists. Thus what is missing in both is how the state fights wars, how it utilizes its resources during wartime (through its population, economy, and government), how the state acts during wartime, how states win or lose in war, and the combined effect of strategic, operational, and tactical determinants.

The works of earlier authors in political science, such as Stam, Reiter, and Bennett have shown that domestic variables play a major role in deciding war outcomes. While their work has been a significant improvement over earlier works before them, their work is severely limited in both theory and in practice. That is not to say that finding quantitative variables for understanding how domestic politics affects wars is easy, because it isn't. However, broad sweeps of domestic politics and strategy fails to pin point the actual variables that affect war outcomes. Further, the information gleaned is a mixture of the various levels of war, without clear definition or refinement, but primarily rely on the strategic level of warfare, while leaving out the operational and tactical level of warfare, and treating strategies as if they are onetime events, chosen and then followed without change through the war. This however is a major flaw in the current area of study, as strategy is useless without not just tactics, but the means of translating success in battle (tactics) to political aims (strategy). Because of the large gap between strategy

and tactics, only the operational level of warfare can truly show how wars are won, as it combines with strategy and tactics within a theater of war. Thus more research must be conducted in order to gain further refinement and further proof of these early efforts in war outcome determinants.

Fears of interdisciplinary studies (which is what the study of warfare is), knowledge of warfare and military affairs, and problems with information should not deter us from expanding the field. The study of warfare requires knowledge of weaponry, tactics, operational art, doctrine, technology, administration, logistics, psychology, strategy, and a whole lot more. Warfare is a complex and very human endeavor, and is right for study. To ignore the study of warfare because warfare is perceived as evil (which it is, but at times is a necessary evil in my opinion) it as they say, to cut off one's nose in spite of one's face. The fate of states and history of the world has revolved around the outcomes of wars as much as a state's fate has revolved around domestic politics. Nor should the lack of detailed information from many wars stop one from studying it. The information found in the field of study of warfare is spread out and uneven, often contradictory, and very much incomplete (and for man pieces of information forever lost due to time and the destruction of war). Von Clausewitz's "fog of war" not only holds true during wartime, but afterword when reconstructing the events that occurred during war.

In spite of the many problems with the study of warfare, both within military science and political science, these two fields should work together more frequently in order for us to truly understand the act of warfighting and wartime politics. This first

begins with the rejection of prior assumptions, and moving forward to a better and combined understanding of warfighting and wartime politics.

Questioning the Presumptions

Logic and common wisdom have held for the majority of history that in order for a state to be victorious in war it must simply defeat (or destroy) the enemy's armed forces. This perception then follows through that with defeat on the battlefield, the enemy will no longer able to resist further attacks and therefore must give in to the political demands forced upon them or see their state annihilated if they choose not to give in. This perception is true, but only partially so. War is much more involved and more complicated than this perception. Simple dictums of "victory lies in defeating the enemy's army" and or "only though the destruction of the enemy's armed forces is victory achieved" are not only half-truths, but fail to portray the true scope of war. War is not just fighting between armed forces, but fighting between states (and state like actors) and all that encompasses the state beyond that of their armed forces.

What should make one question the logic of the presumption above is that wars have been won without seeing the complete destruction of the enemy's armed forces! This is not just a fluke either happening only once or twice in history but numerous times. In fact most wars have been won where the opponent's armed forces were not destroyed. This poses a quandary. If traditional thinking does not hold up to analysis, is it wrong? Or perhaps is there something more to winning and losing wars than the battles fought between armed forces?

If only a portion of the enemy's armed forces must be destroyed, there is the temptation then to ask how much of an enemy's armed forces are required to be

destroyed before they will give in to the political demands? This however misses its goal of understanding war outcomes; as if once some magical percentage of the enemy's armed forces is destroyed then victory is achieved. What is missing is some other variable (or series of variables) that in conjunction with military victory on the battlefield will lead to one state to defeat the other state. What is missing is that "something else". It is this combination of military victory/defeat on the battlefield *plus* that 'something else' that following theory attempts to explain, and does so through the perspective of the state as an interrelated structure.

New Perspective: An Informal Theoretical Frame Work for the State at War

In order to fulfill the gaps in theory and in practice of the state at war, I put for an "Informal Theory of Interstate Warfare." This informal theory is a non-mathematical theory. The theory holds that wars are won or lost because of the actions of the state to defend its Core (the government, economy, and population) and Shield (its armed forces and other elements of national defense) from attack while being able to disproportionally damage the enemy state's Core and Shield to the point where that enemy state will give in to the political demands placed upon them.

This theory is not a view of how leaders make decisions, though that is an element of the theory, and specially elements of the Core and Shield, but of how the state structurally fights wars and withstands attacks against it. In order to test this theory, several hypotheses are put forth in Chapter 4 and are tested both qualitatively and quantitatively utilizing variables at the strategic and operational level of warfare.

This thesis is not written solely for those well versed in political science or the military arts, but for a wider audience as well. In order to provide a firm basis of

knowledge before the theory, Chapter 2 provides an overview of the levels of warfare and the development of the theories and practices of warfare, strategy, and operational art. Chapter 3 provides an overview of the development of how political science views warfare, and the development of relevant theories.

Chapter 4 formally puts forth the 'Informal Theory of Interstate Warfare' along with testable hypotheses. Chapter 5 will then test the theory as a whole and the various hypotheses through the lens of two case studies, that of the Russo-Japanese War (1905-1905), and the United States at war with Nazi Germany in World War II (1941-1945). The qualitative analysis will be backed up by empirical testing in Chapter 6 by a data set compiled by myself. This quantitative analysis will utilize logistical (logit) and multinomial logistical (mlogit) forms of statistical analysis to test the hypotheses.

The thesis will then conclude with some final observations found in the data, and put forth new ideas and areas of study that should be pursued. This thesis should not be seen as a final product, but as a first step in helping further the study of warfare with military science and political science, in no small part expansion of study beyond the strategic level of war to the operational level of war, and the expansion of the state beyond policy makers and domestic political leanings of democracy or autocracy. I hope that this thesis is not only enjoyable, but also thought provoking and that it stimulate thought on how wars are fought, won, or lost. I also hope that it inspires others to more rigorously pursue the study of warfare within political science.

This thesis does serve one other purpose, not matter how selfish it may be. It is how I think of warfare and how it should be fought. To the academic, this may mean little, and while I view myself as an academic after my time here at the University of

Missouri, there is more to it than that. I am a serving naval officer, and thus I am also a practitioner of war as well, and may someday have to influence, design, and implement plans for action against an enemy state if and when the United States goes to war again. It also serves at my attempt to bind two very similar and different fields of study that I believe should come closer together and that I passionately study and read about all the time: that of political science and military science (and art) into one, and thus this thesis is written for audiences in both fields of study.

Chapter 2:

The Military Arts and Science in Theory and Practice

The study of warfare has been one of mankind's oldest enterprises. Its study has been spread over many different areas and perspectives, ranging from philosophy, history, administration, tactics, operational art, and strategy to songs, stories, and poems. Because of this wide range of not only sub-topics within the field, but different methods utilized to explain each of the sub-topics, the study of warfare has been anything but scientific and systemic. In order to understand the art of warfare with its theories, philosophies, and practices (to include some level of tactics, weaponry, operational art, strategy, etc), this chapter will extensively cover the written literature of the art of warfare in order to develop an baseline understanding for warfare, how it developed, and where the field is today. This chapter will, however, primarily remain in the realm of strategy, operational art, and philosophy while keeping to a bare minimum that of tactics, weaponry, and technology.

As this study is written for audiences in both the fields of political science and military art, this chapter, along with the next, may be skipped for those very familiar with the literature, and continued with the main theory in chapter 4.

The Levels of Warfare

Most elements of military literature is based upon three levels of perspective, that of tactics, operational art, and strategy. Each of these levels of perspective is known as levels of war, and they denote very different elements of warfare, but primarily relate to the armed forces and their use in warfare.

While not purely in line with the current paradigm of levels of war utilized by most nations today (that of Strategy (i.e. national policy, security strategy), Operational Art (i.e. theaters and fronts), Tactical (i.e. battles)), author and noted historian James M.

McPherson has perhaps one of the most concise and well written definitions of the level of war and how they build off of each other in order to serve as a baseline for this study. "*Policy* refers to war aims-the political goals for the nation in time of war. *National strategy* refers to mobilization of the political, economic, diplomatic, and psychological as well as military resources of the nation to achieve these war aims. *Military strategy* concerns plans for the employment of armed forces to win the war and fulfill the goals of policy. *Operations* concerns the management and movements of armies in particular campaigns to carry out the purposes of military strategy. *Tactics* refers to the formations and handling of an army in actual combat" (McPherson 2008, 5).

From the earliest times, humans bonded in groups with leaders directing their clans, cities, etc. in battle. Over time warfare became a codified element of human activity. Because of this codification at some basic level, humans were forced to come up with systems of thought in order to handle and explain the use of violence for political objectives. As such, the development of strategy and tactics has their roots in both ancient Chinese and Greek cultures. The word strategy is derived from the Greek word 'strategia', meaning "office of general, command, generalship". Tactics also came into development from ancient Greece, where tactics came from the Greek word 'takitos', meaning "fit for arranging or ordering". These two words, along with offense and defense, formed the very hard of military theory and training. Often field armies in ancient times were commanded by the leader (or a small select group of leaders) within the political unit or organization they represented (clans, tribes, cities, republics, autocracies, monocracies, etc.). It was easy in for most armies to translate battlefield tactical engagement into strategic goals, and for strategic goals to help shape the need for

the selection of tactical engagements. Before the French Revolution and Napoleonic Era, strategy and tactics were not only interrelated but often inseparable. However, the French Revolution and Napoleonic Era would change this structure.

With the rise of the French Republic, the old strategy-tactics paradigm was no longer enough as strategy and tactics could not handle warfare in the age of mass mobilized manpower. A new paradigm was created in response, and was first utilized by Napoleon as his forces spread throughout Europe. While wars in the past had at times multiple fronts, it was not that common. During the age of Napoleon and afterwards, wars would mostly see multiple fronts and if not multiple fronts, then armies so vast in the field that no longer could one commander command all of them from sight. Thus the level of warfare of the 'operational level' was born.

Warfare before Napoleon revolved around tactics, administration, weaponry, logistics, and strategy. Politicians and military commanders (many times one and the same) from ancient times up until Napoleon controlled how wars and battles were to be fought. Depending on the philosophy of warfare that the commander pursued, war generally revolved around armies and navies seeking to engage each other in battle, or maneuvering to a strong position and avoid battle (and force the enemy to capitulate without fighting). In the end, battle or not, low or high casualties, the forces fielded were relatively small or in a localized area.

Even with the rise of empires such as the Romans, Mongols, Spanish, French, and British, wars were still (while now more global) localized affairs. Forces sent in theater were there to stay for long durations (even melding with locals). Forces still were small and the length of the front lines was short (or conversely very large and unable to be fully

manned). Campaigns fought in these broad wars (such as the Seven Years War) were rarely fought in coordination with other theaters of war except only in the most general of ways. Each theater thus became a micro-war into itself (such as the French and Indian War within the Seven Years War). Even as it became more difficult to control forces in the field as armies and distances grew, little intellectual or practical developments in fighting war came, and the Strategy-Tactics paradigm continued to hold sway.

Over time the separation between tactics and strategy grew noticeably impractical by those practicing war and commanders began to experiment with changes, but saw little success in their attempts. The impetus for change would come dramatically due to the social upheaval in the late 1780s and 1790s that would lead to en masse levees carried out by the French Republic during the French Revolution (and continued under Napoleon) that created armies the size of which that only the Romans, Huns, Chinese, and Mongols had accomplished in the past. During the Napoleonic era wars, Napoleon and his enemies were forced to utilize massive armies in the field. Command and control of such vast armies was impossible to handle for one person in such a centralize role and thus Napoleon and his Marshals and generals came up with a new formation, that of the Corps. The corps was a unit that combined several divisions under one commander, which in turn saw several corps combine to create an army in the field. The Corps system utilized by Napoleon was a system of command and control that allowed flexibility and mobility for the ever growing field armies, which in turn saw some of the most massive armies that have been created (van Creveld 2011, 20-21).

Under the corps system (later adopted by the rest of the world and still in use today), Napoleon was able to use his corps as interchangeable parts, allowing his armies

to coalesce when necessary to engage an enemy, and then spread apart in order to preform grand maneuvers of hundreds of thousands of troops all over the enemy countryside (and hopefully into the enemy's rear areas). The introduction of the Corps, however, was only part of the dramatic changes to the strategy-tactics paradigm.

While corps allowed armies to expand in numbers and territory covered, the new conscription laws and size of militaries allowed for greater and greater numbers of forces to be utilized at different fronts other than the main front. It came to the point where several armies with their many corps were operating in vastly different areas of the continent they were fighting in. The corps system allowed for the creation of the lower level of the "operational level of war", but in wars that had several theaters or fronts, more was required. Hence the need for an upper level of the operational level of war began to take shape. Now several theaters of war were required to defeat the enemy, and forces coordinated between the several theaters. Thus, as the corps system took shape and became a defining element of the Napoleonic era, and quieter and less recognized development occurred, that of the upper level of operational warfare, which saw theater strategy and theater operations rapidly develop that had been stagnant since before the dark ages of Europe.

National policy making began to take into account the various theaters of war more and more often. Napoleon stunned the world when his corps combined together to win stunning tactical and operational victory after stunning victory. However, these campaigns were short, and victory was won with only a few battles over a large (but not continental size) area. With improved mobility, transportation, and communication, national leaders and commanders could now attempt large scale maneuvers that were

only the dreams of those before them. They would attempt to unite their vast armies into a unified war plan on a scale unseen before. Where Napoleon would coalesce the separated corps his main field army for a battle, nations would now coalesce several field armies across multiple theaters. The goal was to attack the enemy simultaneously with these many armies in order to have maximum effect possible upon the enemy (i.e. overwhelm them at a single point or at every point and get into the enemy countryside). Napoleon had attempted this, and fought across several fronts simultaneously. However, he normally relied upon one front to conduct the main fighting, and saw the rest as diversions to his plans for short campaigns and decisive battles.

It was not until Abraham Lincoln in the American Civil War that the higher levels of operational warfare would finally become reality from its earlier form under Napoleon. In Lincoln's case he set forth a political aim (returning the Confederacy back into the Union) utilizing a military strategy of overwhelming force and attrition. Lincoln throughout the war constantly pressed the commanders of the Union's several theaters to act in concert with each other. Lincoln realized that as long as the Southern Confederacy could shift troops from one threat to the next as Union armies launched offensives in a piecemeal and uncoordinated fashion, the Union could not use its manpower advantage to full effect (Handel 1992, 115). It would take the appointment of Generals Grant, Sherman, and Thomas to high command in 1864 before could Lincoln see his political policy and military strategy come into fruition across the multiple theaters of war.

Later, the codification of the operational level of war would be difficult, as it fills a nebulous area. Tactics meant fighting battles, and strategy means national policy and

war aims. However, how does someone fill the gap of turning battle outcomes into successful war aims?

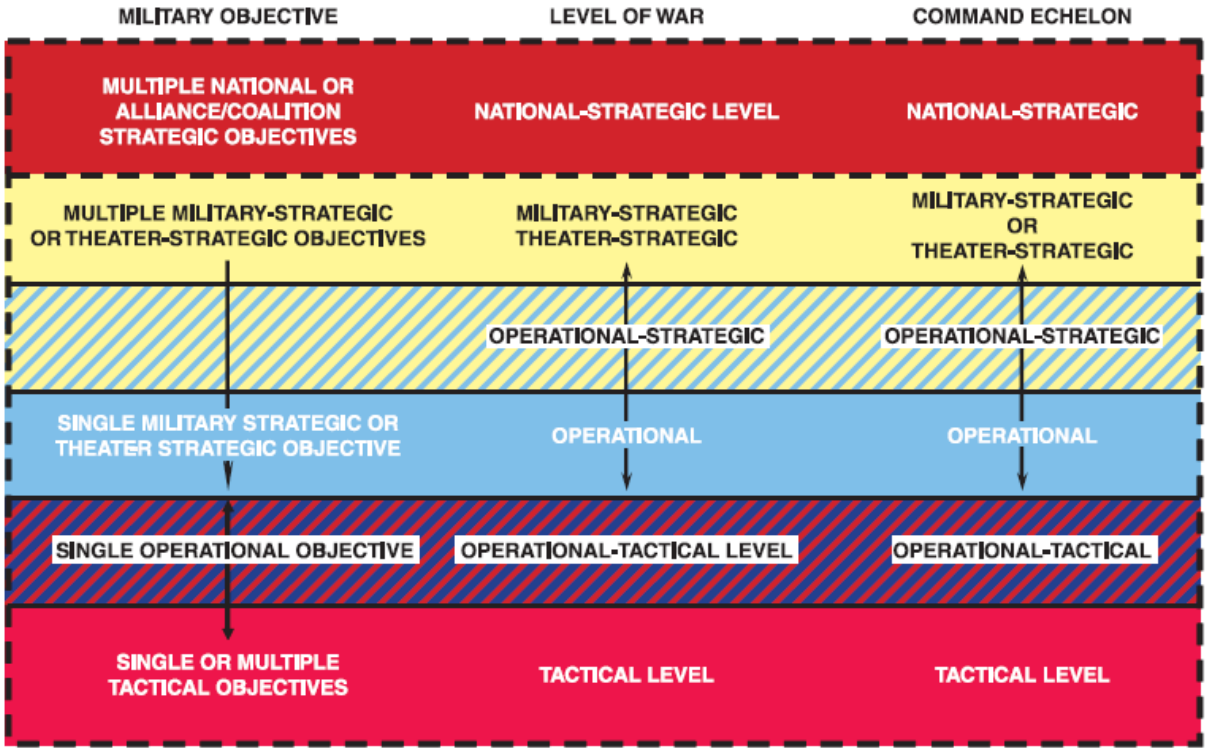
> The gap between tactics on the one hand and strategy and policy on the other cannot be overcome by physical combat alone. The tactical framework is too narrow and the strategic perspective too broad to ensure the most decisive employment of one's sources of power. Therefore, another field of study and practice must exist to properly orchestrate all available sources of military and nonmilitary power in order to accomplish the ultimate strategic or operational objective. This third component of military art (alternately called here operational art and operational warfare) occupies an intermediate position between policy and strategy on the one hand and tactics on the other. Operational art serves both as a bridge and as an interface between these two areas of study and practice. (Vego 2007, I-3).

"Broadly defined [operational warfare/art] as a grey area between strategy and tactics, operational art spans the theory and practice of planning and conducting campaigns and major operations aimed at accomplishing strategic and operational objectives a given theatre of operations" (Olsen and van Creveld 2011, 1). As wars expanded in size and scope, the need for the operational level of war and theaters of combat was required. Thus the old paradigm was replaced with a new one, that of strategy-operations-tactics (or strategy-operational art-tactics).

Since Napoleon, writers such as Jomini, Clausewitz, Fuller, Vego, and many others have expanded upon the 'Operational Level of War'. Even with the theoretical and practical development of the operational level of warfare and the conduct of campaigns in

a theater of war, it remains the least understood and least studied level of warfare. “It is, therefore, a paradox that operational art, though acknowledged as an important element in planning and execution of military operations at home and abroad, remains under-researched and relatively poorly understood. Simply put, manuals, procedures, and checklists cannot substitute for in-depth studies” (Olsen and van Creveld 2011, 2).

Figure 2.1: Levels of Warfare



Source: (Vego 2007, pg II-17).

Ancient China and the first military theorists

The first works of military theory (that have survived to present day) were written during the Warring States Period of China came about during the fall of the Zhou/Chou dynasty at the end of the Spring and Autumn Period of Chinese history (van Creveld

2000, 24; Sawyer 1994, 151-152).[1] During this period, several different kingdoms fought for supremacy over China from 475 BC to 221 BC, until unified under the Qin/Ch'in Dynasty. The cultural philosophies of the era strongly influenced the writings of the era. War was seen as an immense evil, but sometimes necessary in a world that was full of imperfections (van Creveld 2000, 29). War broke the cosmic perfection created under the Tao, and the only the Tao could be brought back was by the winning side, which would always be the side that had the greatest virtues, honor, harmony, that combined to allow the winning side to "observe the Tao of Heaven" (van Creveld 2000, 24).

Sun-Tzu's first words in the *Art of War* are "Warfare is the greatest affair of state, the basis of life and death, the Way (Tao) to survival or extinction. It must be thoroughly pondered and analyzed." (Sun-Tzu 1994, 167). From the first sentences of his work, he firmly places the importance of warfare in relation to the state. With the rise of large kingdoms during Warring States Period, China began to slowly unify into larger and larger kingdoms. Because so many kingdoms and states had fallen due to poor showing on the battlefield and in war, Sun-Tzu sought to teach wise rulers the lessons of military history and how to successfully wage war.

In order to achieve victory, Sun-Tzu put forth the following strategic and operational concepts that a kingdom and its commanders were to follow.

> In general, the method for employing the military is this: Preserving the [enemy's] state capital is best, destroying their state capital is second-best. Preserving their army is best, destroying their army is second-best. Preserving their battalions is best, destroying their battalions is second best… For this reason attaining one hundred victories in one hundred battles is not the

[1] This occurred during the Iron Age of Humanity.

> pinnacle of excellence. Subjugating the enemy's army without fighting is the true pinnacle of excellence (Sun-Tzu 1994, 177).

"Thus the highest realization of warfare is to attack the enemy's plans; next is to attack his alliances; next to attack their army; and the lowest is to attack their fortified cities" (Sun-Tzu 1994, 177).

In order to achieve these strategic outcomes, "in general, the strategy for employing the military is this: if your strength is ten times theirs, surround them; if five, then attack; if double then divide your forces. If you are equal in strength to the enemy, you can engage him. If fewer, you can circumvent him. If outmatched, you can avoid him. Thus a small enemy that acts inflexibly will become the captives of a large enemy" (Sun-Tzu 1994, 177-178). Sun-Tzu concludes the chapter that "thus it is said that one who knows the enemy and knows himself will not be endangered in a hundred engagements. One who does not know the enemy but knows himself will sometimes be victorious, sometimes meet with defeat. One who knows neither the enemy nor himself will invariably be defeated in every engagement" (Sun-Tzu, 179).

Sun-Tzu throughout his writings sought to use maneuver and the avoidance of battle in order to win wars. He believed in "manipulating the enemy, creating the opportunity for an easy victory, and then applying maximum power at the appropriate moment" (Sawyer 1994, 134). He stresses speed, surprise, the use of conventional and unconventional forces together, and good intelligence on the enemy's abilities, dispositions, and supplies, along with knowledge of weaponry, terrain, weather, to achieve victory (Sawyer 1994, 130).

Sun-Tzu's work, while short, proffers basic advice over all the levels of warfare, from the strategic, to the operational (campaign), to the tactical. While his list of advice on campaigns relates to the use of terrain and supplies as much as anything else, his overall guidance for fighting campaigns comes to down to utilization of speed and maneuver to create the conditions for short wars. "Thus in military campaigns I have heard of awkward speed but have never seen any skill in lengthy campaigns. No country has ever profited from protracted warfare. Those who do not thoroughly comprehend the dangers inherent in employing the army are incapable of truly knowing the potential advantages of military actions" (Sun-Tzu 1994, 173).

Sun-Tzu also believed that when command was given by a sovereign to a general to command an army, that general was merely given starting directions (i.e. political aims and objectives), and was free to pursue them without the influence of the sovereign. This view is a very contentious view throughout history, and has been both abused and vilified, and proven correct depending on the political leader and commander combination.

In Sun-Tzu's world, speed, maneuver, intelligence, discipline, and freedom of action by commanders were the keys to victory for an army in the field, at all levels of warfare. Protracted warfare, faulty intelligence, and fighting the enemy not on one's own terms will lead to defeat. It will be the start of what Robert Clonts describes as the "Bloodless" Strategies line of lineage in military warfare, where wars were based not upon battles but maneuver and positioning, and where the targeting of civilians and complete destruction of the enemy was not required (Clonts 1999, 8-11). While Sun-Tzu was not opposed to fighting battles by any stretch of the imagination (for he did see their

utility, especially when maneuver and positioning alone would not achieve victory), it is the start of what is commonly referred to as the "Indirect Approach" to warfare, and is the earliest codified form of what is now termed "limited war".

While Sun-Tzu is certainly the most famous of the ancient Chinese military theorists today, there were other very important military texts, such as Jiang Ziay's "Six Secret Teachings" for building and maintaining an army and the role of the state, "The Methods of the Ssu-ma" and its justifications for war and importance of discipline, Wu Qi's "Wuzi" and his advice on tactics and strategy, Wei Laiozi texts on combined civil and military approach to state affairs, and the "Questions and Replies between tan Taizong and Li Weigong". These texts combined are known today as the "Seven Military Classics" of Ancient China (Sawyer 1993). These writers followed a very similar view as Sun-Tzu. Their combined thoughts implied that both the combined efforts of the state (civil government) and military were required to wage wars and promote peace. They also echoed Sun-Tzu in the belief of the 'Indirect Approach' of warfare. These writings, influenced through strong cultural and religious values, would influence Eastern Asia for over 2,500 years to the modern day.

Ancient Greek and Roman Military Thought

Across the globe around the same time as the Spring and Autumn Period and the Warring States Period in China were occurring, the Western military tradition was beginning to expand. In the West however, the development of military theory was less based on philosophy as in China, and more on history and the technical aspects of war. While this was not ignored in the East, in the West, the philosophy of war was strongly ignored, and instead was more based on practical knowledge and experience.

While the early Egyptian, Persian, and Assyrian military experiences are notable historically, their campaigns were focused around large forces concentrating to fight large decisive battles. This can be seen as the birth of the 'Decisive Battles' (or "Direct Approach") strategic paradigm, but it was not until ancient Greece and Rome did this paradigm truly become defined and codified.

The growth of Greek literature on warfare came from the traditions the Greeks, stories, and fables. Such stories as the *Iliad* and the *Odyssey* (in particular the *Iliad*), were stories of Greek valor in combat, along with lessons of strategy and politics that were played out on a grand scale in the War with Troy. Although Greek culture was impressive for its vast fields of study, the study of warfare was rarely codified, and instead was something that was passed down from generation to generation through training and practical knowledge instead of manuals, philosophies, and debates. Because of this, the famous Greek Phalanx and other tactical formations were refined at a very slow place, with emphasis on training alone. Greek tactics revolved around either sieges or phalanx battles on the open plains. Strategy revolved around defense of cities and alliances. It was not until the great Peloponnesian War that elements in the study of warfare began to be codified beyond stories, fables, and traditions.

Thucydides' work, *The Peloponnesian War*, is a political and military history that is an example of where "Classical antiquity has never been surpassed" (van Creveld 2000, 44). Its descriptions of "the goals of commanders, activities of armies, the motivations of troops, the possibilities and limitations of weapons and the sufferings of civilians" was the first of its kind in the Western world (van Creveld 2000, 44). For all of the great military histories written during this time period, "it is remarkable that ancient

military theory does not attain nearly the same level of excellence" (van Creveld 2000, 44). It is also unknown how much influence the works of Xenophon on strategy and tactics, or Tacticus' treatises of warfare this had upon commanders during the Greek era, but over time it reached nowhere near the popularity that (nor research into) Thucydides work has gained (Hanson 1995 29, van Creveld 2000, 48-49).

Strategy in both Greece and Rome revolved around national policy, such as influence over other states, the conquest of cities, and general expansion of power. Strategy as a concept or as a utility was not codified. Practicability and experience was all the ancient Greeks and Romans believed they need. What occurred in the West much different than what was seen in China. In China, strategy and military art was codified around what is now called the 'indirect approach' (though this was not always followed) which was seen as the supreme form of warfare. In the ancient Western world however, there was a fierce debate amongst politicians and commanders (many times one and the same) between the 'indirect strategy' and the 'direct strategy'. This contrast was best seen in both the Peloponnesian War and the Second Punic War.

Before and during the Peloponnesian War, the Athenians were initially believers in the 'indirect approach', where their navy would keep the supply lines open and allow them to strike where the Spartans were weak. The Spartans on the other hand believed in the 'direct approach', where it's well trained and feared army of hoplites would defeat their enemies on the field in the afternoon and win the war. Under the leadership of Pericles, the Athenians stayed behind their walls which the Spartans could not breech and await supplies from the Empire. The Spartans could not induce the Athenians to battle, and were forced to raze the land and leave Attia until such time as the Athenians would

come out behind their walls. The Athenians however were unable to effectively harm the Spartans with their raids and their alliances. Both sides suffered and drained their treasuries. It was not until the Athenians blundered with an offensive against Syracuse on Sicily and the Spartans built up a navy to defeat the Athenians and lay an effective siege on land and sea against Athens that the long and brutal conflict ended. The failure of Athens and its 'indirect approach' early on, and Sparta's victory through the use of the 'direct approach' placed decisive battle as the favored strategy by those in the ancient world. During the Second Punic War this view would undergo a transformation to an extent.

At the start of the Second Punic War, Rome suffered two major defeats at the hands of the Carthaginian army under Hannibal at the battles of Trebia and Trasimene in 218 and 217 BC respectively. Due to these losses, the Romans elected Quintus Fabius Maximus Verrucosus 'Cunctator' to the position of dictator in order to deal with the invasion by Hannibal.[2] He utilized attritional and indirect warfare against the Carthaginians, avoiding pitched battles and attacking his supply lines in an attempt to outlast the enemy and whittle them down to nothing. Roman legions were rebuilt and retrained, but the Roman Senate and populace were unhappy with the slow pace of events and wanted direct action against the Carthaginian threat in order to end it once and for all. Many Romans believed that they merely had not had enough legions in the field to properly crush the Carthaginians, and turned away from Fabius' strategy. Rome elected two now consuls in order to take the fight to the enemy though direct action and decisive battle. The consuls Varro and Paullus assembled a massive force of eight legions to

[2] "Cunctator" means 'delayer' in Latin.

defeat Hannibal, and maneuvered their forces to a town in the eastern portion of Italy near Cannae.

The battle that occurred on August 2, 216 BC was one of the most lopsided and decisive victories in the history of warfare, to the extent as it being proclaimed as the greatest tactical battle in all of the history and art of warfare. Hannibal utilized a double envelopment of both Roman flanks during the battle, and Hannibal utterly crushed Roman legions. Rome went into panic, its leadership in confusion, and it looked as if Rome and her republic would fall within a few days.

Rome would bring back Fabius and his strategy, and never again seek to engage Hannibal in open decisive battle on the Italian peninsula. Instead Fabius would corral Hannibal through strong points, hit and run attacks, and surrounding his army with larger armies but avoiding battle all to wear down Hannibal and his supplies. This would become known as the 'Fabian strategy'. While this strategy succeeded after many years in pushing Hannibal out of Italy due to a lack of manpower, not everyone was enthralled with the Fabian strategy. The Scipio family pushed for action and direct attacks by their legions against the enemy, in particular in Spain, Sicily, and North Africa. Eventually Publius Conelius Scipio Africanus would capture Spain and defeat Hannibal outside the walls of Carthage at the battle of Zama in 202 BC, through the use of direct action (O'Connell 2010). Thus Rome learned that it had either always be strong, or that it had to create the conditions for a Fabian strategy to be employed until strong reserves could brought up to decisively defeat the weakened invaders.

With Rome secure as the major power in the Mediterranean, she began a rapid expansion of her burgeoning empire, conquering Greece, Gaul, and the coastal regions

along the Mediterranean. Its grand strategy was to expand the empire, and eventually hold the empire together and stop outside invaders (which in the end it failed to achieve). Its military doctrine however is what stands the test of time. Roman methods for employment of troops, defensive organization, tactics, weaponry construction, camp fortification, administration, etc. are what have survived. Of its three most famous authors, Julius Caesar, Vegetius, and Frontinus, only one serves as a true manual. Frontinus's work has been lost to history (though a companion piece survives), and Julius Caesar's work is more self-serving for political reasons and posterity than true military value as a manual of philosophical work on warfare. Only Vegetius' work has survived the test of time as a work of note. His work is more of an ideal of what the Roman legions had been in the past than any current form of the legions when his work, *A Summary of Military Matters*, was written. Its details of organization, training, tactics, administration, fortifications, and naval warfare are the best in the ancient world, and combined with knowledge of Roman imperial politics and foreign policy, serve to show Roman strategy. That strategy was one of "punitive war", where Roman military campaigns were infamously destructive in the military phase, laying waste to rebellious or rival states in an attempt to impose fear and show off the might of Rome's Legions. The eventual destruction of Carthage is one such example. Yet after it devastated its enemy, it utilized a brilliant system of "citizenship and manumission" that made "the promise of inclusion in the society and infrastructure of Rome too attractive for most people to refuse" (Carr 2002, 18, 22).

With the fall of Rome, and eventually Byzantium, Western military thought would stagnate (though certainly not in practice as the wars numerous fought from the

fall of the Roman Empire until the Renaissance will attest to) until the Renaissance in Europe in the fourteenth, fifteenth, and sixteenth centuries.

Military Thought in the Medieval Era and Renaissance Era

Much of Western Europe was after the fall of the Western Roman Empire, in the control of barbarian tribes and local warlords. Because of this there was limited access to the old Roman documents, and anything from Byzantium or beyond was inaccessible for those practicing and studying war in Western Europe, and instead relied on songs, poems, and stories to pass down knowledge. There were few standing armies and professional soldiers beyond local lords (whom were busy running their territory), and military literature floundered during the medieval era.

With the rise of the state by consolidation of smaller territories into larger ones, interests in a professional force and military theory again arose. Ancient text that were long forgotten or ignored once again became important, and was widely debated. Such men as Nicolo Machiavelli and Raimondo Montecuccoli began to use their own knowledge of ancient warfare and current methods of war to create new works on war. Now the study of war based not only on experience, but observation and theory as well. Flemish philosopher Lipsisus put forth that the only legitimate war making body in the world was the state (van Creveld 2000, 76). However, all of these authors failed to take into account the various levels of warfare, as if they were not separated (or even inter-connected), but indivisible. Their works are important, but only as a starting point for those who came after them.

The Early Age of Enlightenment

The early theories and concepts started in the Renaissance continued to develop during the Enlightenment. The authors of the period believed that theories should be based upon theories that in turn would became a system of rules that were to be applied in battle, based on logical reasoning and the experiences of battle. Many writers came after the great Seven Years War, in which France and its allies had failed to defeat the much smaller state of Prussia under Frederick the Great. One of the greater theorists of the period was Jacques Antoine Hippolyte, the Comte de Guibert. Guibert served during the Seven Years War, and used those experiences and his desire to see France perform better in the next war in his work, "A General Essay on Tactics". In this, Guibert "detailed recommendations concerning the shape of military formations" along with "Four propositions… [that] justify the high reputation he enjoyed among his contemporaries" at the time (van Creveld 2000, 91). His work however "did not distinguish between tactics and strategy. At the same time his distinction between 'elementary tactics' (the use of the various arms) and 'great tactics' (marching, combat, deployment and encamping) shows that he was groping his way towards the latter concept" (van Creveld 2000, 94). In the Western world, the levels of war and their differences were beginning to be understood.

Sebastien le Prestre de Vauban, a French Marshal who was the foremost expert on military engineering of his time, wrote several works on fortifications and conducting sieges. While he did not write a treatise of war as Sun-Tzu had done, his works were important for the development of warfare. He began to codify sieges into a play-by-play list of rules to be followed. He advocated the use of offensive forces (that were well

supplied) to cordon off and lay siege to a desired target, and through his methods, take the fortification as bloodlessly (for the French side) as possible. Vauban's works have held the test of time, and are still referenced today as being perhaps the high water mark, "unsurpassed" in the field of sieges and fortifications (van Creveld 2000, 80-81).

Following in Vauban's footsteps was Jacques Francois de Chastenet, the Marquis de Puysegur, whom wrote in a similar vein as Vauban, but on infantry and quartermaster topics. He sought to take warfare and create "the entire theory of war from the smallest part to the largest" (van Creveld 2000, 81) but both the use of theory and practice, going against the opinion of the time that only experience in war mattered. His book covered not only his own experiences, but campaigns of the past and came to the conclusion that the art of war was "knowing how to form good *orders de battaille* and how to make them move and operate according to the most perfect rules of movement; the principles of which are derived from geometry, which all officer must be familiar with" (van Creveld 2000, 81-82). This is one of the first studies of warfare to include principles beyond experience and attempt to codify the movement of formations in tactical situations using geometry in his case. It was be a truly remarkable feat for the study of war, and in conjunction with others, the beginning of true study and codification of war in the Western world.

Most famous of the French Enlightenment military writers was the work of *Reveries* by Marshal de Saxe.[3] It serves to refute elements of Puysegur while placing forth the common thoughts of the era. To De Saxe, the art of manoeuver was the supreme achievement in war, as it allowed a freedom of action because "battle was to be engaged in only as a last resort, and then only when prospect for victory were certain" (van

[3] Reveries is "dreams" in French.

Creveld 2000, 83). But of even more importance is the realization that not only is maneuver key in war, but that the current system of organization and administration utilized by armies at the time had run its course, and something else was required. De Saxe promoted the idea of combined arms units (that of the 'legion') to help armies react and maneuver more quickly to bring fire upon the enemy, as he found the current system of regiments were too limiting. It was the seed for which would later bring about the corps system several decades later. However, de Saxe does fail to expand the opening made by Puysegur on levels of warfare, continuing to keep both strategy and tactics inseparable and indivisible.

The Late Enlightenment Era to the Napoleonic Wars

With the Peace of Westphalia in 1648 and the rise of the absolute states and (proto) inter-state system, states began to realize that they could (and at times had to) utilize ever more resources to be victorious in war. The foundation for modern thoughts on war would come about due to the events from Seven Years War to the end of the Napoleonic Wars.

The first true theorist (and a practitioner as well) to come out of the Western world was the Frenchman Jacques Antoine Hippolyte, the Comte de Guibert. His experiences in the Seven Years would greatly shape his work, as France had performed poorly against Prussia and Austria. Guibert devised a 'grand system' of warfare that would cover all aspects, not just certain elements like Vauban and Puysegur had done (van Creveld 2000, 91).

Guibert believed that wars should not just be fought by a state's standing army alone, but the combined forces of the entire state. In order to achieve this, general

conscription of the state would be utilized, allowing the state to utilize its vast manpower pool. Furthermore, vast logistical networks should be created, ready for use, and constantly maintained. And finally, utilizing a new system of tactical formations (which would be applied by the French during the Revolution and after by Napoleon), French field armies were to operate not as one massive unit, but as dispersed and independent formations, echoing the evolution started by de Saxe (van Creveld 2000, 91). Guibert also did not differentiate between strategy and tactics. He did however make the "distinction between 'elementary tactics' (the use of the various arms) and 'great tactics' (marching, combat, deployment, and encamping) shows that he was groping his way towards the latter concept [of the strategy-tactics paradigm)]" (van Creveld 2000, 94).

After Guibert came the Prussian officer Adam Heinrich Dietrich von Bülow. His first work was incredible, as it sought to combine military theory with politics and geography. In many ways von Bülow serves as the "father" of geopolitics (Palmer 1986, 114).

Von Bülow's later works failed to capture the events of his time, nor the changes that were occurring due to the French Revolution and Napoleon, and his theories became a jumbled and discredited mess (Palmer 1986). He did however, begin to understand that strategy, and not tactics held the key to victory in war, and wrote much on supreme command. Unfortunately, von Bülow was unable to assemble all of the new concepts of warfare, and especially the command relations brought about at the national and corps level by Napoleon, into a unified theory (Palmer 1986, 118). Thus it would be left up to a Swiss born French general whom served under Napoleon for a time (and later Russia),

Antoine-Henri, baron Jomini, to expand upon the thoughts of Bülow and truly codify them into a theory.

Jomini: "The Father of Modern Strategy"

Antoine-Henri, baron Jomini was highly influenced by the campaigns of Napoleon in Italy, and as such wanted to follow in his footsteps in military glory and political power. Thus at a young age he began to devour books on warfare. Eventually he rose to the rank of general de brigade, and chief of staff to Marshal Ney through several campaigns, such as the Austerlitz campaign, battles of Ulm, Jena (Shy 1986, 152-153).[4] Jomini's goal in all of his writings was not only fame, but an understanding of how the French had been so successful in under Napoleon while other states had failed utterly, and "answering this question, persuasively and influentially, would be Jomini's great achievement" (Shy 1986, 145). In 1803 he set down the basis for all of his later works the following core concepts for victory in war: "That strategy is the key to warfare; That all strategy is controlled by invariable scientific principles; and That these principles prescribe offensive action to mass forces against weaker enemy forces at some decisive point if strategy is to lead to victory" (Jomini 1811, 2:312).

Of Jomini's many works such as *Treatise of Grand Tactics*, histories of the Revolutionary and Napoleonic Wars, guides for tactical formations and weaponry usage, he is remembered today for his *Summary of the Art of War*. His writings were highly influenced by his role model, Napoleon, his own experiences in war, and by the British General Henry Lloyd's writings on the Seven Years War (Shy 1986, 148-150). His *Summary of the Art of War* was "the most mature and influential expression of his ideas,

[4] General de brigade would be considered a brigadier general today.

in the *Summary*, elaborates without altering the basic points made in his earliest published work" which made the work less popular during the period when it was published (Shy 1986, 153-154).

Jomini believed that there were a series of timeless principles that could be complied into both a theoretical and practicable system of war, valid for a commander during any period of warfare, which differs from von Clausewitz who doubted theories of war, and did not distinguish the difference "between a theory of systems and a theory of principles" (Shy 1986, 154). The way to victory in warfare in Jomini's world was use massed force against a weak point in the enemy battleline when involved in a battle (i.e. tactical scenario), and using this same concept at the strategic level of war was the true secret to strategy and warfare. Out of this came the "principle of maneuvering the mass of an army as to threaten the "decisive points" in a theater of war and then hurl all available forces against a faction of the enemy force defending those points" (Shy 1986, 154). A decisive point was where attacking the enemy would cause serious harm and damage to the enemy (such as a major supply depot, fortification, city, etc). And while the principle may be applied differently due to the situation, the principle would never change in Jomini's world.

Jomini was a proponent of offensive action, utilizing the attack even at the expense of weakening the defenses at other locations to strengthen the offensive, and that this counter-intuitive view of purposely weakening oneself to strengthen other sections of the front was what made commanders successful. Further, allowing the enemy to decide when, where battle would be fought, and allowing the enemy to have the initiative was a recipe for defeat (Shy 1986, 168). Therefore, offensive initiative with maximum force

applied at an enemy weak point was the key to Jomini's understanding of victory. Jomini also believed like those in the past that commanders on the battlefield should, once given political goals and directives, be free to wage their strategies and campaigns without political interference.

What Jomini did was take the fused elements of tactics and strategy that earlier writers had written on, and begin to separate them into their own areas or levels more so than anyone else before him. He also brought back the ideas that battles were necessary, but could be won through maneuver and mass. His thoughts would dominate Western (in particular French, British, and American) thinking for the next two hundred years, where his ideas would be built upon by others (such as Liddell Hart), and contrasted by others (such as von Clausewitz). It would be the comparisons and contrasts of Jomini and von Clausewitz that would shape the next one hundred and fifty years of strategic and military debate.

Carl von Clausewitz, the Philosopher of War

If Jomini was the father of modern strategy, then von Clausewitz was in many ways its mother or brother (even if belated in acceptance). Few military theorists have caused such rabid debate and conflict behind the meaning of their works than that of Carl von Clausewitz. Some view him as a revolutionary figure, his work the zenith of philosophical debate on the meanings of war and the philosophy of war. Others view his work as the nadir of military thought, one who provided the template for total war, and gave voice and reason to the destructive impulses that would culminate in the 20th century.

Carl von Clausewitz was a Prussian military officer who fought against Napoleon, serving multiple roles within the Prussian and Russian militaries to include the chief of staff of the German II Corps during the Waterloo campaign. He was promoted to generalmajor (Major General) in 1818 and made the director of the Kriegsakademie until shortly before his death in 1831.[5] It was at the Kreigsakademie that he began to seriously theorize on warfare.

His magnum opus was a work originally started in 1816, but slowly evolved over the next fifteen years. It was an unfinished work, as shortly before his death he began to edit the entire work, only completing editing the first book. It would be published posthumously by his wife in 1834, called *On War*, and over time, the unfinished work would forever change the way people thought about warfare.

Clausewitz was in search of several basic questions, such as what is war, what was the purpose of war, how does one properly study war, and how Napoleon and France were so successful during the wars of Revolution and Napoleon (Paret 1986, 186-187, van Creveld 2000, 106-107). Using the methods of such philosophers as Kant and Montesquieu, his earliest works reject Bülow's methods and view of war, finding them unrealistic (Paret 1986, 190). In one of his first articles he published, he states that in contradiction to Bülow, that "tactics constitutes the theory of the use of armed force in battle; strategy forms the theory of using battle for the purposes of war" and that "strategy, however, is nothing without battle, for battle is the raw material with which it works, the means it employs" (von Clausewitz 1805, 271).

This view would be expanded in *On War*, where "war is not merely an act of policy but a true political instrument, a continuation of political intercourse, carried on

[5] Kriegsakademie is German for 'War Academy', similar to a war college in the US.

with other means… The political object is the goal, war is the means of reaching it, and means can never be considered in isolation from their purpose" (von Clausewitz 1976, 99). Therefore, strategy is dependent on the political realm, and on political leadership for guidance and direction. The purposes and means of warfare for von Clausewitz require that "the objective of any particular war, which must guide military action if the political purpose is to be properly served, we find that the object of any war can vary just as much as its political purpose and its actual circumstances" (von Clausewitz 1976, 102). Von Clausewitz however does not delve more deeply into the nature of politics and war, and after making this declaration (which is famously quoted), moves on to the act of waging war, believing the relationship between politics and waging war to be an indisputable fact and beyond the scope of his work.

Von Clausewitz then takes an interesting turn and utilizes a method (the dialectic method) for the greater part of his work, where he places forth a theoretical idea, and then shows how that ideal cannot be achieved. "If for the moment we consider the pure concept of war [theoretic view without political direction]… war is an act of violence meant to force the enemy to do our will its aim would have always and solely to be the overcome the enemy and disarm him"(von Clausewitz 1976, 102). In order to disarm the enemy, the enemy's military must be destroyed or "put in such a condition that they can no longer carry on the fight" (von Clausewitz 1976, 102). Only through war (through the medium of battle) can victory be achieved. This requires one side to defeat an enemy's military and destroy their will to continue fighting (as von Clausewitz compares war to a duel between two parties), which in addition to the securing of their capital city and

center of administration, will create the environment where the enemy will give in to the political demands placed upon them.

Therefore, in von Clausewitz's theoretical world, there is an event called 'total' or 'absolute' war, war that is unrestrained, an ideal. The use of violence will be utilized until the enemy is completely destroyed, where wars are of mass violence, mass force, aimed at annihilation (Paret 1986, 198-201). Wars in von Clausewitz's ideal world should utilize maximum force to disarm the enemy, and whomever it able to utilize their will power and resources best will win. However in the real world, this ideal cannot be achieved according to von Clausewitz. Such factors as politics, friction (a major element of theory, where "uncertainties, errors, accidents, technical difficulties", morale, decisions, intelligence, past knowledge, technology, etc.) all play a role where the commander can never have perfect knowledge, or perfect movement of their forces (Paret 1986, 202-203). Add in military genius of some commanders, intuition, along with morality, and the "fog of war" (composite for friction and all other uncertain variables) creates an environment that can never be made into mathematical principles according to von Clausewitz, as the commander will always be hampered by these variables and effects of uncertainty.

In von Clausewitz's world, war is based upon two trinities, one of violence, chance, and politics (intangibles) and the people, military, and government (tangibles). Thus the nature of war is a competition between the people with their passions, government and their political aims, and the commander and his army, dealing with the "fog of war". Only well trained troops, under a commander who realizes these variables,

with sound political policy backing him can truly be successful in causing damage upon the enemy by destroying their military and will power.

Von Clausewitz does an excellent job placing warfare solidly within the political realm, while covering the strategic and tactical levels of warfare (even if not by name directly). What is most important is his writings is that of campaigns, in which he dramatically expanded the theories and knowledge of the operational level of warfare far beyond anything before him. He strongly believed in the defense as stronger than the offense in tactical situations, but that of offensive action was ultimately required to win wars. Therefore victory is achieved in battles through the use of the 'schwerpunkt', or concentration of forces at one location on the enemy's line, and with all the energies of the army directed at one point, will then be able to break the enemy line and pass through it, which will in turn force the enemy to retreat. This would then be followed up with further attacks, seeking to destroy parts of the retreating army during the retreat until a certain culmination of the offensive where offensive action was no longer profitable and the army resupplied and regrouped. This concept of the 'schwerpunkt' has seen its own mutation over the years through its translation as "center of gravity", is in fact a mistranslation of the original word. Von Clausewitz meant a very limited meaning with schwerpunkt, whereas today the term 'center of gravity" has taken on a meaning much more board than anything von Clausewitz described when discussing the schwerpunkt in his work.

Von Clausewitz would not see fame or acknowledgement for his ideas until many decades after his death. And then it was only accepted in Germany. It would more than a century after his death before the rest of the world embraced elements of his work. While

Jomini proved popular with the American military from the American Civil War to World War II, Jomini fell out of favor to a Clausewitzian view of the warfare by the 1980s. However, von Clausewitz's work remains a highly controversial today. While Jomini is known in military circles, von Clausewitz (like Sun-Tzu) is known outside of those circles and at least in name by portions of the general public. Jomini is seen today as a product of his era, while von Clausewitz's work is seen as timeless.

Von Clausewitz's work is not without controversy. He has been demonized as a prophet of total war, and inspiration for bloodlust World Wars I and II, or as too abstract to understand properly. What should be remembered by those detractors, and everyone else for that matter, is that his dialectical method provided a way to compare war in a pure, unhampered format, and that his genius was to take elements that detract from this pure version of waging war, and making the understanding of waging war realistic and useful. Furthermore, he helped develop the understanding of not only the proper place of warfare, but the operational level of warfare as well In doing so he created a system of understanding that remains in use today.

War in the Nineteenth Century

After the Napoleonic wars, theories of warfare fell back into the hands of the practitioners. Warfare was still thought of in terms of Jomini, von Clausewitz, and Napoleon. However major developments would change how warfare was viewed and fought. With the rise of the modern inter-state system, states continued to expand and consolidate their power, economics, and territory. With new technologies such as repeating rifles, the telegraph, railroads, and canned foods, such elements of warfare as logistics, transportation, communication, and tactics all saw dramatic changes. And while

all of these would have an effect on the operational art and strategy employed by states, the single largest change to strategy was brought about by the great population expansion that was occurring.

Armies in the past had numbered anywhere from a few hundred or thousand to at most a couple hundred thousand. But with the great population expansion, armed forces could now easily fill their ranks with hundreds of thousands if not millions of troops. Commanders were forced to move away from the tactics of Napoleon to disperse their troops. Command and control over the vast formations, along with their supply became both easier and harder. However, three commanders stand out during this timeframe for their waging of war: Grant, Sherman, and von Moltke.

During the American Civil War, the Union was despite its efforts, repeatedly beaten back by excellent tacticians such as Robert E. Lee, Albert Sidney Johnston, Joseph E. Johnston, and Thomas "Stonewall" Jackson were able to hold off Northern advances that failed to penetrate deep into the South during the first two years of the war. By 1863 however, the combined efforts of the Southern Confederacy had not stopped the Federal Union forces from taking over large portions of Confederate territory. Foremost amongst the Union commanders in 1863 were two friends who with very different styles, would bring about the defeat of the Confederacy over the next two years and help mold the future of warfare.

Ulysses S. Grant was a persistent commander. His lighting fast victories at Fort Henry and Fort Donaldson had opened up Tennessee to invasion, and his Vicksburg campaign was (while slow at times), unrelenting and dominating. Due to his string of victories, he was made General-in-Chief of the Union armies, and in 1864 set a plan in

motion that would a year later defeat the Confederacy. Grant's plan was similar to the plan Lincoln had wanted for many years, concentration of Union armies on the offensive at all points along the Confederacy to overwhelm them through coordinated attacks (McPherson 2008, 215-216).

Grant deployed with the Federal Army of the Potomac, and ordered its commander to doggedly go after General Lee and his Army of Northern Virginia and not the Confederate capital of Richmond, would be its objective. The Overland Campaign and Siege of Petersburg/Richmond that would follow would be campaigns of continual fighting, and heavy casualties. In effect, it was a war of attrition and direct action, where Grant would utilize his manpower advantage at a high cost in casualties to both sides in order to over-extend and overwhelm the Army of Northern Virginia and destroy it (McPherson 2008, 218-224). In April of 1865 Grant would force the Army of Northern Virginia to retreat from Petersburg and Richmond, and in 9 days of dogged pursuit surround it and force it to surrender. A scant few months later, every other field army in the South would surrender to the Union, ending the War.

The second main element of the Grant's plan was to have continued pressure upon the main Confederate field army in the Western Theater, the Army of Tennessee. General William T. Sherman, who was Grant's right hand man in 1862 and 1863, would take command of the western theater when Grant became General-in-Chief. Sherman would move his combined armies into northern Georgia in an initially slow campaign as he chased after General Johnston and his army (McPherson 2008, 221, 231). Sherman's war was one of maneuver, avoidance of battle, and psychological warfare. Sherman outmaneuvered the Confederates to capture Atlanta. Sherman then pushed for something

only tried on a smaller scale and through short durations: march several armies for months through the enemy's heartland destroying everything of value, but with the intent not of destroying military capabilities or armies, but the will of the enemy. While General George Thomas destroyed the remnants of the Army of Tennessee at Nashville, Sherman marched several armies deep into the heartland of Georgia. Sherman wrote to Grant that his plan would "cut a swath through Georgia to the sea, divide the Confederacy into two, and come up on the reach of Lee" and "if we can march a well-appointed army right through [Jefferson Davis's] territory it is a demonstration to the world, foreign and domestic, that we have a power which Davis cannot resist. This may not be war, but rather statesmanship" (McPherson 2008, 251). He would follow up his march through Georgia up into the Carolinas, eventually affecting the surrender of General Johnston's army shortly after Lee's in 1865. The debate rages today whether or not Sherman's March was effective, but there is evidence from the Army of Northern Virginia of desertions rising after news of the march began to spread. But as to breaking southern will, that question is one left unanswered. Whatever the pros or cons of the 'March to the Sea', it certainly illuminated southern weakness and highlighted northern power, and left an indelible mark upon the Confederacy and the war itself, as well as proving to be a brilliantly run operation. The combination of Grant and Sherman devastated the Confederacy as no two other commanders did, and helped bring about victory though a combination of direct and indirect action against the Confederate armies and populace.

Prussian Chief of the General Staff, General Helmut von Moltke, rose to his position based upon his intelligence as an officer (van Creveld 2000, 126). He was not a theorist, but a practitioner like Grant and Sherman. He and his staff drew up extremely

complex and accurate mobilization plans utilizing the railroads as never before (to an extent far beyond the American's use in their Civil War). Von Moltke created a system that was highly flexible, where field commanders and their armies would be separate from each other in order to lessen the stress upon supply lines, but could still converge from several directions to encircle and destroy an enemy. Due to the firepower from new rapid firing rifles and artillery, his forces would be strategically and operationally offensive, but tactically defensive (something later seen in WWI by the Germans, but less followed by many commanders in the wars of the 1860s). The command and control methods, along with the strategic and operational vision of von Moltke would be proven as justified in Prussia's victorious wars against Denmark, Austria, and France in the 1860s and 1870s, as Prussia's field armies encircled and destroyed massive Austrian and French armies at the famous battles of Koniggratz (Austro-Prussian War) and Sedan (Franco-Prussian War). After 1871 Germany would become not only a continental land power, but a military force that would be emulated by many other states around the world.

By the end of the nineteenth century, the lessons from the previous century of warfare (after the Napoleonic wars) were that Napoleonic tactics of massed fire no longer worked. Field defenses had become important, as was the use of superior firepower on the decisive point in the enemy line, but offensive operations still won wars. The ability of railroads to move supplies changed the entire logistical structure and plans of armies. With ever growing amounts of manpower, armies would use it to their advantage to either break through enemy lines, either through attrition (Grant), maneuver (Sherman), or encirclement (von Moltke). The goal of the armies in the field was to seek out and

destroy the enemy's will by either destruction of the enemy's production (Sherman) or encirclement of enemy field armies (von Moltke, Grant) and the enemy's national capital (von Moltke). While the lessons learned from the wars in the nineteenth century involving interstate or large scale war was varied and vast, armies at the time continued to think in offensive terms at the strategic and operational levels at least (if not tactically). The lessons ultimately led leaders to think that even if tactically defensive, the only way to win wars was through strategic and operational offensives. By the end of the century these lessons were tinted with the belief that superiority of morale and technical expertise (especially with railroads) would overcome any obstacle, and thus the grand visions and maneuvers of Grant, Sherman, and von Moltke became slaves to timetables of railroads and mobilization (van Creveld 2000, 135-141).

Naval Theory: Alfred Thayer Mahan and Julian Corbett

Naval warfare was not created in the 1800s, for it had been around since the Peloponnesian wars, and in early wars "ships and navies had often figured prominently, sometimes even decisively" in Greek and Roman wars (van Creveld 2000, 144). Before 1890, the writings on naval warfare were vague, so much so that where "as to Sun-Tzu and Clausewitz, the greatest writers of all, to judge by their published works one would think they did not even know that such a thing as the sea existed" (van Creveld 2000, 144).

The operation of navies required highly technical training in navigation, weaponry, and later engineering, and the building of ships and training of crews was expensive and time consuming. Therefore most literature on naval warfare revolved around the technical aspects of sailing and navigation, administration, and naval tactics.

Thoughts in the use of naval warfare at the operational and strategic level were not well discussed. It was not until after the Napoleonic wars that the study of naval warfare at the strategic and operational levels began to flourish.

The first "prophet" of naval warfare was a US Naval Captain Alfred Thayer Mahan. While serving as the lead lecturer at the newly created US Naval War College from 1886-1889, he wrote and compiled his lectures into two volumes, titled *The Influence of Seapower upon History: 1660-1783*. This seminal work was the first work to put forth why states should have navies in the first place, and how navies should be used.

Mahan believed that there were timeless principles in naval warfare and strategy, utilizing the country of Great Britain and its Royal Navy as the example of naval excellence.

> The history of Sea Power is largely, though by no means solely, a narrative of contests between nations, of mutual rivalries, of violence frequently culminating in war. The profound influence of sea commerce upon the wealth and strength of countries was clearly seen long before the true principles which governed its growth and prosperity were detected. To secure to one's own people a disproportionate share of such benefits, every effort was made to exclude others, either by the peaceful legislative methods of monopoly or prohibitory regulations, or, when these failed, by direct violence (Mahan 1987, 1).

In order to secure one's shipping a state must maintain a navy in order to defend the benefits of its merchant naval trade (Mahan 1987, 27-29). Navies were therefore "confronted by a double task: a negative one and a positive one. The negative part

consisted of halting and destroying the enemy's commerce, the positive one of making sure that one's own ships got through to their destination" (van Creveld 2000, 148). In wartime, Mahan believed that a navy must concentrate itself to defend its lines of communications (i.e. naval bases and resupply vessels) and go after the enemy's navy with its full concentration of its battlefleet. Commerce raiding was of secondary importance to destruction of the enemy battlefleet. By destroying the enemy's battlefleet, command of the sea would be achieved as there was no longer any enemy ships left to attack one's own battlefleet or merchant fleet, all while maintaining a blockade upon the enemy. Mahan's argument that only a concentrated battlefleet, ready for battle against an enemy battlefleet, could provide victory in war through decisive battle that would lead to command of the seas. This argument that won favor with many naval officers and those in industry and political circles that would benefit from an enlarged navy. Those who would not benefit from Mahan's ideas doubted his concepts, believing that "fleets-in-being" and commerce raiding could serve as an effective deterrent to starting wars. Both sides would be proven wrong.

Despite the flaws in Mahan's concepts and the varied responses his theories of seapower have received over time, his theories do have a certain form of logic for a type of warfare that is platform centric (i.e. ships, etc.). Ships take time to build, and it takes even more time to train the crews to sail (navigate and operate) and fight on warships. Thus when you sink a warship (or disable it), it is not as easy as it is in land warfare to reconstitute the lost unit. Instead of finding more soldiers to fill in the losses in a ground unit, new sailors (like soldiers) must be trained, but also a new warship built, or lesser ship converted for the task. And by concentrating one's forces, you maximize the ability

of your forces to inflict the greatest amount of damage upon the enemy while providing greater separation of firepower concentration upon your own ships (since there are more to attack), and thus providing greater defense. In a theoretical world, destruction of the enemy's ships would provide control over areas of the ocean, and the enemy, without ships would be unable to respond to the movements of one's ships and fleets, and theoretically could strike anywhere upon the enemy coast. Destroying the enemy's fleet however is not an easy task. There are many ships that will need to be sunk, and one will also suffer some level of losses in a naval engagement in order to defeat the enemy. Further, the oceans are extremely vast places, and locating the enemy's fleet requires a lot of efforts and dispersion of forces to achieve. While Mahan's concepts are theoretically sound, its implementation is much harder.

Mahan proved not only very divisive, but very popular with his work. Even if many of the specifics were proven wrong, his concept of seapower and command of the sea would hold true over time, just as he had believed that command of the sea had propelled Britain to its superpower status. However, his thoughts were not the only thoughts on naval warfare. In many ways, what Mahan wanted to achieve was impossible through a single glorious battles where the fate of nations were decided in an afternoon (what commander would risk their fleet and the fate of the war in one battle?). Instead many saw naval warfare as a form of attrition, and only through attrition over time could command of the sea occur, not after one gigantic battle.

Julian Corbett was a British civilian (lawyer) naval theorist, who created much divisiveness himself through his seminal work *Some Principles of Maritime Strategy* and his numerous lectures and articles published throughout his life on naval warfare.

Supports of Mahan, and many there were in the Royal Navy at the time, did not care of Corbett, believing that Corbett was the anti-Mahan. Where "Mahan had written almost as if policy did not exist – Corbett proceeded to explain that, on the whole, the fact that 'men live upon land and not upon the sea' meant that warfare on the latter was less importance, and less decisive, than the former", which is why we can see naval officer did not like this view (van Creveld 2000, 152-153).

Corbett believed that the decisive battles that Mahan and many admirals of the Royal Navy envisioned were impossible. Historically, decisive battles were the exception instead of the rule. Instead wars of attrition were the norm to Corbett. In Corbett's view navies had several missions, "safeguarding one's own commerce, disrupting that of the enemy by every means that came to hand, and using the navy to land forces at selected points in the enemy's rear so as to disrupt his plans and throw him out of gear" (van Creveld 2000, 154).

The differences between both men and their theories are vast, but not as vast as might be thought. "Mahan looked into the objectives of naval warfare per se; Corbett linked it to policy, which might be less limited or more so" (van Creveld 2000, 156). Supporters of each school of thought believed that new technological innovation (submarine, aircraft carrier, etc.) would further their theorist's claims, and both sides have made arguments to that effect. Mahan's and Corbett's influence continues to dominate naval thinking today, if only through their theories' evolution (and in many ways melding together for some states to include the US, Japan, and Great Britain). "As the twentieth century draws to its end both schools are alive and well, thought it must be admitted that the debate has become somewhat academic. Command of the sea in the grand style,

implying operations that stretch across entire oceans, is now an object sought after by one country only [the US]" (van Creveld 2000, 157).

World War I: Offensive and Defensive Warfare

In the run up to the First World War, military leaders analyzed the events of the Boer War and Russo-Japanese War within the context of the frameworks established by either Jomini or von Clausewitz and through the lens of the actions of Grant, Sherman, and von Moltke: that entrenchments could be overcome by mixtures of attrition, maneuver, and firepower. Firepower was no longer to be massed infantry in tight formations. Now infantry were to spread out, utilizing cover and rapid firing rifles, machine guns, and artillery instead of lines of massed men. These new spread out formations would advance until such a point when it was no longer tenable to do so without heavy casualties, and then utilize improvised battlefield entrenchments until superior firepower or a flanking maneuver would force the enemy to retreat. As such, divisions were seen to have awesome offensive firepower, and whoever could bring that firepower to the battle first, and in a controlled and coordinated manner, would win (Keegan 1998, 21-22).

With the rapid expansion of manpower in each state, conscription became a major focus of European armies (Keegan 1998, 20). By the start of World War I there were over 200 divisions in Europe (Keegan 1998, 22). War plans became of great importance in order to bring the most amount of firepower as quickly as possible to decisive points along the front. However the war plans created by the major powers in 1914 were noted for their "inflexibility", and "None was integrated with what today would be called a "national security policy," made in conclave between politicians, diplomats, intelligence

directions and service chiefs, and designed to serve a country's vital interests, as for such a concept of national leadership did not then exist" (Keegan 1998, 27-28). Therefore when initial diplomacy failed, service chiefs thrust upon their political masters' their inflexible plans for mobilization and war, which was political suicide to ignore, and in late July and early August 1914 the armies of Europe mobilized and went to war.

All the major combatants immediately went on the offensive. The Austro-Hungarians began moving into Serbia, Russian mobilized armies that went into the offensive East Prussia, France launched an offensive into Alsace-Lorraine under Plan XVII, and Germany invaded Belgium and the northern French frontier under the "Schlieffen Plan". In all of these offensives every army would utilize similar tactics, seeking battle in the open, and attempting flanking movements while bringing in superior firepower to break up enemy positions, and digging in with temporary defensive positions when required. All of these offensives would end up bogged down as all combatants suffered such heavy casualties (from both offensive and defensive action) that all armies needed time to recover, resupply, and reinforce lost manpower (Keegan 1998, 127-128). Every army then sought defensive positions that would allow for the greatest possible defense while allowing for follow on offensive operations. The Germans however, believed they should be tactically defensive while strategically offensive, and picked ground on the Western front that was uphill of enemy positions and stronger for defensive ops. This forced the Allies into inferior entrenched positions. These defensive entrenchments were then connected to each other until there was a continuous chain of entrenchments all along the Western Front. Germany's 1914 offensive in France almost pulled off a repeat of 1870, however the gigantic mass of such large armies made what

occurred in 1870 extremely difficult if not impossible to achieve without some level of attrition. While the armies fought mostly a war of attrition, WWI ended in maneuver, where offensive maneuver was achieved by the Allies which led to victory.

In the East, the nature of the war was of "titanic battles" that "closely resembled those fought by Napoleon a hundred years earlier" both in size, scope, and distances (Keegan 1998, 161-163). These early battles led to horrendously large causalities similar to the Western front, and the war bogged down into entrenchments, though with much more maneuver then anything seen on the very static Western Front.

1915 to 1918 were spent by the warring powers in attempts to break the stalemate. New tactics and technologies were tested, to include new artillery schemes, chemical weapons, armored tracked vehicles (tanks), and the old massed offensives. None of these were able to break through the enemy's line. Germany's new Chief of Staff, General Erich von Falkenhayn, realized that Germany could not break through the allied lines, and instead attempted to "bleed them [the French] white" by attacking a critical point along their line and forcing them to use up manpower and wearing them down to the point where German armies could resume the offensive and breakthrough French entrenchments. Germany however didn't follow their own plan, and instead of utilizing a minimum number of men to inflict the greatest number of losses, poured more and more men into the Battle of Verdun, causing high casualties on both sides.

By 1918 however, the war began to take a dramatic turn. Heavy losses and political upheaval brought upon by economic and political stressors of the war had forced Russia out of the war in 1917. Germany and Austria-Hungry were beginning to become desperate as well due to manpower shortages and economic troubles brought upon by the

blockade emplaced by the Royal Navy, along with a failure to implement a wartime economy. France and Britain were also severely weak, surviving on American weaponry and now the massive influx of (inexperienced) American divisions. Germany would fail to break through the Allied lines on the Western Front, and with its strength diminished, the British, French, and Americans were able to push back the Germans, forcing them to request an Armistice. The final campaigns of 1918 were much like 1914, with movement, maneuver, and open battles occurring as trench lines that previously were impregnable broke due to a lack of manpower by Germany and new technology by the Allies (coordinated artillery and tanks attacks and coordinated air attacks).

World War I created a huge scar on the psyche of all the world's militaries, and different lessons learned by all. Two prominent British land warfare theorists would come out of the "War to End All Wars": J.F.C Fuller and Basil Liddell Hart.

J.F.C. Fuller was a staff officer in World War I. In that role he had planned the Cambrai offensive, and many other tank operations in the offensives of 1918. He also drafted a plan for the British Army to in 1919 to utilize massed attacks of tanks and mechanized units. After the war he pushed for the British Army to mechanize itself and use maneuver over the attrition in war. Fullers ideas were expanded upon by B. L. Hart, who was a most famous (and controversial) figure than Fuller. At the end of World War I, Hart was enamored with the British Army, but this quickly changed and his early writings criticized the conduct of the high command (van Creveld 2000, 175-176). Hart believed that the folly of World War I could be traced back to Carl von Clausewitz, whom Hart labeled the "Mahdi of Mass" and had caused the world to fight total war in World War I (van Creveld 2000, 176). In response to his (erroneous) belief in the failure

of von Clausewitz, he formulated the 'indirect approach', where armies would utilize surprise and secrecy to attack an enemy's line, breakthrough it, and get behind them into their lines of communication. To Hart, wining war meant operational movement (van Creveld 2000, 178-179).

Liddell Hart was a very canny man and shrewd salesman (Mearsheimer 1988).[6] His works before World War II were predictive failures, as he believed the defense to be stronger than the offensive due to technology (and thus failed to predict 'blitzkrieg'), and that wars would be won through the use of blockade and air power by small professional forces and not conscripted armies (also wrong). After World War II, he presented himself as a man who actually predicted 'blitzkrieg', and his writings became even more famous. Hart's overall abilities as a theorist were flawed, and owed much to Fuller whom had actually planned tank campaigns. At best Hart was misguided and only partially correct in his thoughts and predictions. At worst a fraud who covered up his mistakes and twisted comments and theories of others to support his own self-interest.[7]

Soviet Strategic and Operational Innovation

In the 1920s and 1930s, military innovation in strategic and operational thought came from an unlikely place: the Soviet Union. The Russian Civil War of 1917-1922 between the Reds (Bolsheviks / Communists) and the Whites (Nationalists / Royalists) had devastated the Russian homeland, its economy, and society. As the party grew in power in Russia, so did its hold and influence over the military. Communist ideology began to make its way into the study of war, with particular emphasis in the science of war (as in making the art of war a true science).

[6] Mearsheimer (1988) is an excellent analysis of the works of Hart over time.5
[7] I believe the latter, that Hart was a fraud.

The first time operational warfare was called operational warfare (in this case operational art) was by the Soviet military theorists Aleksandr Svechin. Svechin was a tsarist-era general on the Imperial General Staff during the First World War; he would eventually join the Red Army in March of 1918, serving in both operational and training commands.

After the Civil War, Svechin began to formalize his thoughts on the study of war. In his major work *Strategy* (published in 1927) Svechin states "The history of the art of war is a completely necessary introduction to this book, because without it we would risk becoming completely incomprehensible" and that "In essence, all of strategy is basically a contemplation of military history" (Svechin 1992, 77). During his lectures on strategy in 1922, Svechin began utilizing the term operational art where he "defined operational art as a critical conceptual linkage between tactics and strategy, therefore senior commanders were to transform tactical successes into operation 'bounds' to achieve strategic objectives" (Kipp 2011, 65). Because of the interlinking nature of tactics, operational art, and strategy, operational art had "become so broad and so significant that currently we consider the conduct of military operations to be the art of war in the narrow sense of the word" (Scechin 1992, 67).

In regards to strategy, Svechin believed there were two options (or dualistic strategic paradigms) in which states would follow: destruction or attrition (Kipp 2011, 66). Under the strategy of destruction, the armed forces were to seek out and destroy the enemy's armed forces in the field of battle. Svechin believed, unlike most Napoleon supporters, that Napoleon had made major errors in his campaigns because "Napoleon reduced an entire campaign to a single operation in a main theater" and thus the strategy

of Napoleon became “strategy of destruction… [which] comes down to destroying the personnel deployed by the enemy in this theater” and thus ignored other theaters of war and as such lost the war (Svechin 1992, 240). Further this type of war was even in the 1920s still seen by many historians and theorists as the predominant type of war to be fought, much to Svechin’s distress.

Under a strategy of attrition, the political and economic efforts of the state would be utilized in conjunction with the armed forces to seek destruction upon the enemy’s ability to wage war while avoiding large battles and destruction of the enemy’s armed forces. Therefore, wars would be won by vigorous defense and selected offensives by select and powerful armies breaking through the enemy’s lines and breaking into their rear to destroy their infrastructure and homeland (Kipp 2011, 68-69).

A second theorist was Marshal Mikhail Tukhachevsky, who served as one of the top commanders within the Red Army during the inter-war period. As a cavalry officer, he was enthralled with the speed that mechanical units could cause disruption behind enemy lines, along with the success that horse cavalry had had during the civil war.

Tukhachevsky put forth that the Soviet economy must rapidly industrialize in order to help fulfill his dream of mass mechanized armies with abundant armored forces (tanks, etc.) and aviation units (in particular long range units) (Kipp 2011, 70). His studies had concluded that victory in war was a result of the “deep battle”, where deep operations into the enemy’s rear would lead to encirclement of the enemy and its annihilation through the use of large numbers of mechanized forces. In order to achieve the “deep battle”, he experimented with mechanized and air forces to rapidly maneuver forces over large areas, and all the resources necessary to achieve it. He rejected the need

for a small force (like J.F.C. Fuller) and instead wanted a mobilization of the state in similar terms to Svechin that would allow for deep operations and battles of annihilation (Kipp 2011, 70-71).

Svechin and Tukhachevsky would be purged by Stalin, and they never saw their ideas come to fruition. Only their writings would live on, and their codification in Temporary Field Regulation-36, eventually saw their ideas utilized to an extent in World War II (Kipp 2011, 73).

After the Great Purge of 1937, Soviet development of strategic and operational theory fell to the wayside. It would not be until Germany invaded in 1941 that theory (and more importantly practice) of strategy and operational art would again come to the forefront. New and inexperienced commanders had to learn how to fight at levels they had never been trained for, and the Soviet Union suffered greatly in the first years of the World War II.

Airpower Theory

The carnage of the First World War motivated an Italian staff officer, Giulio Douhet, to seek out ways to minimize casualties and end war more quickly. He was an engineer who became enamored with new technology, and in his work *Il Commando del Aereo* (*The Command of the Air*) he put forth ideas that would shape the actions of all air forces for the next century.

Douhet believed that as with other technical innovations that airplanes would revolutionize warfare once again. Because trench warfare had rendered land warfare far too bloody and stalemated, only aircraft could break through the enemy's defenses and attack them where they were most vulnerable: the home front. In Douhet's view, the

mobilization of populations were the primary threat to a state and that because of the sophistication of aircraft, there was no possible way to defend against a determined air attack. Therefore the aircraft and only the aircraft was the supreme offensive weapon war. And with them delivering conventional and chemical weapons in such large amounts as to devastate enemy population and production centers, no enemy would be able to maintain its will to fight.

When wars began, small professional air forces would attack enemy "air bases with the objective of gaining 'command of the air'. Once command of the air had been attained and the enemy air force destroy, an air force should switch from attacking military targets to civilian targets and destroy their will to resist, thus ending the war quickly (van Creveld 2000, 166).

Douhet however much overstated his case (van Creveld 2000, 167). Bombing methods in World War II were notoriously inaccurate, gas was not used, and radar directed fighters caused grievous damage to bomber formations (only rectified with better fighter protection in the case of the Americans and the British switching to night bombing) (van Creveld 2000, 167-168). Douhet's message of air power and 'command of the air' however would continue on in one form or another, and while certain technologies and tactics may make certain aspects of his theory incorrect (as is the incorrect belief that air power alone wins wars), he made a valuable contribution of military theory which would be further developed in theory by such men as the American Billy Mitchell, and in practice by the Americans Harold 'Hap' Arnold, Carl Spaatz, James Doolittle, Curtis LeMay, George Kenney, and Otto Weyland, and by the British Hugh Trenchard, Hugh Dowding, Arthur Harris, Tafford Leigh-Mallory, and Charles

Portal who would turn these varying concepts into air superiority and air supremacy, utilizing air power to very successfully if incompletely attack tactical, operational, and strategic targets with overwhelming force in World War II (discussed further in the case study).

World War II: Total War in Europe

If anyone could be called a prophet of 'total war' as it is known today, then Erich Ludendorff would be that person. After World War I, a bitter, defeated, and self-serving Ludendorff set out to define the future of war and keep himself relevant in the ever changing dynamics of Germany's new Weimar Republic. He blamed liberals and communists for defeat, and helped promote the "stab-in-the-back" theory that stated Germany had not lost the war militarily, but because of collapse at home.[8] While after the war Ludendorff was a crazy and imbalanced person, it should not detract from his knowledge of war, nor the ideas he put forth in the inter-war period, as having run a state during a world war, he had quite a bit of knowledge and experience in the matter. "Ludendorff did not believe that a first-class modern state could be brought to its knees rapidly and cheaply by aircraft dropping bombs on civilian populations. Nor could this be achieved by fleets of tanks engaging in mobile operations, however indirect and however brilliant" (van Creveld 2000, 183). Instead he continued along the line of thought of Jomini, von Clausewitz. Wars were won by mass mobilization of the population and the economy and large armies that would utilize the modern elements of production, transportation, and communication to win wars (van Creveld 2000, 184). And only would

[8] Note: It should be noted that Germany lost due to not placing the economy on a wartime footing, famine, the inability to end the blockade, and exhaustion and defeat of its armies along the Western and Eastern Fronts.

those states with the greatest will power win in a struggle where everything was “put on the table” and where everything was “on the line”. He believed that the theories of von Clausewitz should be thrown overboard, because no longer in a total war could politics serve master to the military and war. Politics would be “swallowed up by the war; the two would become indistinguishable” (van Creveld 2000, 185). Of all the twentieth century theorists, Ludendorff’s vision would hold the most truth.

During World War II, Germany operated under a system where political concerns always trumped military considerations. At the beginning of the war this worked out in favor of Germany. While much has been written about the vaunted “blitzkrieg”, there was little doctrinal basis for it, only expediency. “The Polish campaign of 1939 invites comparisons with Schlieffen’s vision of Cannae on an operation level… [where] The objective was the Polish army; the plan called for breaking through the Polish frontier positions and creating a double envelopment, the spearheads meeting somewhere east of Warsaw” (Showalter 2011, 52). This double envelopment took longer than expected, but achieved the desired result.

The original Wehrmacht plan for the war against France was to fight a massive meeting engagement in Belgium, similar to that of the Schlieffen Plan, where it sought to break a hole in the enemy line, and “see what developed” (Showalter 2011, 53). Hitler was incensed with the plan, and utilizing two junior field grade officers (and his most brilliant tactical and operational commanders: Guderian and von Manstein), forced upon the Wehrmacht a plan which would force a short war in the West. It was a politically motivated move as Germany and the Nazi party could not handle an offensive stalling out like had occurred in the First World War.

The German offensive through the Ardennes was brilliant, as it was a weak spot in French defenses (sitting beyond the Maginot Line). While other offensives into Holland and Belgium drew the main Anglo-French armies into a march north, the Germans attacked and cut off the Allies in the north, leading to the famous evacuation of the British Expeditionary Force at Dunkirk, and the fall of France within a month. Germany was able to translate tactical victories, and operation surprise with strategic victory over France.

However, after this victory, tactical and operational success would not translate into strategic victory for Germany. Its air campaign in the Battle of Britain failed. "Rommel's triumphs in North Africa, although they represented masterpieces of operational art, lacked the resources to be translated into strategic achievements" (Showalter 2011, 55). Operation Barbarossa stretched Germany to its limit in material, manpower, logistics, infrastructure, and morale. "Barbarossa's scale exceeded the German grasp of operational art. The successive victories won by the panzers, the huge losses inflicted on men and equipment, the great encirclements of Minsk, Kiev, and Smolensk were essentially exercises in grand tactics, in the context of unraveling strategic objective that were poorly defined in the first place" (Showalter 2011, 56). After the failures of 1943 in the East (Battle of Kursk), Germany was on the defensive everywhere, and allied offensives in the East and West would build off of each other (North Africa, Sicily, Italy, Normandy, Southern France, etc). Germany went into damage control mode, where it could only "plug a hole and hope for the best" (Showlater 2011, 56).

Its best however would not be enough, and Germany would be overwhelmed materially, in manpower, by sea power, by airpower, and through better land tactics and operations in 1944-1945 by the Allies. The Allies utilized a mixture of the theories of tactics and operation art that had put forth in the inter-war period (though they were all greatly modified), and saw success as they translated tactical success into offensive operations which in turn achieved strategic and political objectives. The Axis however failed to turn tactical victories into operational and strategic success.

The Allies for their part (in particular the Big Three of Great Britain, the Soviet Union, and the United States of America) were certainly not without fault and problems. However they were able to mobilize their economics and populations in such an efficient manner as to render new technologies (and some have perceived superior fighting spirit) of the Axis irrelevant. They were also able to turn tactical success into operational and strategic success in a way never before seen, and thus won the war.

Centers of Gravity, Strategy, and the Operational Art of the Modern Era

The American military thought was shaken to its core as a result of the Vietnam War. Before and during Vietnam, the US had relied on overwhelming firepower to defeat its enemies; however in Vietnam this did not work (Echevarria 2011, 152). The Cold War had forced the US to change its tried and true strategy of war mobilization that required mass manpower and economic mobilization (as was done during the Civil War, and World Wars I and II) was no longer an effective strategy as nuclear weaponry would destroy those targets. Instead a "strategic reserve was constituted and a system of reserve call-up implemented and reformed" where military equipment and ammunition had to be pre-propositioned ahead of potential conflicts, and in which the active military and follow

on reserve formations "had to be prepared to fight with what they could carry, or could obtain through local means. Operational theory and doctrine, while still centered on the idea of concentrating overwhelming combat power at the decisive point, also began to consider the idea of fighting outnumbered and winning. The concept of active defense was one expression of that" (Echevarria 2011, 152).

The debate in the post-Vietnam world for the United States was a debate between 'manoeuvrists' and 'attritionists' in how to combat the Warsaw Pact in a conventional war (assuming it would not go nuclear) (Echevarria 2011, 155). Both sides of the debate believed strongly that victory was achieved by the destruction of the enemy's military capabilities (as expressed in the Air Land Battle concept and the Army's Operations Manual FM 100-5); just how to accomplish it was the question. Thus the United States (in particular the Army and Air Force, with the Navy and Marine Corps not completely buying into the concepts) had made a fundamental shift in its thinking. The US would (as expressed through the Weinberger and Powell Doctrines) seek to fight conventional wars on its own terms, and avoid unconventional wars (i.e. Vietnam) as to maximize the US's firepower advantage to win decisively (and thus training and doctrine was focused on kinetic conventional war and not unconventional war) (Echevarria 2011, 155).

During the 1980s, operational warfare became a permanent level of warfare and focus of study and research within the US and NATO. Jomini fell out of favor with von Clausewitz replacing him as a focus on emphasis within the US military. This dramatic change in US military strategy and operational art seemed to prove dividends in the First Gulf War, where the US using superior firepower and mobility out maneuvered and destroyed vast elements of the Iraqi Army, Air Force, Navy, and Republican Guards with

few allied casualties. Foremost amongst the changes was the utilized the concepts of John Boyd, that of the "OODA Loop" (Observe-Orient-Decide-Act decision making process).

In the 1990s, the Gulf War loomed large in American military thinking, with the events of Somalia seen as an anomaly. Doctrine, training, and technological development centered on 'decisive victory' in a conventional war where such things as standoff weaponry, computerization, information expansion, data links, etc. would prove decisive (Echevarria 2011, 157-158). Many declared a 'revolution in military affairs' (RMA) had occurred, and that new theories of network-centric warfare (NCW) and effects-based operations (EBO) would end von Clausewitz's 'fog of war' and allow domination of the battlefield (and they grew to immense levels of popularity in defense circles- though at the expense of many critics). These concepts of RMA, NCW, and EBO would be killed off however with the US experience in Iraq and Afghanistan, as it "ran counter to the history of warfare" (Echevarria 2011, 157-158).

In the past decade, the US has undergone a transformation similar in scope to that after Vietnam. The US was forced to come to the realization that while it dominated the realm of conventional warfare (as seen in the first days of the Iraq War), it was not well prepared in operations that occurred after the conventional fighting ended. In the case of Afghanistan and Iraq, it was woefully unprepared in doctrine and training for stability and counter-insurgency operations. The US military has spent the last decade re-learning (and finding new) lessons from past counter-insurgency wars it (and other nations) have fought (Echevarria 2011, 158-159). "American operational art continues to develop war's second grammar with energy. Its progress has been rapid, if uneven" (Echevarria 2011, 159).

Today strategy revolves around a new version of the 'schwerpunkt', where instead of a concentration point for attacking forces in a battle, but now something much more. Schwerpunkt is now translated as the theoretical 'center of gravity' (CoG). In this new view of the schwerpunkt, a CoG serves as the center of power for the state in which is draws all strength from, and without it can no longer fight. The CoG can be either a material or non-material item or concept, which makes it hard to truly identify. Its use has extended from the tactical both the operational and strategic levels of war in its usage. Thus the key to strategic victory in war today is to destroy the enemy's operational CoG which will in turn lead to being able to attack their strategic CoG and win the war.

Conclusion

In conclusion, the study of warfare has seen inconsistent growth throughout history. Much of it has been built upon the theorists before them and based upon the experiences of actual war. The study of warfare and its conduct however is so extremely vast with many variables (and opinions). While the field of military theory may never come to the level of knowledge that other sciences have (due to the information problems), it is an important field of study and should not be discounted merely because it has yet to attain a level of scientific certainty that other fields of study have attained. War is about people, and they are unpredictable at times. Maybe the day will come when we will have a more complete understanding of war beyond what we have now, and we can create models that can take into account the vast numbers of variables involved in war and all the people and technology associated with it and accurately model war down to its finest details. As of right now, we have yet to achieve anything near that level of complexity.

Chapter 3:

The Study of War in Political Science

For many in political science, the study of war should be left to others. For a growing minority however, this view is changing. The coupling of warfare with politics has been central to the study of political science throughout its history. The early political philosophers and theorists wrote not only on governance, but warfare as well. However, this changed over time, especially in academia in the past fifty years. "To the extent that there is knowledge to be gained by understanding what goes on within wars, its study is both appropriate and necessary subject of scrutiny for academics" (Gartner 1998, 255). The study of war onset and deterrence has been a central part of the study of political science in American academia for the past one hundred years. War outcomes and termination have only seen major advancements in the past twenty years. The section is a discussion of the early political philosophers and their views on war, along with a literature review of politics and warfare within political science along with the current trends in the war outcomes, war termination, game theory in relation to war, and the 'Bargaining Model of War' literatures, all of which have seen not only great advancement in research in the past twenty years, but excellent cross-pollination between them as well.

This is, like chapter 3, an extended overview of the literature in the field of political science and its dealings with war. As this study is written for audiences in both the fields of political science and military art, this chapter, as like the previous chapter, may be skipped for those very familiar with the literature, and continued with the main theory in chapter 4.

A Brief History of Political Science in Respect to War Outcomes up to World War II

The passing of knowledge in the earliest of days for humanity was that of stories. Eventually those stories were written down. What could be considered the first text of political science was that transcribed were the stories, told by Homer in the *Iliad* and the *Odyssey*, and in particular the Iliad. "The *Iliad* is the first of key texts through which classical Athens and Rome probed the foundations of international order" (Hill 2011, 9). The *Iliad* (in the dramatic flair of an epic) used story telling as an instruction for how Greeks should utilize (or conversely avoid) elements of statescraft, diplomacy, and strategy in order to be a good and just citizen, through the context of the great Trojan War. The Iliad was in effect a "poem of force" (rather a instructional manual or theoretical work) that allowed the early Greeks to pass down words of wisdom to future generations, moving away from that of the word of mouth and into a new medium, that of the written word (as it is believed that Homer compiled many stories of the 'Trojan War' saga into one epic) (Hill 2011, 10-15). This method of a poem should not be viewed with the lenses of scholarship today, but instead as one of the first methods of passing down knowledge and the first step to where we are today in academic scholarship. While the *Iliad* is not very scientific by modern standards, it should be considered the start of the field of political science, and that study would evolve for the Greeks in two realms: the politics of the polis (the community), and that of the politics of war or command and generalship ('strategia', or what we now know as strategy).

Thucydides however, along with others such as Aristotle, Plato, and Xenophon, dramatically changed the nature and study of history and political science. Thucydides, a former Athenian general who had commanded Athenian and allied forces during the

failed campaign defending Amphipolis, wrote the first narrative on an historical event in chronological order the Peloponnesian War (Hill 2011, 21). Thucydides' work *The History of the Peloponnesian War* is an incomplete work, as Thucydides died before the Peloponnesian War ended. It is also not only a historical record of events, but a narrative full of comments and observations that attempt to explain why events occurred and in the manner they occurred. It should be noted that his work would serve as the basis from which the theoretical concepts of "realism" and "deterrence" were derived from today

The History of the Peloponnesian War is the first attempt to show how and why this war began, how war aims were created and evolved, political-military interaction, mobilization of the city-states, alliances and their strategies, the strategies, campaigns, tactics, and weaponry utilized by the combatants, motivations of individuals, and how all of these variables caused other certain events to occur. It is a detached, markedly unbiased, coldly cynical, and crucial view of the events and the decisions made by leaders during the war. Though Thucydides died before the war ended, it was finished by another author, who wrote in the similar fashion as Thucydides, and thus carried on his work till the end of the war.

In deciding to go to war and enacting strategies, Thucydides states, "It is a common mistake in going to war to being at the wrong end, to act first and to wait for disaster to discuss the matter" (Thucydides 1998, 44). When engaged in war, states should seek control and rationality, not giving in to the fears and hysteria that may occur, "For war of all things proceeds least upon definite rules, but draws principally upon itself for contrivances to meet an emergency and in such cases the party who faces the struggle and keeps his temper best meets with most security, and he who loses his tempt about it,

with correspondent disaster" (Thucydides 1998, 67). No other book (non-religious) from ancient antiquity, (other than Sun-Tzu's *The Art of War*, has had such an enduring legacy as Thucydides' work.

While *The History of the Peloponnesian War* has captivated readers since it was written, Virgil's the *Aeneid* continued the Homeric tradition by writing on the founding of the Roman after the Trojan War, but most documentation on war outcomes was in the form of historical analysis by Roman scholars. Early and Middle Roman scholars emphasized the styles of warfare that its legions fought: "disciplined ferocity" that manifested itself into as the Romans called "punitive war" or "destructive war" (Carr 2002, 17-30). Late Roman and early Western political scholars were heavily influenced by the Catholic Church (such as St. Augustine and St. Thomas Aquinas and their writings on the 'Just War' Theory) and by the anarchy of the fall of the Empire. It was not until Thomas Hobbes and Nicollo Machiavelli that the interplay of warfare and politics come to the forefront of theory and written scholarship.

Thomas Hobbes, writing after the English Civil War (1642-1651), feared the disorder that came about due to civil war. Because of this, in his substantial work *Leviathan*, he puts forth the idea of a "social contract" in which the population of a state submits certain rights to their sovereign in return for peace and security from foreign intervention and domestic unrest (Hill 2011, 88-92). Hobbes, who had translated Thucydides' *The History of the Peloponnesian War*, admired the lessons that could be gained from the work and incorporated them into ways to protect the state from disorder.

Nicollo Machiavelli, on the other hand, weaves military advice not only into his great political works, but even writes a book on the *Art of War*. Machiavelli, lived in an

era where the Italian states were small and numerous and in a constant state of fighting (that relied on mercenaries), developed ideas that have had mixed acceptance. He strongly believed that through the lens of Roman history, certain truths can be gained. Machiavelli believes that while a Prince's (or republic's citizen) first duty is the defense of the state, that defense should be upheld by the citizenry and not mercenaries or allies, both of which he despised (Handel 1992, 130-133). Machiavelli also believed in offensive action, which can expand the power of the state, and in his case, unite all of Italy. But offensive action to Machiavelli should only be achieved by the least expensive option (much in line with Sun-Tzu's Indirect Approach). At the same time, he was fascinated by decisive battles (a very Clausewitzian view). His works show that he is unable to come to terms with the contradictions in these two very different thoughts. In spite of his logical inconsistency, he places warfare of prime importance to the state and its leadership, which in turn attempts brought the debate of warfare back into the field of political science from which it had fallen.

Machiavelli's efforts fail however. The study of warfare however was mostly abandoned by many political scientists, and was left in the hands of professional military members, theorists, and historians to be dealt with (as discussed in previous chapter on military strategy). It was during this time (as it had been during the Middle Ages and the Age of Absolute Monarchs) that the nobility and leadership of states were heavily engaged in the practice of warfare, even if theorizing about war and politics remained separate or non-existent. Over this period war became more limited, as troops were formally uniformed, and rules governing troops utilized (almost harkening back to the Roman Empire, as if some methods had been lost, or changed, or deemed unnecessary

during the Middle and Dark Ages). Any research conducted on war outcomes and the political-military interaction revolved around attempts to resolve the errors made in previous wars and previous peace treaties (notably the Franco-Prussian War and World War I and II). It was not until after World War II that any systemic and analytical research into war outcomes would be renewed in political science.

Basic (Modern) Theories of International Relations

Within the field of International Relations (IR) in Political Science, several theories dominate the field at one time or another. These theories provide the context in which states and wars should be viewed, and states operate within the international system.

One of the first and most dominating theories in IR was that of Realism. It is more of a way of thinking then a true theory, and it has fallen out of favor by many in political science, but less so by actual policy makers. Basing itself upon ideas from Thucydides, Machiavelli, and others Realism argues that in the modern inter-state system states seek not only to maintain their current power, but expand and accumulate more power. Realism assumes that the world is anarchic and only states, and not multi-national corporations or non-government organizations, can exist, operate, and flourish within this world view (Keohane 1986). Since states are the primary actors in this world, they utilize their power to maintain and accumulate more power that gives states meaning. Whenever states act, they do so unsure of the intentions of other states (even their allies) and any actions are based upon strategic, rational decision making in order to maintain and gain power. Within the theory however, power is an ambiguous thing, a combination of

economic, political, military, and technology that (when added together in various methods) somehow equals a state's true power.

While the theory has major flaws as a theory, it does provide an excellent framework for which people will operate it. It is not a theory of states, but of an inter-national system, and while many within political science may scoff at it, the fact remains many world leaders and those in positions to influence them have in the past and still today subscribe to this view. In a realist world, wars are fought to maintain and gain power, and are won by those states with greater amounts of power that are not forced to utilize as much of their power to maintain their position. This view is further expanded upon by the Power Transition Theory, where great-power wars are when one state is trying to supplant a larger (perceived or actual) and more powerful state (i.e. Germany against the UK, France, Soviet Union, and US in World War II).

In response to realist claims of anarchy and wars fought over a nebulous and ill defined 'power' gain, a segment of the political science field rejected the claims. In its place to counter it was a theory (as much of a 'theory' as realism was) called 'liberalism'. Unlike realism it believes that states and the people in them tend to be naturally good (following the ideals of Immanuel Kant and Woodrow Wilson), and thus states and their citizens will favor peace between states in the international system and will come together to maintain peace and stability (Weber 2009). Also not only are states actors in the international system, but so are smaller players such as MNCs, NGOs, etc.

From this theory sprang an 'democratic peace thesis', based upon observation that democracies do not fight each other in wars since the modern inter-state system arose after the Napoleonic wars (Hook 2010). Further observations show that not only do

democracies not fight each other (with the exception of two or three examples depending on how one codes and labels democracies), but that they tend to fight and win against non-democratic nations more often than they lose (Bennett and Stam 1998, Reiter and Stam 2002). As such, all sorts of testable and non-testable theories and ideas have sprung up for these observations. Some have stated that democracies do not fight each other because of the nature of democracies promoting peace, stability, values of a peaceful process, and trade. Others have stated that democracies are just as warlike as autocracies and other non-democracies, but are more efficient at fighting wars on and off the battlefield.

To counter these arguments, some of asserted that there are liberal biases to these, or that they are not a causal relationship (Rosato 2003). The most interesting argument is that it is not democracy that causes peace, but trade and economic entanglement between states. Whatever the cause may be, in liberal tradition today, the belief is that democracies do not fight wars unless it will secure a greater peace or it is force upon them. However, when they do fight wars, they fight it with a ferocity and total-ness that will seek the removal of the non-democratic government when possible, and fight more efficiently on the battlefield in order to secure victory.

Many found these theories were enough, but to others these theories were lacking. Rational Choice theory was a theory that came about out of how actors will behave in certain situations (Eriksson 2011). It moves away from the view as the state is only an actor (as if the state were a ship viewed from the outside only, and not as hundreds of people machinery operating it). Thus research and theoretical work began into leadership and how leaders respond to crisis and normal decision making. In rational choice theory,

actors act “rationally”. What it means to be rational is not that actors behave in a manner that everyone would find as acceptable, but that actors will act in their own best interests by ranking their preferences in an hierarchical order from most preferred to least (Eriksson 2011). The problem is no actor can ever act irrationality when they rank their preferences in the order they most prefer. The problem for decision makers is to determine what is in their best interest and highest preference that will lead to victory in war.

Prospect theory is another leadership decision-making theory. Based off an economic and psychological theory of how actors make decisions during times of risk (risking for a chance at gains with the ‘prospect’ of losses), prospect theory is applied to leaders (and everyday people) under the proposition that people are not “risk-adverse” when making decisions but instead “loss-adverse” (Vis, 2011). When decision making occurs, it is dependent on how the perception of the situation is framed: are they in the domain of gains or the domain of losses? If in the domain of gains, people will act more conservative as to minimize potential loss. But if in the domain of losses, people will be willing to take greater and greater chances in order to leave the domain of losses and acquire gain, and become more of a risk taker, trying to maximize gains as they are already losing (Vis 2011). Therefore in wartime, the losing side will become more desperate and willing to take greater risks in order to achieve victory because if they don’t they will lose anyway. Those who perceive themselves as winning will be less likely to take risk and take courses of action that will ensure fewer casualties and less potential for defeat.

Another avenue of approach was that of game theory, and in a related strain, deterrence. Game theory is a decision-making theory (like others stated above), where leaders take rationality into account when making decisions (Zagare 2011, Quackenbush 2011). However in this case, every decision is made within the context of mathematical rules that govern the gains and losses a 'player' will receive with each decision. Depending on the format of the game and how it is played (determined by placement of numbers for optimal strategies), a number of different possibilities may arise. Game theory has been utilized in arms races, deterrence, and conflict resolution. Depending on the game (such as 'Chicken', 'Prisoner's Dilemma', 'Stag Hunt', etc.), information may be perfect (every player has the same information), complete, incomplete, and imperfect, and the orders of players sequential or non-sequential, etc. Whatever the type of game, it seeks to maximize a player's outcome while taking into account the other player's action.

Out of game theory came 'Deterrence theory', where one side attempts to convince the other side that an action they were to take would lead to a response that would be unacceptable and inflict damage to the point where they would not want to take the action and thus avoid the damage associated with that action. Though most writings during the Cold War were based upon nuclear deterrence, today it has spread to conventional warfare as well. While deterrence comes in many different forms based upon differing basic assumptions and differences in the models for the specific game theory utilized (such as classical deterrence, perfect deterrence, etc.) the basic premise of each (that an action will lead to unacceptable losses) remains the same.

While these theories describe how leaders may act, or how states may act in the international system of states during war, they do not go into more detail than that, nor

the decisions brought up to leaders for them to make. These theories however were only part of the puzzle of understanding warfare and politics. As such, more was required beyond how leaders may think, or states acted, but how wars were fought, and how they ended. As such, new areas of study were required.

Modern Studies of War Outcomes in Political Science

The study of war outcomes has predominately focused itself around two major themes: the determinants of war outcomes, as in what factors lead to victory or defeat in war, and how leaders of a state respond to events during war, and when those leaders decide to end the conflict. There are several formal theories as to why wars end, and what causes wars to end the way they do. Instead this area of study revolves around asking questions based upon observations of war and seeking their answer, where the eventual accumulation of knowledge will lead to a combined theory that will connect with such other areas of study as war onset, war termination, and military capabilities within International Relations.

The study of what occurs during a war has only taken hold in political science since the 1990s. It would take the seminal work of Allan Stam, *Win, Lose, or Draw,* in 1996, and the famous "Opening of the Black Box of War" articles by Gartner and others in the *Journal of Conflict Resolution* in 1998 to open up war outcomes as sub-field of true study and interest within political science (Gartner 1998, 252-258). Even with the opening of the box, war outcomes still embraced in political science beyond a small, but growing group of scholars. Modern studies of war outcomes can be broken up into two periods, before Stam's *Win, Lose, or Draw,* and after Stam's *Win, Lose, or Draw* in 1996. This pivotal book changed the way war outcomes were viewed. Before Stam, research

was conducted over national capabilities and resources. After Stam, not only did national capabilities play a factor, but of even more importance, military events that occurred during the war became the important factor (in Stam's case that of strategies utilized).

While a few writers wrote on war outcomes after World War II, efforts were scattered, focusing on large-N data sets with the use of ratios of national power (based on military expenditure, strength, GDP, natural resources, etc.) and findings revolved around the "larger side wins", "initiator wins", and descriptive models in use (Stoll 1995, 144-145). Many of these early studies on war outcomes find that the larger side will normally win a war (Rosen 1972; Organski and Kugler 1980; Kugler and Domke 1986; Altfeld and Sabrosky 1990). While this view was not universally held (others believed that the war initiator normally won), it held the dominant sway in the early studies of the literature.

Rosen (1972) for example uses a capability "power" ratio created from the cost tolerance of side A divided by the strength of side B, divided by the cost tolerance of side B divided by the strength of side A. The equation Rosen creates is written as:

Power Ratio = Party A / Party B =

[(Cost-tolerance of A / Strength of B) / (Cost-tolerance of B / Strength of A)]

Blainey (1973, 123) on the other hand in his *Causes of War*, states seven factors that affect relative strength and lead to determining capabilities:

1. Military strength and the ability to apply strength efficiently in the chosen war zone.
2. Predications on how other states will behave during war onset.
3. Perceptions of internal state cohesion of the enemy.
4. Memories of previous wars outcomes and realities of warfighting.

5. Perceptions to maintain war efforts economically and logistically.
6. Nationalism and political ideology.
7. Leadership qualities of leaders and their abilities.

Others have developed formulas that use some type of total (resources + military) capabilities ratio (Cannizzo 1980; Altfeld and Sabrosky 1990; Maoz 1989; Wayman, Singer, and Goertz 1983). Most of the literature, including the Correlates of War (CoW) data sets, utilized a wide range of "capabilities", mainly empirically measurable (non-binary) coding to conduct statistical analysis. Because of this, the use of variables that was applicable to all the nation-states over a large time period were rather small, revolving around total numbers of troops, total losses, GDP, natural resources, and trade. In addition, "these variables measure potential military power rather than allied military power" (Sullivan 2007, 499). Yet this was a very small number of variables to take into account for determining the outcome of a war.

Added to this, the study of wartime actions was blocked by two other constraints. First, the field was consumed by realist theory, and any theories that challenged realism failed to look at what occurred during a war (such as democratic peace), thereby conceding any research to theorists of a particular point of view (Gartner 1998, 252-253). The second constraint was the study of warfare and military affairs itself. "Many scholars remain reluctant to study the conduct of war. A strong normative bias against the study of war has constrained analysis of interwar behavior. On one hand, there is a widespread view that the study of war requires information about military matters that is either highly subjective or unique to military personnel" (Betts 1982). On the other hand, there is also

a strong belief that the study of the conduct of the war suggested that one was somehow pro-war (Gartner 1998, 254-255).

In Stoll's (1995) chapter on the "Evolution of War" (a wonderful synopsis of all aspects of the study of war literature in political science up to 1995), he concluded that "The picture is not clear when trying to predict the primary summary characteristics of war" and that "a variety of measures have been used in this [who wins a war] area, and further research is necessary to pare down the alternatives if we hope to uncover the single best (or a small set) measure of power when predicting the outcome of war", but that "the picture brightens when we move to consider predicting who wins a war" (Stoll 1995, 154). Thus by 1995, many believed the debate over war outcomes was solved, and that "capabilities" (however defined) of a state when the war started determined everything.

It was not until Allan Stam's *Win, Lose, or Draw: Domestic Politics and the Crucible of War* in 1996 that really brought strategy and military variables were brought to the forefront of the war outcomes literature. Using a non-formal rational choice theory, he compares several factors that would lead to victory, defeat, or a draw in warfare.[9] Stam divides up those factors of determining war outcomes into two groups, "1. Factors that affect the costs associated with fighting, which are determined by the actors' choices prior to and during the war. 2. Factors that are structural constraints or factors that the actors do not get to choose, such as population, democracy, and so on" (Stam 1996, 25).

According to Stam, "states go to war to compel or coerce an adversary to do something. The actor in the war that has been attacked is also trying to execute a policy

[9] Where there is no formal game theory involved, rationality of leadership though is assumed: that is leaders act in their own self-interests based upon what is believed to be in their best interests, even if others may not view it as such.

of coercion once the war has begun, at a minimum trying to get its adversary to stop waging the war against it" (Stam 1996, 31). With this in mind, he puts forth three basic assumptions for his study of war outcomes. "1. That the basic factors that determine war outcomes are the expected benefits of victory, the rate that the two actors are able to impose costs upon each other, and the duration of the war. 2. At any moment during a war, there are four possible outcomes: one of the two sides winning, a draw, or the war continuing on. At the conclusion of the war, there are then three possible outcomes- win, lose, or draw. The final point to be made is that war outcomes are not necessarily zero-sum, meaning that changes in capabilities or duration may increase (or decrease) both side's chances of victory simultaneously" (Stam 1996, 40-41). What is most compelling about the "zero-sum" point is that what would make one side surrender is not necessarily the same for the other side to do the same, nor conversely lead it to victory.

In order to determine the costs and benefits of fighting, and continuing to fight, Stam uses quantitative analysis in the forms of logistic regression (multinomial logit) modeling, ordered logistic regression, and ordered probit regression. He begins with coding his two most important variables of his study, "strategy" and "doctrine", which is a "main variable by which leaders can affect the duration of a war, which is a key concern of decision makers" and by extension war outcome (Stam 1996, 51). Stam defines strategy as "the general way in which a state uses its military forces in a war", and doctrine as "fundamentally offensive or defensive depending on whether state objectives are to maintain or alter the status quo" (Stam 1996, 52). In strategy, the state has three main strategies to pursue, "maneuver" (strategies of speed and mobility), "attrition" (destroying or capturing an enemy, with large confrontations), and

"punishment" (insurgencies, and impose high cost upon opponents military and civilian populations) (Stam 1996, 52-55). These strategies, combined with doctrine, create a matrix for both offensive and defense, with 9 possible strategies that a state can utilize in war (Stam 1996, 88).

These two variables of military strategies a state pursues in war is the crux of his work. It is one of the first times that military strategies up to this point were empirically and quantitatively tested within war outcomes. With the dependent variable of win, draw, and loss in a war, and using the strategic-doctrine variables as independent variables, Stam also utilized terrain, democracy, troop numbers, quality of troops ratio amongst a total of twenty-three independent and control variables. Using this, Stam finds that optimally, states should pursue offensive-maneuver strategies in areas of light and flat terrain, and defensive-punishment strategies in heavy-mountainous terrain. Stam also finds that the longer a war lasts, the more likely it will end in a draw between the warring states. Most important is that military strategies play a major (if not the major) role in determining war outcomes.

Stam couples this finding in his study with domestic political constraints. Certain states may not be able to carry out certain strategies, or may favor ones over others. Certain states might have the ability to follow punishment and attritional strategies, while other nations might be constrained by domestic concerns for casualties and forced to rely on more maneuver strategies. (Stam 1996, 162-165, and 196-199). Therefore, Stam ingeniously connects military success at the higher levels of war to domestic political considerations, and how decision makers may respond to certain situations. This also furthers ideas on how and why certain nations choose to fight certain enemies and not

others. Overall, Stam's contribution to war outcomes was immense, as he shifted the debate and further research from just pure national capabilities, balances, and ratios to taking into account military strategy (beyond that of Offense-Defense Theory, a problematic theory at best, and rejected by me as illogical and inconsistent with the way weapons and tactics are developed and utilized in battle, but which is discussed later on).

While Stam finds the very strong findings of correlation between a wars outcome and military strategy utilized, the strategic-doctrine variables themselves are a very simplistic form of military strategy, and are not without fault. It does not take into account changes during a war, instead only the most dominant strategy or the strategy with the most resources utilized during that war as the 'primary' strategy (and thus only) strategy-doctrine coded for the war. The War is just that, a view of the entire war, at the highest level, and not the operational or tactical levels of war.

The strategy-doctrines are somewhat confusing. First off, the coding of the Offensive-Defense variables is in reality "War Initiator" and "War Defender" instead of how he defines doctrine in his book, making it a less about actual war fighting and more about war onset. Second, the theory heavily concentrates on the strategy utilized by ground forces (forgoing air and naval strategies in the analysis- a problem in itself), his examples for 'punishment strategies' ranges from strategic bombing (an air strategy), to irregular or unconventional warfare. Counter-insurgency does not really have a place (unless viewed as an 'attritional' strategy). It primarily relegated inter-state warfare to conventional warfare of either maneuver or attritional strategies by ground forces. And many theorists (including myself) could accurately claim in that in order to conduct a maneuver strategy, you may first have to conduct an attritional strategy. World War I is

an good example of this from 1915-1918 on the Western Front as the Allies and Germans conducted attritional warfare until the Allies were able to break through the Hindenburg Line in late 1918. It could also be posited that the two are unrelated. Attrition is occurring all the time in war, it just depends if that attrition of forces is proportional or disproportional between the states engaged (disproportional in the First Persian Gulf War of 1990-1991 between Iraq and the US-backed Allies). Third, the use of strategic-doctrine variables would seem mutually exclusive in all cases of warfare, but are not. Stam uses the US bombing of Dresden and Tokyo in World War II and of Hanoi in the Vietnam War as examples of defensive punishment strategy and offensive punishment strategy. One would think that the different strategy-doctrine pairs are mutually exclusive and elsewhere Stam gives every indication that they are. Therefore, these cases cannot be examples of both defensive punishment and offensive punishment strategy-doctrine combinations at work.[10] Finally, the over-simplification of strategy-doctrine has led to many of the nuances of warfare, strategy, operational art, and doctrine to be lost in Stam's analysis (not to mention that his definitions of strategy, operational art, or doctrine put do not match those put forth in Chapter Two) and thus the ability to clearly identify the specific variables beyond that lead to victory inside these broad categories is problematic. While Stam's work is not only valuable, revolutionary, and a move in the right direction (with the correct assumptions on war outcomes are based on wartime actions), many of the specifics are either too broad, or mis-coded.

After Stam's book, research into war outcomes grew, as did research into what occurred during a war and the political-military relationship. The momentum for

[10] Thanks to Stephen Quackenbush for pointing this out and expanding upon this idea with me during several discussion sessions we had.

wartime research saw a major advance in June of 1998, when the "Black Box of War" was opened through several articles in the *Journal of Conflict Resolution*. In it Dan Reiter and Allan Stam put forth that democracies win wars more often because of better battlefield effectiveness due to better soldering and personal initiative (Reiter and Stam 1998). Alastair Smith uses a Markovian random-walk model of war to connect domestic considerations to battlefield outcomes and war outcomes, along with modeling wars as a series of battles until one side capitulates, and that how those states act is dependent on how well they are preforming in the war (Smith 1998). Bennett and Stam find that democracies tend to be highly selective when they initiate a war, and are more likely to win wars they initiate, though the longer a war lasts, the greater the decrease in public support for the war (Bennett and Stam 1998).

After *Win, Lose, and Draw*, and the "Opening Up the Black Box of War", research into wars and war outcomes expanded. Arregiun-Toft looked into why strong states lose wars to weak opponents when materially and economically they are stronger. He found that strong states "lose asymmetric conflicts when they employ the wrong military strategy in relation to their weak opponent's strategy" (Sullivan 2007, 499). Bueno de Mesquita et al. (1999) found that democratic states not only choose their opponents more selectively than autocratic states, but that they allocate more resources to fighting (and thus winning) the wars they engaged in (Bueno de Mesquita et al. 1999). David Clark and William Reed (2003) looked into combining war-fighting strategies and capabilities with war selection, finding that evidence for both and that both variables complement each other when determining war outcomes.

In “Democracy and Battlefield Military Effectiveness”, Stam and Dan Reiter (1998) look into why democracies tend to win the wars they fight (along with their follow up book and quantitative analysis *Democracies at War* in 2002). Stam and Reiter find that democracies tend to have slightly better logistics, better personal initiative on the battlefield, and better leadership.

In *Democracies at War*, Stam and Reiter (2002) expand upon the article, going into not only the previous stated reasons why democracies do well, but also empirically show that democracies who starts wars normally win them, that they fight shorter wars, tend to lose when public support wanes, and use less force when causalities mount (Stam and Reiter 2002, 198). Further they extrapolate from the evidence that democracies choose the wars they fight more carefully (as in choosing weaker targets), and as democratic leaders lose more in defeat, and are more willing to fight harder and longer to attain a victory and avoid defeat (which would cause their removal from power). Overall they find some interesting findings tending to show that democracies tend to perform better in war than non-democratic countries.

Further, Patricia Sullivan conducted researching to the effects that “uncertainty about the cost of prosecuting a war to victory on the duration and outcome of military interventions” has upon leadership and its effects decision making (Sullivan 2008, 49). She found that while investigating this question that “Unfortunately, predicting war outcomes is much more complicated than arriving at an accurate measure of relative military capabilities. In fact, the relative balance of military capabilities is not likely to be the primary course of prewar uncertainty and even complete information n about the distribution of war-fighting capacity is unlikely to directly translate into accurate

predictions about the cost and outcome of many wars" (Sullivan 2008, 51). She concluded in her study that (using Stam's strategic-doctrine coding along with her own) stronger states will attain a quick victory when they overthrow a regime or seize territory (as compared wars fought for other political goals), but troop commitment however has little bearing on the outcome. Further when a state's leadership makes major miscalculations on the enemy's resolve, they will normally lose the war (Sullivan 2008, 62). Therefore, leaders must not only have accurate intelligence, but use it wisely and for specific policy goals.

Perhaps the most interesting note on war outcomes has been the utter lack of data and studies over anything beneath the strategic level of war with one notable exception, that of Stephen Biddle. In his study *Military Power: Explaining Victory and Defeat in Modern Battle* (Biddle 2004). Biddle's theory revolves around the idea that the modern force employment system is key to victory on the battlefield- described as tactics of firepower and force concentration that lead to (offensively) breakthroughs and (defensively) containment (Biddle 2004, 28-51). Biddle uses the "operation" which in his analysis is the tactical and lower level operational-tactical levels of warfare (Biddle 2004, 6). While the model he postulates is strong (it has some weaknesses), it deals with only for the lower levels of warfare, with no mechanism for connecting battlefield victory to operational and strategic victory. One of the case studies utilized in Biddle's work is the British 'Operation Goodwood', where British armored forces attempted to break out of the Normandy beachhead in July of 1944. The operation (i.e. large battle in this case) was a complete disaster. The Germans delivered punishing and disproportionate level of casualties to the British. This victory though did not push the Allies back into the English

Channel, nor change the outcome of the war, but delayed the Allies breakout of the Normandy Beachhead. The Allies were trying to break out of their beachhead from wherever they possible could, and Field Marshal Montgomery's attempt was one amongst many. Shortly after 'Goodwood', General Omar Bradley would launch 'Operation Cobra', and using saturation bombing, pierce the German lines with an infantry and then armored spearhead, breaking through the German lines and into their rear (leading to the collapse of the German line and its retreat to the Franco-German border).

Biddle's work is also solely concerned with land warfare, leaving out sea and air warfare. It also has flaws in a few of its variables are a bit off the mark (One example given in the book is technology superiority, which is based on date it was made. Therefore the question becomes, is the newest Chinese built J/F-10 fighter from 2005 really superior to the F-22 Raptor first built in 1997 and in readiness in 2005? Most military analysts would say that the F-22 is markedly superior to the J/F-10, since the J/F-10 is a Fourth Generation Fighter compared to the F-22 which is a Fifth Generation Fighter). Overall, Biddle's work is a valuable piece of the puzzle if applied with other theories and improved upon for each warfare area and technology determinant in weapon versus weapon. While battles are important, and Biddle helps to pave the way by showing that they can in some ways be modeled, battles do not win wars without proper execution of campaigns and strategies to further and attain political policy goals.

When it comes to the topic of war outcomes in the field of Political Science, there is no disagreement that the capabilities, strategies, and target selection of states all play some type of role in not only the outcomes of wars but their duration as well. What has

only become of great importance and of study in the past twenty years is the level of importance in these variables, and how these variables, both qualitatively and quantitatively should be coded and analyzed.

Thus far in regards with the study of war outcomes, only board sweeps of analysis with large generalizations that are lacking in detail and specifics have been found. It is this lack of detail and specifics that should be the focal point of researches in the determinants of war outcomes. Whether using statistical models or game theory, the field has greatly expanded from early political theory and individual historical case study analysis. This should only be the beginning however, as there are still major gaps in the literature. The field is ripe for further developments beyond what has already been found. Only until the variables that are involved with all the levels are connected, and expanded upon military strategy to national strategy and the state as a whole can war outcomes become more effective, specific, and meaningful (useful) for not just academia but policy makers as well.

The Bargaining Model of War

In addition to qualitative and quantitative research into war outcomes through determinant variables, there is also a related process on determining war outcomes and war termination, called the Bargaining Model of War. The Bargaining Model of War is a game theoretic model that is based on the decision political leaders make in war time: the continue fighting or seek a negotiated end (be it unconditional surrender or something more like a draw). The Bargaining Model has two broad interpretations, first that war is a purely military contest and that states fight each other until one side no longer has the will to continue. The second is that bargaining between countries continues even after the

fighting starts, and its continual as the war reveals true (vice projected) expectations in which over time, both sides will seek an end before the true outcomes of war occur and are forced upon each state (thus avoiding that end through the loss of resources, goods, and time, and instead ended via diplomacy). As Dan Reiter states "The bargaining model of war sees war as politics all the way down", and "the bargaining model does not see war as a breakdown of diplomacy but rather as a continuation of bargaining, as negotiations occur during war, and war ends when a deal is struck" (Reiter 2003, 27).

In theory, a Bargaining Model process would proceed like this: State A attacks State B because it believes it can quickly take control over a disputed territory. State B chooses to resist on the belief that its forces can defeat State A if the war last long enough. Both states await the results of the first "battle" (or better described as 'campaign' or 'operation'), from which both sides will have gained a better ideas of the true capabilities and aims of each other's forces and will after the first encounters. Then State A has a choice, it can seek to end the war (negotiate) or continue fighting depending on how well it believes it can still achieve its resources. State B will make a similar decision based upon its new knowledge of battle if it can defeat State A. Eventually this process will occur over and over until both sides find the negotiation offers both send out to each other are acceptable. This can be a return to status quo ante, a loss of some territory (or whatever good, resource, etc.) by one State, and conversely gained by the other state, or the complete capitulation and occupation of one state by the other.

An example of this would be the United States in World War II in dealing with Japan. The United States had stated its political aim of 'unconditional surrender' of the Axis powers would be the only thing they would accept. During the course of the war,

both sides had continued to re-evaluate their position during and after each battle or campaign, only to choose to continue fighting. Even after the securing of Iwo Jima and Okinawa (and the heavy casualties received), the US chose to continue to fight, through a strengthened blockade, strategic bombing of cities and transportation nodes, atomic bomb attacks, and plans to invade the Japanese Home Islands. Japan however, reeling from defeats in the Pacific by the US, in Manchuria by Russia, and widespread destruction wrought by strategic bombing, was willing to surrender and accept occupation, but only if the Emperor could remain on the throne. The US then backed away from its 'unconditional surrender' demand due to its fear of a costly invasion of Japan and Russian influence in the occupation of Japan, allowed the Emperor to remain on the throne (though answering to the Supreme Commander of the Allied Powers, General MacArthur) in order to ensure Japanese surrender.

The Bargaining Model came about during the 1960s, when economist Thomas Schelling stated (when trying to explain why most wars do not end like World War II in Europe- complete and utter destruction of the enemy and total occupation) "most conflict situations are essentially bargaining situations" (Schelling 1960, 5). The Bargaining Model began to grow from this observation. "Paul Kecskemeti framed the question of war-ending surrender in bargaining terms", while "Fed Ikle [pushed to find exits for the Vietnam War] to think about how wars end, also within an informal bargaining framework" (Reiter 2003, 28). "By the 1980s, the bargaining model of war was increasingly expressed in formal terms, as part of the burgeoning literature on ration-choice models of politics and war" (Reiter 2003, 28).

The Bargaining Model began to take on a very Clausewitzian tone when a second wave of scholarship appeared in the late 1990s. They began to utilize what they perceived to be von Clausewitz's theories of war: comparing absolute and real (or limited) war in order to express the theory that wars are rarely total and always end in some type of negotiation. This interpretation is flawed in several ways, as seen in the previous chapter. Von Clausewitz's total and limited war had nothing to do about the severity of it, but about how military leaders react to imperfect information and fight in the "fog of war", and that von Clausewitz advocated the need for destruction of the enemy's armed forces in order to avoid negotiations. Therefore, researches implemented this view warped view of von Clausewitz, and found ways to express it in formal mathematical models.

R. Harrison Wagner is one of the first to create a formal model based on this assumption, finding through his model that "the relation between war and bargaining is to interpret war as a competitive struggle to determine the disagreement outcome in a bargaining game in which states use force and the threat of force to influence other stats. A state is in the strongest bargaining position if its uses of force against another state will be unopposed, and that is why states might hope to gain by disarming other states. But because a contest in which states try to disarm each other will be both risky and costly, there is likely to be some concessions that one state could make to the other that both would prefer to participating in this contest" (Wagner 2000, 481-482). Wagner goes on to state that due to differences in opinion about the outcomes of war and the consequences of fighting that both sides hold, states will fight in order to change those perceptions to be more in line with reality (Wagner 2000, 481). Wagner also states that there is an incentive for states to fight. To expand upon this, states might fight a larger opponent for

numerous reasons, be it national honor, miscalculation of forces capabilities and power, domestic constraints, and better negotiation position ('attrition' and or 'punishment' strategies in Stam's wording).

In 2004, Alastair Smith and Allan Stam created a model that combined war initiation, duration, and recurrence using determents of war and the 'Bargaining Model'. In their model, both states' will have a divergence of beliefs (pre-war and during the war) that makes bargaining difficult even when both sides experience the same event, and that this divergence takes time for both sides to converge their mutual beliefs together to end a war (if it will bring about a stable peace as shown in their findings). They find that wars with very high cost battles will lead to shorter wars, but will lead to greater frequency in wars occurring between the two later on compared to longer wars (which would reveal more information to each side on the enemy's capabilities and will) (Smith and Stam 2004, 809). However, wars that are longer and have fewer costly battles will lead to a much more stable peace and post-war period. Therefore, short wars do not "influence actors' beliefs less than wars that are low cost per period but longer" (Smith and Stam 2004, 810).

Darren Filson and Suzanne Werner have written (with each other and between them) several important articles on the 'Bargaining Model of War'. In their article "A Bargaining Model of War and Peace: Anticipating the Onset, Duration, and Outcome of War", they develop a formal game theoretic model which concentrates on the role that private information and "incentives to misrepresent that information" have on war onset, duration, and outcomes (Filson and Werner 2002, 819). To Filson and Werner, wars start

> When an attacker underestimates the defender's willingness to make concessions and make a demand that the defender refuses to accept. Wars continue so long as the attacker continues to demand too many concessions, or if the attack has retreated, to offer too few concessions. Wars end when one side is defeated militarily or when the attacker alters their negotiating position sufficiently such that the defender is willing to accept the proposed settlement (Filson and Werner 2002, 819-820).

As with most 'Bargaining Models', "private information about his [both sides] military ability is revealed both by the outcomes on the battlefield and at the negotiating table" (Filson and Werner 2002, 820). Filson and Werner find that "war[s] end as soon as one side's resources fall below the minimal amount of resources necessary to continue fighting. If both sides' resources fall below the minimal amount then the status quo is restored" (Filson and Werner 2002, 822).

However, this model fails to take into account domestic political considerations, type of government, third party interventions, or the military strategies utilized by both sides. In order to rectify some of these issues, Filson and Werner published several more articles that attempt to fill in some of these gaps. In 2004 they look into regime type and war outcomes using the 'Bargaining Model', finding support for democratic states winning wars more often, unless the war drags out (Filson and Werner 2004). In 2007 they expand their model even further, taking into account the dynamics of the war: cost of each 'battle', initial distribution of benefits, and sensitivities to cost of fighting the war (FIlson and Werner 2007, 47). They find in this study several important conclusions. In regards to redistribution of resources due to fighting, "When state benefits are close

together [at the start of the war], no redistribution of benefits occurs. An imbalance of benefits relative to resources leads to redistribution" (Filson and Werner 2007, 47). In regards to the effects of fighting wars, less costly battles will lead to longer wars, and that "the total costs of war and duration of war may not be related in a straightforward way. The longest wars occur when wins and losses tend to alternate" (Filson and Werner 2007, 47). They conclude that "It is possible that asymmetric information and commitment problems both provide incomplete explanations of the evolution of the international system, but alternatives have difficulty explaining how war can occur in a context where agents are rational… unless we assume that wars occur because some rational agents have a test for war" (Filson & Werner 2007, 48).

The Bargaining Model suffers from discrepancies and defects at several levels. First, the math behind the Bargaining Model does little to take into account the vast elements and organs of the state, and the math leads to only one conclusion: that only the leadership of the state can end wars, and that domestic, economic, and population considers play little role in decision making.

This view of only leaders deciding war termination has been expanded upon by H.E. Goemans in his work from 2000. To Goemans, wars end because of a change in war aims based upon a cost-benefit analysis of a state's leadership. The cost-benefit analysis is different dependent on the type of regime, in which the leadership of the state is supposed to take into account domestic variables. While it is a novel concept that regime types will have different motivations for ending wars at different times, it only takes into account the leadership ending wars, with no other possible way for wars to end. This fails to, along with the entire Bargaining Model of War sub-field, take into account that wars

can end not only by the decisions of mutual agreement by both state's leadership, but by the citizens of the state as well who can overthrow the government, or through the overthrow and complete occupation of a state by another state.

Furthermore, the Bargaining Model assumes that leaders will do all they can to stay in power. What is not recognized is if they as leaders only will be brought down, or their entire system of governance (i.e. coupe vs. rebellion). This line of thinking assumes that leaders are more willing to accept a loss, and in particular to do so when they are under a certain form of government. Using Rational Choice Theory, Goemans states that "Only leaders of Mixed Regimes, therefore, have disincentives to settle on moderately losing terms and instead have incentives to continue the war and gamble for resurrection" (Geomans 2000, 70). This line of thinking is flawed, as it fails to take into account three things: first victory is the only sure way to ensure a regime's survival, for defeat invites internal discontent and questions the legitimacy of the government, where victory does not. Thus not just mixed regimes, but leaders of all regime types have an incentive to continue the war and gamble for later success in the war. Second, this view ties in more closely with another element found within Rational Choice Theory, that of Prospect Theory, where when the prospect of losing grows, humans will on average continue to maintain the current strategy in the hope of it prevailing. Thus instead of accepting a lesser loss, the leader will gamble more for a chance at victory or even greater loss. And finally, states and leaders may choose to follow the same strategies and tactics as before, even if in defeat, and will only change because circumstances beyond their control which forces them to change (i.e. manpower losses, etc.).

The Bargaining Model also ignores what actually occurs during those battles that they ambiguously define. “In most of them, battles occur with no variable in the way sides employ forces (that is, military strategy is often absent), the working assumption being that the likelihood of one side winning any given battle remains constant across all battles throughout the war, and termination is made possible reducing each side’s uncertainty about that constant probability” (Reiter 2003, 34). This is, of course, madness. Battles and campaigns do not only provide greater information to each side’s leaders and each state about the ability of the other, but they produce actual results as well, victory and defeat, losses and gains of territory, manpower, etc.

The Bargaining Model also places one of its foundations upon that of von Clausewitz’s total war – limited war concepts. According to Bargaining Model theorists, war is mostly limited, as in limited goals, vice total war, for total goals (i.e. complete destruction and occupation of the enemy). This reading of von Clausewitz is an incorrect interpretation of his work, and as explored in chapter 2, what von Clausewitz was discussing was how one was to fight a war, not its goals, for he leaves that up to the politicians to decide. Total war in the Clausewitzian sense is war that is impossible to ever achieve, it is the theoretical pure war to be fought, without the influence of imperfect and missing information, poor communications, and the general “fog of war”. Thus every battle, in every war, all battles will be limited, as it is impossible to actually completely destroy an enemy in battle in his perfect theoretical world. This misreading of von Clausewitz (along with continual quotation of him) further shows that the Bargaining Model may be right on leaders in a decision making process, but in the details of actually fighting wars, campaigns, and battles, is severely neglecting.

The 'Bargaining Model of War' has shown great promise, and is an important element to understanding why wars will continue and how they will end, and research should continue. However, it revolves around the leadership of the state making decisions, and should be viewed only as a piece of a greater puzzle: that of the state a war. What is missing from the various Bargaining Models are the military considerations at the strategic and operational levels of war, other elements of the state at war (population, economy, etc.), and most importantly that wars do not always end in negotiation (see Chapter 4 for more information). Thus the Bargaining Model needs to be expanded beyond its current form into a much larger and accurate representation of decisions and influence upon decision makers of the state while at war.

War Termination

War Termination differs from War Outcomes as its central focus is not who wins or loses, but on how and why a war ends the way it does (and can be related to studies of war duration). This sub-field tends to take a more qualitative approach as thus far most data involved is missing and will likely never be found (especially from direct sources).

Most of the literature involved with war termination has dealt with the 'Bargaining Model' described above (mostly based upon the research done by Smith, Filson, and Werner). They all however utilize the broad definition of "battle". After each "battle", a state's leadership will decide whether or not to continue the contest. Some might argue that "battle" could mean a single battle, others a campaign, etc. The concept of 'battle' is undefined, and thus, suffers due to this coding and identification problem. Instead of incorporating the levels of war, they have forgotten it complete, and as such, weaken their case. As such, their models for how was end are based more upon theory,

vast mathematical equations, and case studies. To them, wars end when they do because the leadership views it is time. (Note from author: While some may find my critiques of the 'Bargaining Model' harsh, you will find no greater supporter of it than myself).

Others however, utilized different means other than the 'Bargaining Model'. H. E. Goemans applied a model of rational choice theory with statistical analysis for war termination. Using his model, he applied it to the ending of World War I and all of the major powers involved in his book *War and Punishment*. His model utilizes a mechanism where states have "private information" which they use to measure their own strength and resolve against the expected costs/losses in the war. This in turn is still an incomplete picture, and causes leaders to misrepresent the true costs of fighting. Thus leaders will not react in the same manner as their opponent when presented with the same information. Therefore a type of game theoretic bargaining process is utilized until one side finally reaches the point to no longer wishes to continue to the war. Goemans' argument can be seen not only through rationalist lens, but a decision-making lens as well.

A major proposition of Goeman's theory is that the type of government a state has will play a major role in how a war will end due to organization and specific domestic considerations. In Goemans' view there are three main types of governments: repressive governments, semi-repressive governments, and democratic/non-repressive governments. The weakest of these three is the semi-repressive governments because it has the most to lose if a war is lost and is the most difficult type of government to maintain in power. Thus, it has a low desire to pursue a settlement in war, for a draw or defeat of any type will see the semi-repressive government fall and replaced by some other form.

Repressive and non-repressive regimes on the other hand will change their war aims based on probability of victory, semi-repressive will do the reverse.

Statistically Goemans utilizes models similar to everyone else in the War Termination field. His models conclude that leaders of mixed regimes suffer when their country loses moderately or disastrously, where the repressive and non-repressive regimes only suffer when their countries suffer disastrously. Goemans concludes after his case studies of World War I that "leaders decide to continue or stop fighting at least partly based on how the terms of settlement affect their postwar fate" (Goemans 2000, 310).

With so much of the political science world turning to quantitative analysis, Dan Reiter (by no means a qualitative researcher) took an interesting qualitative look into War Termination in his 2009 book *How Wars End*. Reiter utilizes the bargaining theory of war termination as the mechanism for analysis. Reiter states that uncertain information (such as capabilities of a country) and unenforceable commitments (such as defense of terrain that does not lead itself for use by a defender) lead to war onset (how and why wars are started) and wars are terminated (ended) when these two "problems" are reduced or eliminated (Reiter 2009, 3). The author takes the 'commitment theory' and the 'uncertain information theory' of previous research and combines them into one theory. Unlike earlier War Termination theories, it takes the uncertainty of future events (such as the rebirth of a hostile state) and makes that uncertainty a key element in the reasoning for ending a war (beyond the results from military engagements).

The author first explains the model using the commitment and information models and puts them together, and then applies them to 20 different situations in 6 wars,

from major wars in the 20th Century (World War I, World War II, Finland-Soviet War, Korean War, and the oddly placed 19th Century American Civil War), using the case study format. (The author believed that an empirical quantitative/statistical research would be impractical for this endeavor). Reiter provides a good case study analysis of several of the major factors, from the military situation, domestic situation, leadership goals, and commitment issues for the reasons why a state terminates a war. He is able in case study format prove his hypothesis that the issues of uncertain information and unforeseen commitments play a major role in war termination. It is perhaps the best work of war termination to date from political science, and what makes it unique is that it acknowledges the problems that a lack of information has upon quantitative analysis in the field and the need to use qualitative analyses at this time. If Reiter or others can someday quantify this into mathematical modeling, it would be a major achievement for the literature beyond what it has already uncovered.

Offense-Defense Theory

One of the most peculiar and debated theories in political science is Offense-Defense Theory. It is an off-shoot of realism (defensive realism), which believes that weaponry, technology, terrain, tactics, and doctrine affect how states will behave. In times of offensive ascendency, the capture of enemy territory is easier, and thus wars are more likely. In times of defensive ascendency, the ability to capture enemy territory is difficult, and thus wars are less likely and the status quo will be favored. The main example that Offensive-Defense Theory utilizes is that of World War I, where proponents of this theory believe that all states believed wrongly in the offense, and that the doctrine

and weaponry of the time favored the defense, and thus a long and bloody stalemate and attritional warfare occurred.

This theory however, does not hold up well to examination of the facts of World War I, yet alone other wars. The idea that warfare can be broken down into tactical supremacy over the doctrines and practices of operational art and strategy is lunacy. It is as if these authors have forgotten all the levels of warfare except that of the tactical level. There are numerous examples throughout history of battles where one side had a strong defensive position and strong defensive weaponry, and still lost to an attacker who attacked under unfavorable odds. Therefore, this theory is hotly contested in political science, and because of its ignoring of the operational and strategic levels of war, it should be considered at best an incomplete theory, and at worst a theory that has long outlived its usefulness.

Conclusion

Only in the past sixty years has political science taken a renewed interest in warfare, and even then, only in the past twenty has that grown to large sub-fields of dedicated researchers. While the War Outcomes and Bargaining Model of War sub-fields have expanded greatly in their knowledge in the past twenty years and has proven to show some valuable if conflicting results. In War Outcomes, the measure of war resources, strategies, and domestic political considerations still provide conflicting data, even while most researchers are in agreement that all three play a major role in determining the outcome of a war. Bargaining Model proponents have expanded formal modeling quite well, and yet, have yet to take into account the strategies utilized in war, and have findings have both confirmed and conflicted with researchers of the

determinants of war outcomes have found. It is with this knowledge that the pursuit of war outcomes in political science is only at its infancy and that much more research and testing is required in order to fully understand the determinants of war outcomes and duration.

Chapter 4:

Informal Theory of Interstate Warfare

Within political science there has been a vast amount of research conducted into war outcomes (and war termination) in the past twenty years. While this research has provided us new insights into how and why wars end, the field has generally accepted the research conducted by Allan Stam (1996) almost twenty years ago as the pinnacle of knowledge without expanding upon his ideas further. It was a revolutionary idea for political science, though one hardly new for those who study warfare: that the uses of various military strategies are the major determinates in how and why a state will win or lose a war.

Since this time however, research into this area has stagnated. Stam's work since then has been combined with elements of the bargaining model of war, and other various models and tests with impressive if limited results. The limited results however have created some gaps of knowledge within the field of study which need to be filled in.

Because of the stagnation and flawed assertions within the war outcomes sub-field, this chapter will take the field of research into a new direction. The view of the state at war must change and be expanded upon beyond that of a state's leadership or a "unitary state" coding into something more. How wars are viewed and how they are fought must also be expanded upon from their current forms in political science. As such, I re-conceptualize the view of the state, the state at war, how wars are fought, and how and why certain outcomes occur, taking the knowledge already established by Allan Stam (1996), and those who have written on the Bargaining Model of War, and build upon their work by putting forth a 'Informal Theory of Interstate Warfare', in order to create a better understanding of war outcomes (and by extension war termination).

This theoretical chapter begins with a closer examination with the work of war outcome determinants and the Bargaining Model of War, and why changes to them should be made. Building off of the earlier works, I shall re-conceptualize how a state should be viewed and how it operates, breaking them down into their key components (pillars), and how those 'Pillars' operate together in the theoretical form of the 'Core of the State'. Then the theory shall show how the defense of a state (via the 'Shield of the State') occurs and the interactions that occur between the state's 'Core' and 'Shield'. From there, I shall put forth a new 'Informal Theory of Inter-State Warfare', a framework that will allow one to conduct analysis of inter-state wars, along with hypothesis that will be tested in later chapters using both qualitative and quantitative methods.

This theory is an informal, non-mathematical framework that seeks to help answer the 'what' (determinants), 'how', and 'why' certain war outcomes occur. It should be noted here that the current level of information and data on wars that this theory requires is insufficient to create a true mathematical model of war outcomes. While there are certainly many books on warfare, much of the data that is required for a true mathematical model are simply not available (and forever lost) due to a multitude of factors ranging from state secrets, misinformation, information being lost and destroyed in the chaos of war, lack of extensive study and documentation, or availability of certain knowledge to western sources.

The study of warfare in both the fields of political science and military art has been quite extensive, if uneven and different in their approaches. However, there is a major gap in both literatures which this theory attempts to address and combine many of the traditions of both fields together. In order help better illuminate this gap, we move

beyond ‘national power capabilities’ or ‘military power’ variables to analysis of the entire state. It is a look beyond how the armed forces fight wars to how states and all their components fight wars, and thus how states win, lose, or come to a compromise in war. Only a comprehensive theory, backed by case studies and statistical analysis (of certain elements of the theory that can be tested based upon current information), can provide us an understanding of how states fight and win, lose, or compromise in interstate wars.

Problems with the Traditional View of War, War Outcomes, and the Bargaining Model

Current research into war outcomes has thus far only viewed war mostly as a one-time event, labeled and coded through the lens of one variable that accounts for the action of the state during the entire war, which fails to take into account the changes in strategy, operational art, and technology, etc. which does occur in war. Furthermore, war is viewed either through the prism of the unitary state, or the state’s leadership.

While the vast majority of authors within political science acknowledge that the state is hardly a unitary actor, many have treated it as such in order to simplify the understanding of the state at war. Same can be said of using the leadership of a state as a proxy for a state. Because of this, the current level of research has reached is ceiling of usefulness.

The first major gap in the field of study is the ‘traditional’ view of warfare, which holds that in order to achieve victory in an interstate war one must simply defeat the enemy’s armed forces. However, the defeat and destruction of the enemy’s armed forces is a difficult task, and rarely accomplished in war. As this is such a rare event, the defeat and or destruction of an enemy’s armed forces must be important if it is discussed so often and promoted by so many scholars and professionals. Battlefield and campaign

results however are only part of the equation when determining war outcomes. When one thinks of war, one thinks of two armed forces fighting each other, either as the only instruments, or as proxies for the state. What is missing in the traditional thinking is the state itself which has so much to do with the formation and employment of the armed forces. The armed forces are only one element of the state. What is required is a view of war beyond that of the armed forces, encompassing entire states at war, utilizing some or all their available resources in order to achieve the desired political outcome.

Wars are not won by battles alone. Wars are won by connecting victory in battles to victory in campaigns (operational level of war) in order to achieve strategic objectives, which will translate into political results. Victory in war requires the state to mobilize and utilize their resources in such a way as to enact offensive operations and offensive initiative with the goal of placing the enemy on the defensive and thus impose its 'will' upon the enemy. In order to place one's 'will' upon the enemy, one must not think of the armed forces of the enemy as their only target, but the enemy as the entire state. This requires the view that there are elements of the enemy's state beyond their armed forces that serve as legitimate targets and should be actively pursued. Under this framework (which serves as the basis for the following theory), wars are won only through a combination of attacks made against the enemy's armed forces and elements of the enemy's government, economy, and population, which in turn makes war in practice is a vast and complicated event.

The second major gap in the field of study is the basis for the determinants of war outcomes. In Allan Stam's 1996 work, he rightly asserts that wars mutual coercion between two states, that military strategy plays the major role in the determinates of war

outcomes, that wars are based upon a cost-benefit analysis, and that domestic politics plays a major role in war outcomes. However, the areas of concern develop when they are applied to his use of quantitative variables: wartime strategy and doctrine coding, and domestic considerations. Both are treated as one time, unchanging events in the coding, even if they do change.

Because of Stam's one time coding for wars, limited information of how the state fights a war, and ambiguous definitions and coding of strategy and doctrine hampers his great work (Stam 1996), and only allows one to utilize his data set so far. Stam's simplified coding needs to be expanded to include the operational level of war, principles of war, and other military and civilian variables in order to pinpoint more precisely how and why certain war outcomes occur.

The third major gap in the field of study is the implications and assumptions that the Bargaining Model of War utilizes. While the Bargaining Model is an ingenious method to describe the decision making process of the leadership within a state during wartime, the assertions and foundations upon which it is built upon has some flaws to it, which were discussed in the last chapter and is in need of being addressed.

Because of these theoretical gaps in the literature, the 'Informal Theory of Interstate Warfare' seeks to fill in these gaps. What is missing is the view of the entire state at war. These gaps have allowed for leaders of the state to serve as proxies of the state, or making the state a unitary actor in order for analysis, and has left out major elements of the state in analysis of states at war. Also missing is a true accounting of what occurs during the war, how wars are fought, and the full range of strategies utilized, along with that of doctrine, and the important operational level of warfare.

The 'Informal Theory of Interstate Warfare' seeks to combine the excellent ideas put forth by those such as Allan Stam in the determinants of war outcomes studies and those of the Bargaining Model of War with that of an expanded institutional view of the state at war, and together with Prospect Theory[11], bind the two areas of study together into one cohesive theory to further the field of study, while making it more in line with historical and current military thinking. While this may seem an ambitious task, it is only a natural extension of the work already generated by those within the war outcomes and war termination fields of study, and without their efforts, my theory and thesis would be sorely lacking in detail and methodology, and it is to them, along with my studies of military strategy and operational art through the Naval War College that has given me the insight to bind these two fields of study together, something that has yet to be done within International Relations in such a comprehensive extent.

What Makes Up the State? The 'Pillars of the State'

I argue that there are three main 'Pillars of the State', which like legs of a three legged table, combine to form a table only when it has three legs. In this case these three pillars form the 'Core of the State'. The first pillar of the state is the citizen population, the very heart and soul of the state (for without people there can be no economy or government). The second pillar of the state is the economy, and the third pillar is the government. These three 'Pillars of the State' combine to form the 'Core of the State', in which no state can function without the relationship and connections between each pillar. Any theory of statehood and/or war that seeks to divide up these pillars is in such disagreement with the real world as to be useless. Therefore, any theory of warfare must

[11] A modification of Rational Choice Theory

be rooted with a theory of the state. Despite the claims of some military theorists and political scientists, the two areas of study are inseparable.

The 'Pillars of the State' do not merely occupy the material world, or are just an institutional design, but are in fact a conglomeration of many different views and factors. They are made up and a part of not only the material world made up buildings and institutions (which happen to use technology), but something larger, that of a psychological and philosophical worlds as well, and most importantly are inhabited by people.

The first 'Pillar of the State' is the most important of the Pillars: the citizenry population. This pillar forms the basis of the state from which all other pillars and elements of the state are created from. This population of citizenry are groups of people who have banded together to form a common union (either peacefully or by force), with nominally common interests. Without a population, there can be no state. In order to facilitate better commerce and governance, they manifest two major unions between themselves and the other elements of the population: the economy and the government.

The second 'Pillar of the State' is the economy. This Pillar allows economic transactions to occur between actors within the state. These actors consist within the state as representing some small portion of one of the Pillars. Transactions that occur are between members representing a corporation or business within the economy, citizens serving in the capacity as a buyer for the state, or members of the population buying goods for private use. Following basic economic theory, these transactions come in the forms of goods and services in which are exchanged for other goods and services through the medium of bartering or currency.

The economy forces the population spread out its resources and abilities in order to allow for further expansion of the economy and to optimally create an economy that maximizes effectiveness over redundancy, making the economy competitive with domestic and foreign trade partners. From the point of view of the citizen, each citizen has some skill set or attribute that is unique or limited to a certain number of citizens (depending on the skill set). In order to attain survival for one's self and one's family, the citizen must utilize their skill set in such a way as to create some good or service that some other citizen desires and is willing to trade and/or pay for. It is this very interactive union between citizens that allows for an economy. The economy then serves as a medium in which specific (non-governmental) transactions occur, allowing for both necessary and luxury goods and services to be traded between citizens and the population at large. Ultimately, the economy serves as a type of institutional moderator and medium in which trade between civilians can occur, and facilitates the pursuit of certain goals by the population (food, wealth, etc.).

The third 'Pillar of the State' is the government. This pillar is composed of participatory members of the citizen population (in a democracy everyone is a member of the government to some extent- if they are allowed to vote) and citizens who specifically are employed by (and help to operate the mechanisms of) the government. In order to regulate trade, social interactions, and internal security between members of the population (not to mention provide external security), members of the citizen population were forced to create institutions that would facilitate the regulatory goals set forth by the population. Because of this the citizens of the population entered into a "social contract" (Hobbes 1660, Locke 1690) between themselves and their government, in which the

citizens gave the government certain powers and authority in order for that government to provide the population with certain goods and services. The government therefore serves as the focal point and interpreter of power and authority within the state, with stakeholders (i.e. voters in a democracy or republic) serving as the ultimate authority.

Combined, the three "Pillars of the State' form a larger unit of analysis, the 'Core of the State'. By taking into account the citizenry population, economy, and government, domestic factors are now available for analysis of states engaged in war. No longer should states be viewed as solely a unitary actor, but instead, a composite actor made up of many inter-related parts. When the 'Pillars of the State' are functioning, they provide the necessary gears in order to ensure that the state is a functioning unit when dealing with internal (war production) and foreign (waging war) matters.

The 'Core of the State'

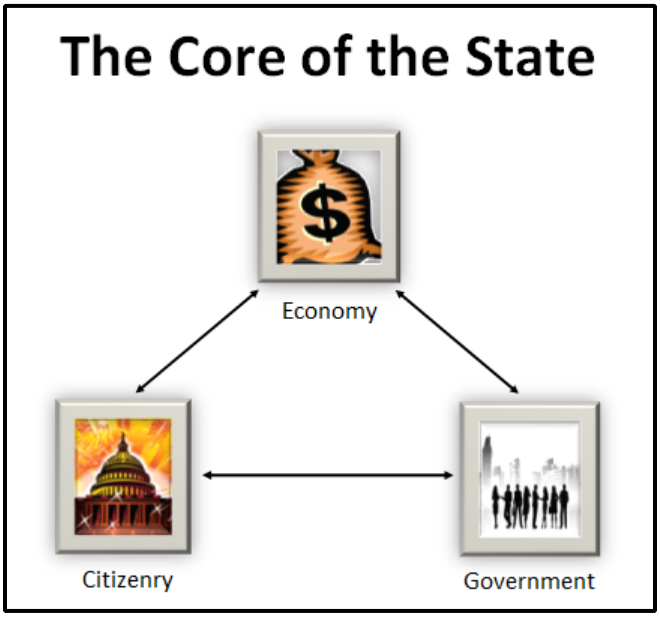
The 'Core of the State' is a composite unit made up of the population, economy, and government. Together it provides the necessary and sufficient abilities to act as state and operate within the international system. Following the Correlates of War (CoW) data set definition, for a state to operate within the inter-national system a functioning 'Core' not only must have a functioning government, economy, and legitimate population, but an additional four elements. Under the CoW definition, a State must provide "1) territory; 2) population; 3) diplomatic recognition; 4) sovereignty; 5) independence" in order to be declared a state (Sarkees and Wayman, 17-19).

The first requirement of a state according to the Correlates of War (CoW) data set is territory. A state must have territory, and in every example of a state throughout history, each of the 'Pillars of the State' own some amount of territory, and in which the

laws of the state are executed within the declared territorial boundaries. The second, population, is already a 'Pillar of the State'. The third, diplomatic recognition is an element of governmental power that is an assumed power by the government which gives it the right to conduct foreign policy. The fourth, sovereignty, is related to the first, in which the state has absolute and ultimate authority to execute the laws of the state within its own borders. Finally, independence, each state is free to make its own decisions without direct influence from another state (as say compared to a tributary state).

Figure 4.1 shows a graphic depiction of the three 'Pillars of the State' together when they form the 'Core of the State', with arrows to shows the interaction between the pillars inside the core. Every pillar of the 'Core of the State' performs some function in which goods and services are traded or exchanged between each pillar. These pillars form the backbone for domestic interaction allowing for a basic level of internal cohesion, economic transaction, political prosperity (to some degree), internal security (to varying degrees), and unity for a state.

Figure 4.1: Visual Representation of the Core of the State



The Transaction Exchanges within the Core of the State

In order for the Core of the State to operate effectively, each pillar must interact with the others through what shall be termed theoretically as 'transaction exchanges', where the three pillars interact with each other to share resources and allow the state function properly.

In the case of the population pillar, the population provides goods and services to the other pillars. In its relationship with the government, the citizens will provide to the government support and participation (or non-participation in some governments) and thus legitimacy to the government. The citizenry may also be called upon to provide more in the form of support than just allowing the government rule. It will do so in the forms of personal service to the state (if required, and in different ways- such as drafts, national service, etc.), and in taxes in order to fund government operations. In exchange the government will provide to the citizenry governance (in whatever form, be it democratic, autocratic, totalitarian, etc.), to include internal security within the state and external (national) security for dealing with threats beyond its borders. It will also provide (depending on the government) other goods and services, such as roads, education, medical benefits, social programs, and possible employment outside of national security all while imposing laws and regulations upon the citizenry for them to follow to ensure that internal stability, internal and foreign security, and perhaps economic growth occur.

The population also has transactions with the economy and those who run and/or operate businesses within the economy. Citizens of the population give up their personal services to certain business and corporations within the economy in exchange for income

(and other potential goods and services from their employer). The citizens serve another role for the economy, that of consumer of products, where members of the population provide the demand (i.e. income) for goods and services that the economy will supply.

The government and the economy also conduct transaction between each other. The economy will provide goods and services to the government (such as warships, electrical power, etc.) in exchange for such services as security (both internal and external). The government will also demand taxes from the economy in order to pay for these services. The government will also impose various types of laws, regulations, and economic/monetary policy upon the economy based upon various influences from each of the three pillars.

In each of these exchange transactions that occur between each pillar, portions of every pillar have an effect or relationship with decisions made and carried out by the other pillars (Table 4.2). Every transaction made will have some direct or indirect effect upon the other pillars in some form. Most exchanges and transactions that occur are not only directly between two pillars, but strongly influenced by various factors and actors from the third, all while being influenced by actors and factors within their own pillars in order to facilitate a transaction (like the military-industrial complex).

While not every transaction may be judged as “fair” or “right” (or even make all members involved in the transactions happy) what is important is whether or not the perceived imbalance between transactions is considered fair enough. If the system is considered fair and stable, then the citizens are willing to live within the current system. If it is not considered fair as a whole, the system may be seen as broken and elements

within the pillars seek to destroy the current system in the state and replace it with something else (be it a new economic, governmental, or cultural system… or all three).

Figure 4.2: Exchange of Goods and Services between 'Pillars' in the 'Core of the State'

	Population provides Goods & Services to:
Government:	Support & Legitimacy
	Taxable Revenue
	Manpower for Shield of State (Defenses)
Economy:	Manpower for Production of Goods & Services
	Income from consumers through purchased Goods & Services
	Population receives Goods & Services from:
Government:	Security (Internal & External)
	Medium for Participation
	Social Welfare Programs
Economy:	Goods and Services (both Essential and Luxury)
	Income through Labor provided to Economy
	Economy provides Goods & Services to:
Government:	Support & Legitimacy
	Taxable Revenue
	Manpower for Shield of State (Defenses)
Population:	Goods and Services (both Essential and Luxury)
	Income through Labor provided to Economy
	Economy receives Goods & Services from:
Government:	Security (Internal & External)
	Medium for Participation
	Social Welfare Programs
Population:	Manpower for Production of Goods & Services
	Income from consumers through purchased Goods & Services
	Government provides Goods & Services to:
Population:	Security (Internal & External)
	Medium for Participation
	Social Welfare Programs
Economy :	Laws for Trade, Production, Standardization, etc
	Defense of Trade Interests
	Government receives Goods & Services from:
Population:	Support & Legitimacy
	Taxable Revenue
	Manpower for Shield of State (Defenses)
Economy:	Goods and Services (both Essential and Luxury)
	Taxable Income through various means

The Core of the State and Clausewitz's Trinitarian Analysis

It should be noted that the composition of the state as envisioned in this theory is in some ways similar to that of von Clausewitz's Trinity Analysis of the nature of war with the People, the Military, and the Government serving as the three elements of the trinity (Handel 1992, 102-106). Von Clausewitz restricts himself for most of his book *On War* to dealing solely with military matters while ignoring the economic, civil, and political for the most part (Handel 1992, 108). This is ironic as one of von Clausewitz's most famous dictums is about the nature of politics and war and war's subservient nature to politics. Von Clausewitz would lead one to believe that material and technological innovations were relatively stable and quickly adapted by both sides (negating the offense-defense capabilities debate, though he believed that the defense was stronger), "Very few of the new manifestations in war can be ascribed to new inventions or new departures in ideas. They result mainly from the transformation of society and new social conditions…" (von Clausewitz 1976, 515). Michael Handel (1992, 109) believed that this omission of the material aspects of war is Clausewitz's most glaring weakness in his theory. Handel (1992, 109-111) then takes it upon himself to update the model by placing the Trinitarian Analysis into the material environment. This updated view however fails to take into account the exact roles economies play in war. It also fails to show the inter-connected relationships of the people, economy, and government within the state, all while continuing to promote the military to equal status with the government and population instead of recognizing it as an element of the state. Since the military serves as an element of the state (unless the military leadership takes control in which it would be transformed from military leadership to government leadership with lower ranking

commanders serving as the true heads of the military), it proceeds and receives its political objectives from the government while utilizing resources from the citizenry population and economy to attain those objectives. Military actions therefore work at the direction of the government's desired political objectives and through the acceptance of the population. As such, the military may or may not necessarily be political or bound by political necessities. Further, both von Clausewitz and Handel focus more on the military matters and less on everything else. This focus by von Clausewitz and Handel is manifested by details on the tactical and (most importantly) the operational levels of war, with little focus on military strategy, political strategy, or the 'home front'. Because of the extreme focus on war itself, and that of tactical and operational matters, both von Clausewitz and Handel are missing the larger view of war. Therefore, the theory presented here, with its focus on the on the state as a whole to include not only the military, but the population, economy, and government makes this theory uniquely different (and improved) from that of von Clausewitz and Handel.

The "Shield of the State"

"War is an act of force to compel our enemy to do our will."

- Generalmajor Carl von Clausewitz, *On War*

If the state was created in and operated in a vacuum, it would only have to deal with internal and domestic issues and would not have to deal with external (foreign) issues. However, states operate within an international system, comprised of many other states and non-state actors. Because it operates in a system with other states, governments (and the other pillars of the core) cannot simply worry about domestic issues alone, but must also deal with other states. Because these interactions with other states may lead to

violent disagreements states needed to find ways to protect their own Core from attack by other states.

Internal security and economic prosperity are not enough to defend the Core from attacks by foreign states, and thus, states were forced to create an institutional apparatus to defend the state from attack. States went about creating branches of their armed forces, intelligence agencies, diplomatic missions, police, and law enforcement apparatus with the intent of defending the state from foreign influence and interventions. The combined efforts of these various agencies for national defense and security form the theoretical construct of the 'Shield of the State' (SoS), which is an extension and function of the government and thus an extension of the Core of the State and the state as a unitary actor.

The Shield of the State is the sum of all capabilities that a state can bring to bear against another state (or state-like or non-state actors) in times of war and peace. In its defensive role, it defends itself from destruction (via the protection of its own internal capabilities) while defending the 'Core of the State' simultaneously. In its offensive role the Shield it attacks the enemy's Shield and Core. The capabilities of the Shield are dependent on the 'Core of the State' to completely fund, equip, and support the maintenance of the Shield which in turn is dependent on the political aims and will of the Core. The following figure explores the exchanges in goods and services provided between the 'Shield of the State' and the 'Core of the State'.

Figure 4.3: Transaction Exchanges between the Shield & the Core

	Core Provides to Shield:
From Government:	Directions and Guidance to Shield
From Economy:	Purchases Goods and Resources from Economy
From Population:	Receives Manpower (Draft or Volunteers)
	Shield Provides to Core:
To Government:	Offensive and Defensive Capabilities
To Economy:	Protection of Trade and Economy
To Population:	Protection of Life, Property

Every state, whether in peace time or war time (no matter the state's population or economic size), maintains and operates some form of the 'Shield of the State' or has some other state protect them with their Shield. Even before a war begins there are elements of the state that are actively training and preparing for national defense. In the case of the Armed Forces they are creating doctrine, training, designing and/or purchasing weaponry, planning for future operations, and possibly conducting ongoing operations of some type.

The 'Shield of the State' by its very nature is involved (and perhaps an active participant) in the ongoing and continual political process for the state in which it operates. This participation is found most prominently in the governmental pillar of the Core. Because war is a form of political interaction between states, wars must have political aims and objectives set forth by political leaders. These political aims may be rather broad and open ended, or very explicit. No matter where the political aims fall

upon the spectrum of type, there are always political aims that the political leadership demand their military to pursue.[12]

The Shield of the State is the instrument of the state that compels the enemy to accept the political demands placed upon them. Each state's doctrine, strategies, operational arts, tactics, weapons, and philosophies utilized in war are heavily influenced by the state's political environment and culture. While these elements of the military art, along with political aims, may change, they remain interlinked. Politicians in the government may demand the capture of a city, but that may not be possible without the leadership, doctrine, strategies, tactics, weaponry, etc. that would compel the enemy to cede control over the contested city. Thus, political aims are merely one link in a long chain, stretching from the halls of power to the individual soldier, sailor, airman, or Marine on the battlefield. While certain links may be weaker than others, it must be continuous. Just as winning battles does not necessarily lead to winning wars, political aims do not necessarily lead to victory in battle. It is the role of the 'Shield of the State' to transform the political aims of its governmental leadership into strategic, operational, and tactical (battlefield) success.

Elements of the 'Shield of the State' and their Employment

The employment of the Shield can differ greatly between peacetime and wartime. While this is a theory of warfare, and thus events that occur in wartime are of prime importance for this thesis, it should be noted that some elements of the 'Shield' have greater roles in peace than in wartime, but all have roles to fulfill during both periods.

[12] This is not to say that they create the political aims, or that the political aims do change, but that the political leadership must 'sign off' on them and give directives to the Shield

There are five main elements of the Shield of the State. While the first four elements are critically important, they are skipped in the theory and in both the qualitative and quantitative testing conducted in this thesis.

The first element of the Shield is that of Diplomacy. The second element is Foreign Trade. The third element is Law Enforcement. And the fourth element is the Intelligence Services. The final and most important element for this thesis is the main element utilized during wartime operations, the Armed Forces. It is upon this element (with support of the other elements) that rests the main abilities of a state in wartime to not only defend the Core, but attack the enemy's Shield and Core. The organization, size, doctrine, and other attributes of the armed forces are different from state to state, depending on the desired political aims and wiliness to pay for them. However, most armed forces are organized along similar lines composed of three main branches: ground (or land) forces, aerospace (air) forces, and naval (or sea) forces.

Ground forces are the very heart of any state's armed forces. The seat of all political power and almost every aspect of the 'Core of the State' is found on land. As such, land warfare is "shaped by the nature of the environment in which it is fought" (Tuck 2008, 67). Ground warfare is fought by ground forces (armies or similarly organized organizations) in which units from these armies maneuver across some territory to engage the opposing enemy. This might include offensive operations (the attack), defensive operations (defending), stability operations, counter-insurgency operations, guerrilla warfare, armored warfare, infantry warfare, etc.

Armies may be composed of a professional force, a large conscript force, a militia force, or a mixture of the three. They may be small or large, or designed as a small force

that can ramp up to a much larger force. There may be multiple 'Armies', such as in the US with the US Army and the US Marine Corps, or Germany in WWII with the Heer (Army) and the Waffen-SS (Nazi Party's armed wing). They may operate together, independently, etc. They may be very large encompassing entire army groups whose subordinate units stretch across a continent with millions of troops all the way down to battalion, and company sized formations of hundreds of troops. They will be organized along lines of arms employed, such as artillery, armor, infantry, airborne, etc. No matter how armies are trained, equipped, organized, and doctrinally fought, they serve one overriding purpose: ground forces seek to hold and gain ground while denying the enemy the ability to do the same to them.

A second component to the armed forces is that of the aerospace (air) forces. While a relatively recent addition to armed forces (since the evolution of flight at the beginning of the 20th century), air forces are composed of capability based platforms and utilized in a multitude of ways as to bring damage to the enemy. Air power is designed to utilize assets in the atmosphere and in space to further military and policy goals. Air power can perform a multitude of missions (depending on the platform), including air superiority (control of the aerospace and denying use to the enemy), tactical ground attack (attacking enemy vehicles, emplacements, etc.), interdiction (attacking enemy supplies, communications, infrastructure), strategic bombing (attacking strategic level targets), and surveillance and intelligence gathering. Depending on the capabilities, air forces allow a joint force commander to attack the enemy's Shield and Core beyond the ongoing efforts at the front by ground forces and into the enemy's rear areas which may

be inaccessible to ground forces at the time, while protecting their own Shield and Core from the enemy attack. It cannot however secure territory.

The third (but not least) component to the armed forces is that of the naval (sea) forces. Naval forces have been around since the first humans put to sea thousands of years ago and had to defend themselves from other ships. Naval forces are similar to air forces in the respect that they are composed of capability based platforms that are utilized in a multitude of ways as to being damage to the enemy (air craft, ships, submarines, etc.). In a peacetime role, naval forces "show the flag" as a method of deterrence though a presence in an area that would dissuade someone from attacking while safeguarding their sea traded resources (Sea Lines of Communications or "SLOC") and national merchant fleet from piracy and other crime related activities. During wartime naval forces can deny the use of the sea to the enemy though the concept of 'command of the sea' by denying its use to the enemy and allowing their own naval forces freedom of movement. Naval forces can also project power ashore in support of naval, air, and ground operations (such as shore bombardment, naval strike via missiles or aircraft, landing ground forces on a beachhead, etc.).

Thus, states utilize their armed forces in many different ways. However, the 'Shield of the State' in wartime is more reliant on the armed forces than another element of the 'Shield'. It will ultimately be how well the armed forces perform and how well that Core supplies the Shield in war that will determine the strength and capabilities of the 'Shield', and thus, how well the state preforms in war.

The Core and Shield of the State at War

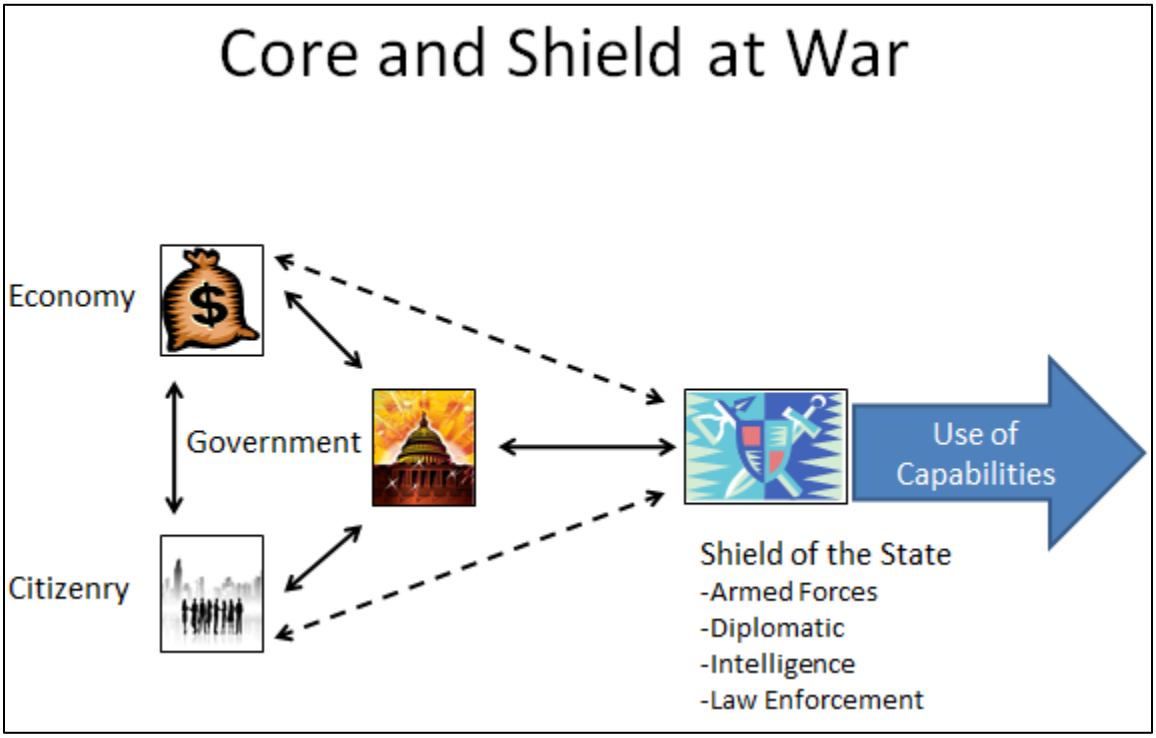
With an understanding of the Core and the Shield in place, how does a state's Core and Shield interact during wartime? Depending on its political goals, the state will utilize varying amounts of resources from both its 'Core' and it's 'Shield' in order to achieve a desired political objective set forth by the political leadership of the state. Therefore, at the heart of any war are the politicians and their political objectives.

Political objectives are influenced by many different factors, but mainly come from the state leadership. The leadership of the state is influenced (depending on the type of government in the state) by the population, economic leadership, leaders within the governmental pillar, and by leadership of the Shield as well. When deciding on war aims, they are also deciding on aims not only to gain goals for national security, but for their own domestic political survival as well. As stated earlier, they will operate under that of the Prospect Theory. As only victory in war can ensure their survival domestically, ending the war earlier involves the prospect of internal strife and fall as a leader or regime. Thus when taking any action short of victory, leaders do so under great risk to their future survival, and only as a last resort. Therefore, the incentive is for a leader is to win. No ordering of preferences changes the fact that without a win, their domestic position becomes harder to maintain.

Once the political objectives are decided upon (though they can change over the course of a war), governments will begin to mobilize its economy and population as necessary in order to support the Shield in its attempts to gain the desired political objective. Throughout this process, tradeoffs are being made between decision makers based upon the requirements and influenced of the Shield and the other pillars.

The Shield in wartime has two primary goals. First is the protection of its Core from enemy attack (stressors). Second is attacking (stressing) the enemy's Shield and Core in order to achieve the desired political objectives. In order to achieve this, the government will require transaction exchanges from the population and economy in order to support the Shield. Throughout the course of the war the state may be required to exchange more from the population and economy, all while ensuring that the Core remains capable of functioning. The more the Core is damaged by attacks (stressors) or the more the Shield is utilized and damaged (stressed) in war, the more pressure that will be placed on the Core to replace the damage to the Shield and the Core while keeping the Core at a level that it can function as a state and keep the population's support behind the government.

Figure 4.4: Graphical Representation of the State and Shield at War



A Theory of Inter-State Warfare

War is not just a military action, but military action for a political purpose. As such, wars are the use of violence in an attempt to force another state to accept the political demands placed upon it. While this comment implies simplicity, war is not a simple affair, and how a state achieves victory something much more difficult.

War is perceived at times to be a one-sided affair, as in State A utilizes this action or that action upon State B. What is forgotten is that war is a "two way street", and that both sides are continuously attempting to force a preferred political outcome upon the enemy whom they are engaged in war with. This makes asking such question of 'How does one state compel the other state to give into its demands?' a more complicated question, as it is in fact two interrelated and simultaneously occurring questions. In war, both sides are conducting operations simultaneously in order to convince the other side to accept their political aims.

Wars therefore can be thought of as races between two different competitors. It is a race where both competitors are trying hard not to be the first to quit the race before the other racer or be the first one to be tackled by the other racer. Two different competitors are different in their physical shapes and abilities, racing on courses of different lengths, with different obstacles that vary during the race, and in which your opponent can add to (and you can remove) those obstacles depending on actions made by both. It is a race without a definite end, where the competitors must endure as long as they see their competitor quit the race first. It is not a race to victory, but a race to force the other racer to quit or if not quit then finally tackle the other. This view is more in line with the

thinking of Allan Stam than those of the Bargaining Model, who view war as a transaction of information without actual results in those battles.

In this inter-state war, various complex combinations of violent force and political variables are constantly changing and evolving due to the actions and reactions of both belligerents. Wars are won or lost due to the actions of states as they attempt to compensate for stressors placed upon their 'Shield' and 'Core' by the enemy while simultaneously attempting to place stressors upon the enemy's 'Core' and 'Shield'. In inter-state warfare, the state that is best able to protect its own 'Core' from enemy stressors while placing stressors upon the enemy 'Shield' and 'Core' will win. Conversely, a state will be defeated when it sees its 'Shield' defeated on the battlefield, its 'Core' devastated and unable to support both itself and the 'Shield', or some combination of defeat to the 'Shield' and damage to the 'Core' that will exhaust its ability to continue the conflict (such as citizen opinion, government will power, etc.). The defeated state will have at some point crossed a threshold (which is unique to each state) where the additive (and multiplied) effects of stressors placed upon its Core and Shield will be so great that it no longer wishes to continue the conflict and will give into the political demands that the enemy placed upon them. When both states have suffered stressors to their Shield and Core to the point where they are not willing to give in to the enemy's demands, but are also unwilling to continue the conflict, both sides will seek a negotiated settlement (i.e. draw).

States are defeated in one of 4 possible outcomes:

1. Total Defeat via the complete destruction of the Shield and capture of its Core.

2. Governmental pillar capitulates to demands of the enemy before destruction of the Shield and capture of the Core occurs (Bargaining Model outcome).
3. Population pillar capitulation to demands before destruction of Shield and capture of Core occurs, via revolt, rebellion, revolution, removal of government, etc.
4. Surrender or destruction of major portion of the Shield which leads to the opening of the Core and the Core's surrender or capitulation to demands before the Core is damaged (Bargaining Model Outcome)

All other outcomes are based upon either a draw (mutual negotiated agreement) or victory for the state as the other state has given in to its demands. This holds in line with the third outcome of Allan Stam, the draw.

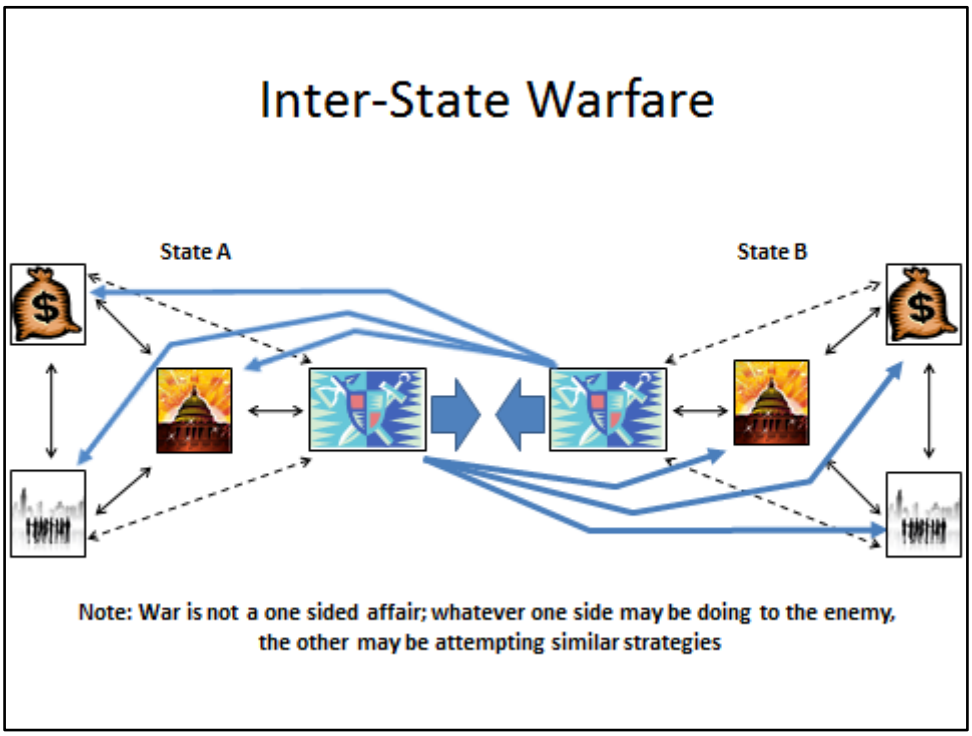
In order to achieve victory, states will attempt to target not only the enemy's Shield, but their Core (through either direct or indirect means). Placing stressors upon the enemy's Shield is perhaps the most familiar with readers, as it invokes the use of military force in tradition means: military on military engagements. Placing stressors on the Shield and the damage it receives is fairly straightforward and well detailed throughout military history and theory: the defeat and/or destruction of the enemy's armed forces. This is done in a multitude of ways to include (though not exclusively) offensive and defensive actions, conventional and unconventional means, use of maneuver and attrition, and so forth. However, only offensive operations can truly allow for a state to achieve its political objectives.

What are more complicated to analyze and quantify are attacks made upon the Core. Damage to the Core entails not only direct and indirect attacks on the Pillars, but

that of the links between the Pillars. Direct attacks upon the Core utilize the Shield to make direct (military) attacks upon the government, economy, or population. Examples of such can be seen in the use of 'strategic bombing' by the Western Allies in WWII against Germany and Japan, where cities, factories, infrastructure, government and military facilities, and even at times the citizenry population were targeted through the use of strategic bombing of heavy, medium, and light bombers and fighter-bombers.

Indirect attacks upon the Core and its effects are even harder to quantify and define than direct attacks. It is easy to quantify such things as the destruction of enemy production facilities, a drop in oil production, etc. It is however harder to quantify how morale is affected, how a leadership's opinion of the war changes, or how hunger or a loss in food production territories affects the population and not only their support for the war but their ability to work at maximum efficiency at their normal daytime places of employment, or how a blockade affects the economy. These types of attacks also rely on "second order" effects, where stressors are placed upon the state as a byproduct of attacks upon the Pillars or by directly attacking the links between Pillars. By blocking the ability of the Pillars to conduct exchange transactions, the effectiveness of the Pillars diminish, and transactions must occur to rebuild that lost effectiveness, or sacrificed in order to support the Shield. Thus indirect attacks over time may have a significant impact upon how the Core operates and how the Core supports the Shield.

Figure 4.5: Visual Representation of Dyadic Inter-State War



When the Core and Shield are damaged due to stressors placed upon it by the enemy, the government is placed in a quandary when engaged in war. When the Shield cannot defend the Core the state is more susceptible to defeat. The government leadership has several options. It can attempt to strengthen its defenses by making up for the losses its Shield has suffered in battle through the redistribution of goods and resources in the core and redirection away from the population and economy for use by the shield.

This however, runs the risk of alienating the population or economic leaders who may not support further conflict. It also leaves open the Core to attack by the enemy's Shield, which could place pressure on the government leadership to accept the enemy's political demands. With attacks on the economy and population, the population may be inclined to raise pressure to end the war, or remove the government. Conversely, direct attacks upon the Core may steel the resolve of the population to remain in the fight. Thus

the government leadership is taking a gamble on whether or not to continue fighting once its Shield has been damaged through losses in combat and/or when the Core is damaged.

In conclusion, victory, defeat, and settlement in Interstate Wars occur because of the ability (or inability) of the state to protect its own Core while channeling enough (or not enough) resources to its Shield and whereupon its Shield can be effective (or ineffective) in placing stressors upon and damaging the enemy's Shield and Core to the point where that state will have become stressed to such an extent it is unwilling to continue the war and acquiesce to the political demands placed upon it.

'Quantifiable Equation' for the Theory Inter-State Warfare and War Outcomes

One must look beyond simply 'bean counting' of assets, resources, GDP, population, and mobilized troops, etc. that states utilize in war. One must look at how a state chooses to fight the war, and how it utilizes its resources. This view must be at the strategic level of war and, even more importantly, the operational level of war. It is in these variables that any determinants of how war outcomes occur will be found. Determinants of war outcomes should focus not only at on success on the battlefield, but that of the 'Pillars of the State' as well. This will help determine both direct and indirect influences that lead to victory, defeat, or settlement in war.

If inter-star war was reduced a math equation in order to determine its outcomes and terminations, it would not only be a complex problem, but an unbalanced equation where both states are expressed on opposite ends of the equation, and are only equal in the sense they are both states engaged in war. Beyond that, there can be no truly two equally paired states ever. As such, any equation is unable to show equality between the states. However, this should not deter one from thinking in such terms. What it does

require is to think of war in a much different manner because no matter what one would like to believe, the philosophical and mathematical truth is that states will never be equal, and any equation is bounded by the mathematical laws of inequality. As such, wars should be viewed as two inter-dependent problems vice one problem of equilibrium.

Any math that attempts to describe a war is an unequal problem. Each state would have their own equation (both states using the same equation, utilizing different data and inputs) where each variable would be calculated to a point where point a state no longer has the 'will' to continue the fight and will give in to the enemy's political demands, even if such demands mean complete surrender or complete occupation and destruction of their Shield and Core first.

If such an equation were to ever be utilized (with perfect information and data), it would like something like this:

$$[X_P\,(P_S\ + P_G - P_L)] + [X_E\,(E_S\ + E_G - E_L)] + [X_G\,(G_S\ + G_G - G_L)]\ +$$

$$[X_S\,(S_S\ + S_G - S_L)]\ \geq\ \Omega$$

Where $X_P + X_E + X_G + X_S = 1$

Ω = State's Surrender Point (Where they completely agree with enemy's demands)

X = Comparative Weight of Sum of Variables (different for every state)

S = Start Point, G = War Gains, and L = War Losses

Where P = Population, E = Economy, G = Government, and S = Shield of the State

Therefore under this equation, one would find the Ω to be, along with the weights of the sum of variables to be different for every state, and in this case an arbitrary number, as states do not have some magical number where they will surrender, only determinants. With perfect information and perfect modeling, wars could be predicted,

and this equation in some modified form, would be highly useful. Until that time however, it shall serve as an ideal that may never be reached, but one that should be continually thought of and modified and worked towards.

Because wars are so infrequent (as compared to years of peace) and suffer from a lack of data (explained above), this math equation will always be incomplete. With this in mind, the study of war and the resulting data and analysis (as expressed in an earlier section) is very much incomplete, and it is a problem that can never truly be rectified. Since it is and will always be an incomplete problem, attention must be paid to indicators or determinants of war outcomes, within the Core and Shield framework of the theory. These indicators should primarily look to the 'what' and 'how' of war outcomes. The 'what' as in what is needed to be done to bring about victory in war, and 'how' a state go about achieving victory in the war. Because of the imperfect and incomplete data problem, only case studies and determinants can provide us with the pieces of the puzzle on how war outcomes occur.

Theoretical Hypothesis to be Tested

As put forth or implied in the theory above, the rest of this study will attempt to verify the theory through both qualitative and quantitative methods depending on the data available.

H_{Core} = States with stronger Core's and Shields, who are able to defend them while defeating the enemy's Shield and/or damaging the enemy's Core will be more likely to win wars.

$H_{Population\ Losses}$ = The greater the state's casualties (damage to the population pillar), the less the likelihood of victory.

$H_{Economy\ Losses}$ = The greater the state's economic losses (damage to the economic pillar), the less the likelihood of victory.

$H_{Governence}$ = The greater the state's government cohesion, the greater chance of victory (as it is more resilient to stress placed upon it).

$H_{Offensive\ Initiative}$ = States who maintain offensive initiative will have a greater chance of victory.

$H_{Warfare\ Method}$ = States that utilize 'unrestricted war' means of both conventional and unconventional warfare will have a greater chance at victory than those who solely utilize purely unconventional or purely conventional methods.

$H_{Maneuver\ Doctrines}$ = States that utilize maneuver doctrines will have a greater chance of victory.

H_{Mass} = States that utilize mass at the point of attack on offensives will have a greater chance of victory.

$H_{Battlefleets}$ = The greater the losses to a state's battlefleet, the greater the chances of defeat.

$H_{Sea\ Control}$ = States that utilize sea control doctrines will be more likely to win wars.

$H_{Conservation\ Forces}$ = States that utilize conservation of force strategies and operational art will have a greater chance of a prolonged war and defeat.

Conclusion

Through this theoretical framework, it is hoped that how wars are fought and how they end and why they end the way they do is better understood. Due to the missing data, quantitative analysis can only provide part of the answers sought. Therefore, qualitative analysis is required to test the full breadth of the theory. If the majority hypotheses hold true, then the Theory of Inter-State War-Fighting will hopefully be seen as a valuable tool for evaluating inter-state warfare, how they are fought, and why certain outcomes occur.

Chapter 5:

Qualitative Analysis

Using the hypotheses from the last chapter, I now examine two case studies of two very different inter-state wars in order to evaluate the 'Theory of Interstate War-Fighting" and the determinants of war outcomes.

The intent of this chapter is to expand upon two wars in order to show the process of war beyond just statistical analysis of what determines war outcomes. Factors themselves do not lead to victory in war. How those factors are utilized is what leads to victory. Case studies are rich with information that is either lost or misconstrued by pure quantitative analysis. Quantitative analysis is imperfect, and depending on the coding, can construe or minimalize important factors and leave us with imperfect information and knowledge. Quantitative analysis can show us trends over time. Qualitative research is also imperfect, where it only shows trends over the case study's time period. However, qualitative research can show things that quantitative analysis cannot, such as the evolution of strategies, operational art, and doctrine throughout the length of a war. This level of detail provided by qualitative analysis is necessary for situations where data is lacking. In the study of war there is plenty of missing or contradictory data. I argue that qualitative analysis and quantitative analysis are complementary, and that much useful information can be gained from utilizing both types of analysis and in particular the level of detail found in case studies. This level of detail can be of great help discerning the determinates of war outcomes more so than just cursory numbers of a state's raw resources and manpower can ever determine. With that said, there is great value to quantitative research, but as in football, not every offensive play will work every time when utilized against an opposing defense, and the same is true in the study of warfare and in waging war itself.

In order to analyze the theory in general and the hypotheses in particular, each case study will be broken up into several sections (stated below) in order to determine the progress of each war, and help show how certain determinants of war outcomes came about. It is through these two broad case studies that this study shall attempt to show how states engage and produce certain outcomes in inter-state warfare. This will be achieved through the lens of the 'Theory of Inter-State Warfare'.

In these case studies (as well as in the quantitative analysis) the dependent variable is the particular war outcome, either a win (enemy accepts that states political demands), a loss (state gives in to the enemy's political demands), or a draw (both states change their demands in order to find a mutual agreement to end the war).

The following case studies utilize a process called "process tracing", a process that was utilized by Dan Reiter in *How Wars End* where process tracing is "a procedure for identifying steps in a causal process leading to the outcome of a given dependent variable of a particular case in a particular historical context" (Reiter 2009, 52). Reiter (2009, 52) however argued that it is impossible to create universal rules for success in battle and that "interpreting battle outcomes is highly context-dependent." And perhaps it is true that there is no one universal rule for battles, as they are highly dependent on a vast amount of variables. But the same can be true with any such event one was to study, and going down one logical path, one could never truly interpret anything. I agree with Dr. Reiter that in war, many events and variables are "highly context dependent," however I also believe that certain universal themes can be found in war, and in particular variables at the operational and strategic levels of war, but less so at the tactical levels of

war due to the great influence tactics, topography, training, and technology play (amongst other variables) in tactical engagements.

Both wars utilized in the case studies show many similarities, and what is most striking is how the belligerents utilized similar methods, or maintained similar war aims, but for various and highly different reasons. Therefore these wars have variation in the independent variables utilized, allowing for a broad spectrum of variables to an analyzed in just two case studies.

Case studies do present a problem however, which allow for a possible distortion that can where the lessons of a few wars are applied to all wars when it may not be appropriate or even valid. In order rectify this, while still recognizing the data problem, this chapter is complemented with quantitative analysis in the next chapter. Case studies also create tunnel vision for those involved, and can lead researchers to find elements that are not involved in all wars, or allow researchers hold hypothesis true when they are not (as in a matter of interpretation). Thus one must tread carefully when using case studies. Case studies however present an important bonus beyond what quantitative analysis can achieve. It allows for context of variables (especially during real life actions and decisions) that pure quantitative variables cannot (say for example why one strategy was pursued over another even if that other one was "militarily more efficient" etc.). Furthermore quantitative data are sorely lacking in many variables utilized for this study (and in the study of war in general), and require further (and deeper) research into all inter-state wars. Even then that research may not prove fruitful, as much data and knowledge has been lost due to the expanse of time and the destruction caused by war. To test wars quantitatively to achieve true accuracy of detail would require mathematical

equations that would been highly subjective due to the lack of data and information on wars at this time, and thus only certain determinants can be tested for with any level of accuracy, requiring the use of case studies.

With these factors taken into account, a two pronged approach is necessary when studying wars. Despite the orthodoxy many researchers have fervently stated when upholding quantitative analysis over qualitative analysis, both qualitative analysis and quantitative analysis complement each other in such wonderful ways that to ignore one over the other is to lessen one's true understanding of the subject and limiting one's ability to discover new things.

Case Study Sectional Organization

Each case study will begin with a short overview on the events that lead to war onset. Next each case study shall analyze the status and capabilities of the core and shield of each state involved in the war at time of war onset, along with the initial political aims of the war. Then the case study will analyze the progress of the war through the lens of strategic, operational, and doctrinal factors, and how these factors helped or hurt a state's war outcome. Finally I shall conclude with a test of the hypotheses from the previous chapter, seeking to find which ones held true, and which ones were found lacking in each of the two case studies, if the general theory holds true, and what factors led to why the specific war outcome occurred.

Russo-Japanese War 1904-1906

I. Background to the War

The roots of the Russo-Japanese War can be found in the outcome of the Sino-Japanese War of 1894-1895. In the Sino-Japanese War, both China and Japan fought for control over Korea. While Japan had defeated China decisively on land and at sea, it failed to completely gain the political objectives it desired due to European intervention (and mainly that of Russia). Imperial Japan's original peace terms to Imperial China demanded were quite generous to Imperial Japan, and Imperial China seemed on the verge of acquiescence to Japan's demands.

However, the Imperial Russian government was not thrilled with the political aims of Japan, and fearing that Japanese expansion would ruin their designs for Manchuria in particular and in the Far East in general. To forestall the Japanese, they moved troops into Manchuria and worked diplomatically with other European powers in order to "deprive Japan of its gains in both Korea and Manchuria," which it succeeded in doing (Jukes 2002, 8).

China also in turn handed over the Liaotung Peninsula to Russia, leaving Japan with only a non-Chinese (but pro-Russian and pro-American) Korea, a line of indemnity, and Formosa and some surrounding islands. Japan was angry at this outcome caused by the intervention of Western powers. "Instead of building railroads in Korea and Manchuria as it had planned, Japan now used its indemnity to build battleships in England. The Japanese had tasted victory. Now they planned for revenge" (Warner and Warner 1974, 60).

By 1904, Japan felt severely threatened by Russia's maneuvers in the Far East. Russia was building railroads all over Manchuria, deploying more forces to the region, and beginning to exclude foreigners from entrance to and trading within Manchuria. Japan believed Russia to be weaker in the Far East compared to the forces it could bring to bear, but the stronger opponent overall as it could bring vast numbers of forces from all over the Russian Empire. Because of this, Japan wished that if there was to be war, then it should be sooner rather than later, though Japanese leaders where under no illusions that it would be an easy war, but feared what might occur if they did not strike the Russians after 1904 as they were growing in power (Jukes 2002).

II. Imperial Russia's Core and Shield at the start of hostilities

The Russian Empire in 1904 was a mass of contradictions. It was largest state in the world in geographic size, and large in population, and because of its size it was perceived to be very powerful. This perception was incorrect however. The state itself was weak due to domestic unrest amongst its population and by its corrupted and failing bureaucracy. Russia's core was an unsteady and failing core in great need of restructuring and improvement.

Russia had a very vast population. Its population contained a mixture of cultures and nationalities that was spread out over gigantic area in Asia and Europe. Its population was oppressed because of the cultural structure of the state and society, which allowed the majority of the population to be greatly underpaid, greatly overworked, poor, sickly, and illiterate. Thus the population pillar in Russia's core had great potential, but was undereducated and disgruntled with their limited freedoms.

Russia's economic pillar was also a major work in progress. It had vast areas within its large territory that held many natural resources, but the size of the territory and its extreme weather patterns severely hampered the ability to extract those natural resources. Russia not compete with other states as well as it could have because it relied on manpower and not industrialization to achieve much of its output. Russia only belatedly and haphazardly began to industrialize at a ferocious pace. By 1904 only the sheer size of its resources, rather than its industrial prowess, made Russia an economic power. It also had a very poor ability to supply its forces in the Far East, due to both production abilities and infrastructure/transportation issues.

Russia's governmental pillar was the crux all problems within Russia. Russia's empire seemed daily to court corruption, revolution, and a yearning for the past (or willful ignorance of the current situation). Russia was led by Tsar Nicholas II, who in 1904 was still an absolute monarch. Corruption was high amongst the aristocracy and those who served in government. Tsar Nicholas was a poor administrator and leader, as were many of the people he trusted. Russia's governmental and economic leaders were pushing for greater and greater industrialization of the economy at the expense of the workers. They also pushed for greater and greater crop yields from the peasant farmers, which due to the infrastructure of Russia made the entire farming process highly inefficient and caused much discontent with the peasant-farmers. Russia was constantly under the threat of revolution, and many different revolutionary and rebellious committees and cells operated in the country, but did so not in plain sight as they had to go into hiding from the Tsar's ruthless security forces. Russia's government from the

outside world at the time seemed all powerful, but was in reality the weak link in Russia's core.

Russia's shield was, like everything else in Russia, a massive contradiction (or perhaps even paper tiger). Russia's army was massive, and in 1904 Russia had a population of over 130 million people, of whom about one-fourth to one-fifth were of age to be called up for military service (Jukes 2002, 21). Russia's army was feared, but only because of the historical success of defeating Napoleon and the luster that accompanied that great victory a century earlier, though defeat in the Crimean War and actions in the Russo-Turkish War (which they had won) had partially tarnished that luster.

Russia utilized mass conscription to man its armed forces, but it did not conscript Muslims and other ethnic minorities within its borders as it did not trust them (Jukes 2002, 21). Further the conscription program was corrupt as it "provided so many opportunities for evasion that to be actually called up was widely seen as a misfortune" (Jukes 2002, 21). "Relations between officers and men were far more distant in the Russian than in the Japanese Army, partly because most officers came from well-to-do urban or rural aristocratic background or at least from the gentry, while most men were illiterate peasants" (Jukes 2002, 81). Russia still had mass (of numbers) on its side, and in the Far East at the start of the war, it had 100 infantry battalions, 30 artillery batteries, and 75 cavalry squadrons to defend its territory, not to mention hundreds more battalions, batteries, and squadrons that could be called upon from Russia's vast regions to the fight if necessary (Jukes 2002, 20).

Russia's navy on the other hand, while larger than Japans in pure numbers, suffered from many problems. Its navy was spread all over the world, from the Baltic

Sea, to the Black Sea, in Murmansk, and in the Pacific, and thus concentration of forces would be difficult in any Mahanian concept of the term. In the Pacific the Russians had begun a buildup of forces after its acquisition of Port Arthur and the Liaoyang Peninsula, which offered Russia constant access to a warm water port.[13] Its 1st Pacific Squadron had "seven battleships, seven cruisers, 25 destroyers and 27 smaller ships", where "Russian ships were a hotchpotch of different types, armaments and speed, and varied in the amount of amour protection they had" (Jukes 2002, 21). Thus the Russian Navy could be effective, but due to multiple types of ships and armament, lead to a difficult supply system for Russia to maintain. Furthermore, Russian doctrine and training regimes kept the all the fleets in port when only half of its fleets that were iced in, even if half of its fleets were in warm water ports, which greatly reduced the time ships and their crews had not only for training, but the general practice of seamanship and just being underway.

Officer and enlisted training on the whole was rather poor. While there were certainly brave soldiers and some very exceptional officers, on the whole poor training and doctrine lead to poor leadership within the Imperial Russian armed forces. Most enlisted were peasants who were illiterate and had low morale. Officers were a mixed bunch, with most coming from the aristocracy and lacked quality military training which made for many incompetent officers.

Russia's internal security forces were mainly concentrated on suppressing their own internal revolutionaries, and believed the Japanese so incompetent as to do very little spying with their intelligence agents. Thus Russia's shield looked formidable, and if utilized properly could bring about victory in a war, but glaring weaknesses in training, doctrine, supplies, and morale were serious faults within the shield. If it were up against

[13] Unlike that of Vladivostok which froze for several months of the year.

its tribal foes it had defeated in the past century, or the Turks, the Shield was enough in its current condition. Against a well trained and equipped enemy, the Russian Shield was thought to be 'just enough' due to its size.

III. Imperial Japan's Core and Shield at the start of hostilities

Imperial Japan in 1904 was a state on the rise. While it was a small island state, it had a growing population and booming economy due to rapid industrialization in the forty years before the war.[14] Japan's Core was a strong core in many ways, though this came at great cost and dramatic change.

Japan's governmental pillar was the very heart of Japanese society, for it revolved around the Emperor. All power was invested in the Emperor, who delineated powers to his cabinet and ministers.[15] Japanese citizens were "now… required to believe that this son of the deities… was divinely inspired to rule it all" and that "if it were not for Japan, therefore, the other nations of the world would not exist" (Warner and Warner 1974, 45). It was through the Emperor that the ministers exercised vast power, and helped make Japan a highly industrial and militant nation.

Japan's government was in 1904 ruled by men from mainly two clans in Japan, and exercised total authority. As such, the strange divisions of its organization that hampered Japanese governance in World War II would not play much of a role in this war. The Japanese civil government worked in partnership with the Army and Navy instead of working for the civil government. Thus the military exercised great power and

[14] This was due to the arrival of a US flotilla under Commodore Matthew Perry, who sailed into Tokyo Bay and "helped" open up Japanese ports to US commercial interests. This in turn forced Japan to modernize rapidly out of fear of being taken over like China had been by European states.

[15] While the Emperor was in many ways all powerful and revered, there is much debate as to the actual power the Emperor had, and their influences upon national decision making and policy, both in the Russo-Japanese War and in World War II.

influence within the civil government, its economy, and society, but civilians and the Emperor still retained final authority. Both the civil and military leaders worked in harmony to achieve their goals of hegemony, dictating the structuring of society and economy in order to maximize military efficiency in wartime.

Because of the power of the central government, the economic pillar of Japan was heavily influenced not by free markets (though it did a growing amount of civil-domestic and foreign trade), but by the dictates of the governmental pillar. Industrialization had come rapidly to Japan, and it quickly became a key manufacturing center in Asia. Japan's great weakness however was that it had very few natural resources of its own, and was forced to rely on trading with foreign powers for the resources to build up their state and military. It also lacked the ability in 1904 to build very large warships and heavy weaponry on its own at this time.[16] Therefore, Japan was force to rely on foreign purchases from Britain, France, Germany, and the US for the Imperial Army's heavy armament, Japan relied exclusively on Britain for its battleships.

The population pillar of Japan was very strong and resilient, though nowhere near as large as Russia's. It was a heavily indoctrinated society, which revered not only the Emperor, but also the new interpretation of the ideals of bushido.[17] While the old feudal system of bushido and the samurai had been done away with, the leaders in Japan replaced it with a new form, dedicated less on personal honor and more dedicated to the Emperor and self-sacrifice for the state. This new form was imposed upon all members of society, which was accepted easily and readily by the population. This indoctrination or

[16] Though within a decade, Japan would be producing some of the finest battleships in the world.
[17] Bushido is 'ways of the samurai', was originally used by just warriors and lords. But with the Meiji Restoration, it was transformed into a code to be utilized by everyone, as states could now mobilize vast amounts of manpower

super-nationalism, along with the Japanese society being fairly homogeneous society, produced a population that was internally cohesive and for the most part fanatically willing to accept deprivations in order to further the goals of the Emperor and the state.

The strength of the core of Japan allowed Japan a certain degree of freedom of movement and policy that many other states did not enjoy. It could equip a vast army and navy for a prolonged struggle. Its armed forces were backed very supportive population and cohesive government. Japan's industrialization and re-invention of bushido allowed it to field a very powerful 'Shield'.

The Imperial Japanese Navy was a relatively new institution, and a very modern military force, composed of "six battleships, ten cruisers, 40 destroyers and 40 smaller ships, and was generally superior in quality" (Jukes 2002, 21) to Russian ships. Unlike the Russian Navy, the Japanese Navy's ships were "nearly all British-built, were more uniform, and faster" where "under British instructors, spent much more time at sea, and trained more intensively… All Japanese sailors were literate, while most Russian sailors were not. The effects of that difference area are unquantifiable; but steam-driven warships were the most technologically advanced weapon systems of the time; then as now, they were unlikely to reach peak efficiency in the hands of illiterates" (Jukes 2002, 21-23). As per doctrine and organization, the Imperial Japanese Navy was broken up into several numbered fleets, which when called upon with come together into one power force, the "Combined Fleet." The Combined Fleet operated under several advantages compared to Russia beyond that of technology and training: repair and operational maneuver. Japan had the ability to repair ships nearby in large dry docks and shipyards, where as Russia did not have any in the Far East. Japan also operated its fleet from ports

that were less susceptible to being blockaded via choke points, either from enemy blockade or being iced in.

The Imperial Army was a very powerful force as well. While being several times smaller to the Russian army, it maintained an active force of 180,000 troops that could be augmented by a force of 200,000 in its reserves, and muster into the field a further 850,000 if required (Warner and Warner 1974, 179). While their artillery was inferior to the Russians, and they initially shrugged off the need for machine guns, they had very high morale, nationalism, dedication, and internal cohesiveness that the Russians could not match.

High morale would not win battles necessarily however, and as the Imperial Japanese Army was outmanned and out produced in many areas, Japan had strength of doctrine and tactics beyond anything the Russians would show during the war. “The real Japanese strength lay in the infantry… [when] The Japanese trained on the [gun] range. The Russian soldiers shot badly, the Japanese excellently. The Russians fired in volleys. The Japanese learned to aim and to shoot to kill. They were trained in close-quarters fighting” (Warner and Warner 1974, 181-182). Japanese commanders however feared the great weight of Russian armies would overwhelm them no matter how strong their fighting spirit, and professionalism was on the battlefield. Therefore, Japan’s only hope was for offensive actions that would destroy the Russian army before they could come together en masse and destroy the Japanese through its sheer size.

IV. The war begins and Japan conquers Korea

Fearing that Russia would not only dominate Manchuria, but Korea, and seeing no diplomatic resolution in sight, the Japanese believed the only course of action was the

use of military force, even if its leadership was unsure of final victory in the conflict. "Japan severed diplomatic relations with Russia on 5 February 1904" (Jukes 2002, 24). Both sides saw the war as a limited war: limited in goals. Russia was not going to invade Japan, and Japan was not going to march on Moscow from the Far East. Thus as both sides entered into war, it was about gaining and expanding territory (and a limited amount at that), not total domination.

The day after Japan broke off diplomatic relations with Russia, the Japanese Combined Fleet made a sortie from its several bases, with the main body of its force steaming to the main Russian naval base at Port Arthur, while other elements of the Combined Fleet provided convoy escort to ships transporting the dispersed elements of the Imperial Army to numerous locations in Korea and Manchuria.

Japan began to land troops in Korea on 8 February in the port of Chemulpo (now known as Inchon), while later that night the Japanese Combined Fleet attacked the anchored Russian fleet in Port Arthur which damaging two battleships in a daring nighttime torpedo attack. Because Japan had not declared war, Russia was taken by surprise.[18] These early actions by the Combined Fleet cowed the Russian 1st Pacific Squadron into inaction, giving Japan de facto command of the seas and allowing the Japanese to safely transport their field armies to Korea.

After the initial attack on Port Arthur, the Combined Fleet achieved little true success. Japan feared loss of control of the sea, as it would isolate their armies in Korea and Manchuria and lead to defeat. The Russian fleet posed a threat as a "fleet-in-being" (as in its existence posed a threat, but was inactive) to the Japanese, who had to maintain

[18] While the severing relations should have been seen as a step to war, Russia did not see Japan as a great threat and saw no need to increase their military's readiness for combat operations.

its battle fleet at a constant state of readiness out to sea. The Combined Fleet failed several times from February to July to close the entrance to the harbor by sinking block ships, and Russian mines sank several Japanese ships including two battleships in May.[19] The only major Russian sortie out of Port Arthur that sought to engage a contingent of the Combined Fleet occurred in March of 1904 was a major failure, and the Russian Squadron was forced to flee back into Port Arthur.[20] Squadron's return to Port Arthur was an even greater disaster, where Russian ships ran into their own minefields and suffered the loss of a battleship and damage to another battleship. After this attempt, the naval war had turned into a war of attrition and posturing. In spite of its losses, the Russian Pacific Squadron still posed a credible if declining threat to the Japanese Navy and its control of the sea. This threat was of sufficient enough size as to force the Japanese land an entire field army to invest and capture Port Arthur and end the 1st Pacific Squadron's threat once and for all.

By end of April 1904 the Japanese had landed enough ground forces to secure most of Korea, and were building up their forces to launch an offensive into Manchuria. The Japanese were highly confident that if they moved quickly enough, they could defeat the Russians and move into strong defensive positions from where the Russians could not defeat them and would force Russia to give up control over Manchuria. Most Russian commanders were contemptuous of the abilities of the Japanese, and believed Russia's half-hearted mobilization and defensive measures would be sufficient to defeat the Japanese. Russia believed it would roll over the Japanese quickly, and from there they could consolidate its control over Manchuria and Korea.

[19] Japan only had 6 battleships when the war started, and losing two was a major blow to Japan which is why perhaps Admiral Togo was and continued to be cautious with his battlefleet's use.
[20] And with the failure, the fighting spirit of the Russian 1st Pacific Squadron was destroyed.

The Russian blocking force along the Yalu River was not well dug in, and it failed to make proper defensive field fortifications which would have been difficult to defeat as the Russians had occupied excellent defensive terrain.[21] On the first of May the Japanese attacked and pushed back the Russian defenders along the Yalu, inflicting heavy losses on the Russians while receiving heavy losses due to the use of frontal assault against the Russian defensive lines. The battle however showed to some Russians that the Japanese were indeed a competent force that could pose a serious threat to the Russians.[22] As such the new ground commander in the Far Eastern District, General Alexey Nikolayevich Kuropatkin, changed Russian strategy from an active to a passive defense, where Russian armies would attempt to avoid a major engagement with the Japanese until such time (most likely in the fall) "when he had gained substantial numerical superiority" over Japanese that he would launch a massive counter-offensive that would defeat the Japanese once and for all (Jukes 2002, 31).

V. Siege at Port Arthur and Japanese advances in Manchuria

The Japanese were able to quickly isolate Port Arthur after the Battle of Nanshan which captured the neck of the Liaotung Peninsula where the port is located. The Japanese followed up this with an offensive using frontal attacks in an effort to take Port Arthur quickly, a tactic which had worked when the Japanese took Port Arthur in the Sino-Japanese War a decade earlier. These attacks were decisively repulsed by the Russians. Japan was forced to dig entrenchments and begin a siege against the Port and its strong defenses. These defenses were extensive to include several large fortifications and an ever growing trench network as the siege progressed.

[21] The Yalu River is border between Korea and China (Manchuria) both in 1904 and today.
[22] Many Russian politicians and military commanders were still dismissive of Japanese capabilities.

General Kuropatkin was under immense pressure from both his superiors and his subordinates to relieve Port Arthur instead continuing the buildup he desired. By this time Japan had four major field armies deployed in theater, with three facing the main Russian armies in Manchuria and one was laying siege to Port Arthur. Kuropatkin was forced into an offensive that would attempt to relieve Port Arthur, and it was an offensive he did not want to take. While Kuropatkin was only a semi-competent military commander, he was a canny political operator, and utilized his political knowledge to his advantage by placing the main agitator for an offensive in charge of the offensive itself. It was a win-win situation for Kuropatkin, for if the agitator, Lieutenant-General Georgii Stackelberg succeeded in the offensive, Kuropatkin would take the credit, and if General Stackelberg failed, Kuropatkin would have an excuse to remove the troublesome subordinate. Stackelberg met the Japanese in the field at Te-Li-Ssu Fanggou in June of 1904. Superior Japanese accuracy in artillery, along with poor Russian command and control quickly halted the Russian offensive, and an excellent Japanese flanking movement defeated the Russian army and forced it into retreat. Port Arthur was now left to hold out on its own now until Kuropatkin could muster the mass of forces required to defeat the Japanese, just as Kuropatkin originally intended.

By late summer in Port Arthur the Japanese army had moved close enough to the harbor as to allow their artillery to be in range of not only the city, but the Russian warships within the harbor. The Japanese artillery began to pound the city and the fleet. The First Pacific Squadron was in danger of being lost in port and the Tsar feared that reinforcements already being sent would not be enough to defeat the Japanese without the saving some portion of the First Pacific Squadron. On 10 August the squadron sortied

from port in an attempt to break out of the blockade and make way to the safety of Vladivostok.

For Admiral Heihachiro Togo, commander if the Imperial Japanese Combined Fleet, preservation of his fleet was his highest priority, as it had to remain a viable force when the Second Pacific Squadron arrived from the Baltic Sea several months in the future. There was great fear in Japan that the loss of more battleships would jeopardize Japanese naval superiority in any future battles and lead to a loss of its sea lines of communication with its ground forces. As the Russian fleet sortie, Togo held back and only engaged the Russian squadron at long range. For a time it seemed as if the Russian squadron might be able to escape the Japanese fleet. However a lucky aimed shell hit the Russian squadron's flagship bridge, killing the fleet commander and causing the ships helm to jam, which in turn caused the ship to turn. The rest of the fleet followed the turn of the flagship in error. With the Russian fleet out of position and having lost its lead over the Combined Fleet, the First Pacific Squadron retreated to Port Arthur.[23] The First Pacific Squadron was then destroyed in port by Japanese siege artillery. The threat of the Russian Navy had temporarily receded and Admiral Togo took the Combined Fleet back into port for refit and repairs as it awaited the arrival of the Second Pacific Squadron.

The Siege of Port Arthur would continue until its defenders were worn down and out of supplies. The Japanese suffered heavily during the siege due to the large number of frontal assaults utilized. Many of the technologies, defensive entrenchments, and tactics utilized and seen in at this battle were later utilized and perfected during the First World War. The battle lasted for almost 10 months, and cost the Japanese 100,000 casualties while the Russia lost 30,000 casualties, its Pacific Squadron, and use of the port. The

[23] Though some vessels did make it to Vladivostok, or made their way to be interred in neutral ports.

Russians had exacted a heavy toll on the Japanese, to the impressive casualty ratio of 3:1 for the entire battle.

For Japan the war was going well, but it was proving a major drain on resources, which concerned the leadership of Japan far more than its citizens. Japan feared that the Russians may still gather enough strength to defeat them on land, and continued to push troops into Korea to advert defeat. Russia was devastated by the loss of Port Arthur and its fleet, but the Russians had a second fleet on the way, as well as moving more ground forces into theater. Both sides still believed in victory, but Japan feared it was much closer to defeat than did the Russians. Both sides still maintained their limited war goals, but the stress of the war upon both state's governments, economies, and populations only grew, as did the need for more weaponry and manpower as the war had turned in many ways into a war of proportional attrition. Russia had the manpower if not the morale advantage, with Japan having the exact opposite.

VI. Battles for the heart of Manchuria, epic Battle of Tsushima, and ending the war

While the siege of Port Arthur ran its course, the Japanese moved to secure a link in the railroad that spurred off the Trans-Siberian railroad into Manchuria at Liaoyang in August of 1904. General Kuropatkin continued to follow a strategy of defense while building up his forces. Japanese Marshal Oyama feared this buildup and went on the offensive.[24] The Japanese once again utilized frontal attacks which cost the Japanese greatly in order to take the Russian outer defensive lines around Liaoyang. This was followed up by large scale assaults on the second defensive line. The battle became critical for both sides at the same time on 30 August during this multi-day battle where

[24] Marshal Oyama was the senior ground commander, but was more a figurehead to his Chief of Staff, General Gentaro Kodama, who was the true architect of the ground campaign.

victory was in each other's grasps as both sides had overextended their own lines. The Japanese were more effective with their artillery and had a more efficient command and control and were able to outflank and breakthrough Russian lines, which forced the Russians to retreat before they themselves could break through Japanese lines on the other side of the battlefront. The Russians then attempted a counter-attack to retake their lost positions, but poor command, control, and communications lead to its failure, and General Kuropatkin was forced to retreat to Mukden. While the Japanese had suffered more casualties in the battle than the Russians, Russian morale in its field armies was falling as once again the Japanese had forced the Russians to retreat.[25]

By the winter of 1904, both sides were exhausted and in need of rest and resupply. All of the battles fought in the interior of Manchuria had been close run events for both participants, and both still doubted the outcome of the war. During the lull of winter, both sides used cavalry raids to distract the other and disrupt their buildups, but were largely ineffective. Both sides built up their forces in an attempt to fight another major battle, a battle whose goal would be for both sides: the complete destruction of the enemy army. By January 1905 the Japanese army was gaining considerable strength thanks to the arrival of forces from the now ended siege at Port Arthur while Russian forces were augmented by troops brought in from Europe and Siberia.

Japanese commanders Oyama and Kodama knew through their excellent intelligence sources (which had performed well throughout the war) that they were outnumbered, something no military commander relishes (Jukes 2002, 65). Furthermore they were now under extreme political pressure from Tokyo due to the prolonged war's effect on dragging down the economy, as well as fear of the loss of public support. Thus

[25] Interestingly enough, General Kuropatkin declared the battle a victory, even as he retreated.

the Japanese advanced upon the Russian armies around Mukden in the hope of winning a decisive victory which would quickly end the war. The battle that followed would be one of the largest in history up to that point.

As the Japanese maneuvered their armies north, the Russians began further fortifying their entrenchments. Kuropatkin planned on launching an attack as soon as the Japanese arrived, but due to poor command and control and unwilling commanders, this did not occur. Japanese moves at the beginning of the battle where that of feints against the Russian left. Kuropatkin feared a massive assault, and thus positioned almost all of his reserves along his left to defeat the perceived attack. However the Japanese used the feints as a ruse in order to swing wide of the Russia's right flank with an entire field army to outflank the enemy and actually attack the Russian right flank instead of the Russian left. By the time Kuropatkin realized what was occurring, it was too late, and the Japanese Third Army was deep into his rear. Fearing encirclement, Kuropatkin called for a retreat and for the destruction of all the vast amount of supplies he had stockpiled in Mukden. The Russians retreated further north in defeat, the morale of its soldiers had collapsed and Russian field armies were in no condition to fight another battle. But the victory was not the decisive victory the Japanese had wanted as the Russian army escaped. "The Japanese lost 15,892 dead and 59,612 wounded, the Russians over 40,000 killed, missing or captured, and over 49,000 wounded" (Jukes 2002, 68). What the Japanese failed to achieve on the battlefield they achieved through influence upon morale of the Russians. Kuropatkin was sacked as commander of the armies in the Far East, but the Japanese did not pursue the Russians, as they were worn out.

Both armies now rested to lick their wounds and regroup, awaiting other events. All eyes were upon their respective navies for the outcome of the war. If the Russian Second Pacific Squadron were able to defeat the Japanese Combined Fleet, the Imperial Japanese Army's lines of communication and supply from Japan would be cut off, and eventually the war won for Russia. Should Russia lose, they had no way of stopping the Japanese without a massive influx of troops from other theaters inside Russia, which Russia could not afford to move.

The Second Pacific Squadron had taken a rigorous 7 month voyage around the world in its attempt to save the situation in the Far East. During those seven months from October 1904 to May 1905, the Russian squadron had suffered numerous mechanical problems and had little time to train or conduct live-fire exercises.[26] It was a mixed force of new and older warships. In order to maintain formation, the squadron had to go as fast as its slowest ship. The Combined Fleet on the other hand had just come out of refit and was in top condition for battle. These two fleets would clash on May 27, 1905 in the straights of Tsushima between Japan and Korea. The epic battle was a very one sided affair, as the better armed and faster ships and the better trained crews of the Combined Fleet destroyed the Second Pacific Squadron in a decisive victory. This victory ensured Japanese command of the sea.

The war for most Russians was a 'local one' as that it was far away from most major economic, government, and population centers in Russia, while for Japan it was a war "close to home which absorbed proportionally more of its smaller population, and necessitated heavy taxation to pay for it, in a culturally homogenous society not

[26] As the Russians had to save their ammunition against the enemy and consequently trained less with their weaponry than the Japanese.

otherwise discontented with its lot" whereas Russian society "was in a state of unrest before the war" (Jukes 2002, 82). Russia had even before the war suffered internal unrest which only grew during the war. After Tsushima Russia and Japan were wracked with internal problems.

In Japan, its inability to win decisive battles had caused the war to drag out, and it was near bankruptcy for war related funding, and running short on trained and untrained manpower. In Russia the conscription of peasants and requisitioning of animals for the army had further damaged an already poor harvest in 1904 and would contribute to the failed harvest in 1905. Russia's economy was also in shambles as it had to readjust its industry for war production instead of goods and services for domestic use, further alienating large segments of the population. This in turn would lead to the Revolution of 1905 in Russia and lead to dramatic changes to Russian society and governance after the war as Russian peasants demanded an end to the war and more freedoms (though the revolution had already begun during the war). Thus Russia's shield and core had been stressed to its upmost, and revolution broke the core and helped end the war. Peace would come through the Treaty of Portsmouth in 1906. The treaty was not popular with either side, and Japan felt cheated. Japan would later annex Korea in 1910, and slowly gain influence over Manchuria.[27] Russia gave up Korea and Manchuria in order to deal with its own domestic revolution, but thanks to the treaty did not have to pay an indemnity to Japan which an almost bankrupt Japan had demanded. Therefore, Japan is coded as winning the war and Russia as losing the war, even if the participants did not receive all they had wanted.

[27] That is until Japan conquered Manchuria in 1931.

VII. Hypothesis Outcomes

The following hypotheses were put forth in the preceding theory chapter and are tested qualitatively here:

H_{Core} = States with stronger Cores and Shields, who are able to defend them while defeating the enemy's Shield and/or damaging the enemy's Core will be more likely to win wars.

Evidence for Hypothesis (Core): In this war there were not any direct attacks upon each other's core. Russia was unable to attack Japan directly (via blockade or invasion), and Japan fought Russia in an area far away from most of its major political, economic, and political centers. Thus any observations must be made through indirect means.

Russia and Japan were forced to fight a much longer war than both sides had anticipated. Both were forced to mobilize their state's economies and manpower to unprecedented levels. Japan suffered a greater number of casualties in the war, along with a greater proportion of casualties compared to its population then the Russians, and had the war gone on longer, the Russians may had been able to press to their advantage the significant manpower advantage they held over the Japanese, and may have eventually won the war. Economically the Russians were forced to spend more once the war started than the Japanese, spending almost double on its military than the Japanese. Furthermore Russia's economy declined significantly while Japan's stagnated due to the war.

Unlike the Japanese who had very strong governmental and population pillars in their core, the Russians did not. Both states forced their populations to suffer economic hardships at home in order to support the war effort. The economic hardships, along with

the high level of casualties and conscription of peasants, would lead to a revolution in Russia. High casualties, conscription, and a static economy did not lead to revolution in Japan. Russia's core was stressed before the war, and the war only placed more stress upon it, especially when the futures of war failed to go the way Russia desired. By pulling more resources from the core to support its shield, Russia further weakened its core to the point of revolution brought about by any peasants, workers, and intelligentsia that did not have a share in power or have rights in governance. Therefore, going into the war, Japan had a much stronger core via its government and population, where Russia had a weak core wracked by an inefficient economy and diverse and unruly population and incompetent government. When the Russian government pulled resources from its Core, it caused the unrest with the state to grow to the point of revolution which in addition to defeat on the battlefield, ended willpower to further the war and its own defeat.

Therefore we find strong support for this hypothesis (and the Informal Theory of Inter-State War as a whole) in this case study, as Japan was able to defend its core from indirect attacks and safely maintain stability within its core while drawing on the core to provide resources to the shield. Russia was unable to maintain stability with its weakened core and thus its core fell apart in revolution in 1905 and helped lead to its defeat in the war.

$H_{Population\ Losses}$ = The greater the state's casualties (damage to the population pillar), the less the likelihood of victory.

Evidence for and against Hypothesis (Population Losses): If one was to count purely battle related deaths, then Japan received the larger amount of battlefield

casualties during the war than did the Russians, then this one case study does not support this hypothesis. If one adds to this number the deaths caused by to disease and famine, and poor supply (along with captured and paroled), the Russians lost far more people than did the Japanese, and this case study would support this hypothesis. The Russians also suffered more wounded than the Japanese. In the Russo-Japanese War, casualties were a factor in the calculations by both sides, though Russia had a larger population and felt it could afford greater losses. Therefore depending on which numbers and variables one uses (and historians are not in agreement to casualties… as they do not agree for most wars), there is evidence for and against this hypothesis. The role that casualties played upon the willpower of the leadership and the population to continue the war however cannot be in doubt, as it played a major role in public dissent against the war by both sides, and thus further study into this hypothesis should continue.

$H_{Economy\ Losses}$ = The greater the state's economic losses (damage to the economic pillar), the less the likelihood of victory.

Evidence incomplete with current data, but suggestive for Hypothesis (Economy Losses): While there is no reliable data on the GDP or other production factors for Russia during the war (as compared to the Japanese), the war had a drain on both economies and governments (via loans). For Russia however, the economic situation and added taxes and loans to pay for the war was a major contributing factor to the 1905 Revolution as the Russian economy could not handle the demand for war armaments placed upon it, and began to collapse as workers rejected working conditions and their pay.[28] Russia's poor and wastefully expensive management of its economy, along with the demands for the

[28] There were also several large mutinies within the military at the time of the revolution.

war material, only added to its problems of supply of its armies in the Far East. Japan was able to handle the stress of war upon its economy, though at great expense. The Russian economy could not handle the demands of the war, and it was a major factor in the 1905 Revolution and Russia's defeat. Even without hard economic data for Russia, there is some support for this hypothesis, but requires further testing.

$H_{Governence}$ = The greater the state's government cohesion, the greater chance of victory (as it is more resilient to stress placed upon it).

Evidence for Hypothesis (Governance): Japan's government itself was highly cohesive, and throughout the war, and continually made decisions following a general plan. Japan's government also worked well with the other elements of its core, as well as with its shield. The same could not be said for the Russians, who had a highly defective and divided core. Russia's governance was called into question due to the 1905 Revolution, and was forced to change its structure in response to the Revolution, limiting the power of the Tsar. As Russia lost the war and was weak in governance while Japan won the war and had strong governance and government unity, there is strong evidence for this hypothesis.

$H_{Offensive\ Initiative}$ = States who maintain offensive initiative will have a greater chance of victory.

Evidence for Hypothesis (Offensive Initiative): The Japanese went on the offensive at the very start of the war, and were able to quickly overrun Korea and move into Manchuria. Russia was thus forced onto the defensive and attempted to stop the Japanese offensives on several occasions, all of which failed, allowing the Japanese to continue the offensive and forcing the Russians to fight when the Japanese wanted to. As

the Japanese maintained both strategic and operational offensive initiative (through numerous offensive operations and actions) throughout the war all the way till the end, and as they won the war, there is strong evidence for this hypothesis.

$H_{Warfare\ Method}$ = States that utilize 'unrestricted war' means of both conventional and unconventional warfare will have a greater chance at victory than those who solely utilize purely unconventional or purely conventional methods.

Evidence incomplete for Hypothesis (Warfare Methods): Both sides fought utilizing unrestricted warfare methods on the battlefield at the time, with limited war aims. However, both relied on primarily conventional military operations, and only relied on unconventional forces when their conventional forces were worn down and in rest. As such, this hypothesis is inconclusive due to the similarity of methods utilized in the war. This hypothesis is of greater need in large-n testing.

$H_{Maneuver\ Doctrines}$ = States that utilize maneuver doctrines will have a greater chance of victory.

Evidence for Hypothesis (Maneuver Doctrines): Japan throughout the war had very mobile field armies that consistently utilized flanking maneuvers in battle. Russia's field armies and corps were slow and ponderous, and were constantly on the defensive. When the Russians did try to maneuver, it was normally out maneuvered by the Japanese. Therefore we find strong support for this hypothesis.

H_{Mass} = States that utilize mass at the point of attack on offensives will have a greater chance of victory (i.e. the "schwerpunkt").

Evidence for and against Hypothesis (Mass Doctrines): Japan and Russia both utilized frontal assaults, through it seemed to be a Japanese specialty. Both Japan and

Russia attempted to mass its forces to breakthrough enemy lines. Whenever Russia massed its forces, it failed to breakthrough Japanese lines, while Japan was able to either outflank or breakthrough Russian lines when they massed their forces. Japan seemed to have a much better grasp the concept of force concentration of mass, or the "schwerpunkt" than the Russians. However, both utilized mass in the schwerpunkt fashion, but Japan just was better at it, and won the war. Therefore there is mixed support for this hypothesis as both states utilized mass at the point of attack. and further testing its required, and perhaps refinement of mass for both offense and defense.

$H_{Battlefleets}$ = The greater the losses to a state's battlefleet, the greater the chances of defeat. Evidence for Hypothesis (Battlefleets): This hypothesis takes into account pure numbers lost during the war. Russia lost many more battleships (over 12) to Japan's two, and were unable to gain command of the sea. Therefore there is evidence for this hypothesis.

$H_{Sea\ Control}$ = States that utilize sea control doctrines will be more likely to win wars.

Evidence for Hypothesis (Sea Control): Japan exercised control over the sea lines of communication effectively, transporting all troops and supplies from the home islands to Korea and Manchuria with minimal losses and interference from the Russian Navy. The Russian Navy's First Pacific Squadron remained a fleet-in-being, bottled up for most of the war in Port Arthur, under the prowling eyes of the Combined Fleet. When it attempted to breakout it failed. When the Second Pacific Squadron arrived in Japanese waters, it had no goal other than reaching Vladivostok and then "going from there." Japan won the war through a mixture of blockade, prudent convoy protection, and destruction

of the enemy's fleets. Therefore there is strong support for this hypothesis from this case study.

$H_{Conservation\ Forces}$ = States that utilize conservation of force strategies and operational art will have a greater chance of a prolonged war and defeat.

Evidence for Hypothesis (Conservation Forces): Russia used a conservation of forces strategy as it attempted to build up its forces in the Far East. The Japanese however were continually on the offensive, and willing to take devastating losses in order to defeat the Russians in battle. Over the course of the campaign the Russians were pushed back, and lost the war. Therefore there is evidence for this hypothesis in this case study.

VIII. Conclusion

For a war fought with such vast numbers of troops, in up to then the largest battles of history, it was a war fought over very limited means: for control over Korea and Manchuria, and not the defeat and occupation of each other's state. And it would be a war decided far away from the capitals of either state. There are many reasons why the Japanese won and the Russians lost the war, but neither was predetermined when the war started. In fact, Japan felt to have good reason to fear the Russian Army based on its size alone. But size alone is not enough to win wars, and the smaller military, who took more battlefield casualties, won the war.

The Russian core was in disarray as it tried to industrialize before the war, and was generally dismissive of the abilities of the Japanese. When war started, they were caught unprepared, and in battle made a poor showing as tactically and operationally they

continually failed to defeat the Japanese, who were very offensive in their tactics and operational art.

Russia relied on its mass to win battles, while Japan surprise and offensive action. Typically a defender can cause devastating casualties on an attacker, and this was true for this war as in most others. However, the tactics and operational art utilized by the Russians offset some of its advantages, and the Japanese were able to continually outmaneuver the Russians.

While neither Russia nor Japan were able to directly attack each other's core, both cores suffered from a prolonged war which required more and more resources and manpower to be taken away from the core to support their respective shields, and by the end of the war, both states were exhausted. However the war was of good timing for Japan and not for Russia. Japan could absorb high casualties with its very supportive population. Russia could not absorb high casualties and continual defeat, and its population began to revolt against the conditions it served under the aristocracy and bureaucracy that oppressed them. Japan won the war as it was better able to handle the stress placed upon its shield and core, where Russia's shield in the Far East began to collapse in morale and ability after Mukden, and Russia's core began to break down due to revolution, forcing the Russians to end the war. And while dreams of Russia's empire in the Far East died, Japan's dream of empire in the Far East only continued to grow, until its dreams were ended by the Allies in 1945.

United States vs. Germany- World War II

I. Background to the War

The roots of World War II can be traced through the rise of the National Socialist German Workers Party (Nazi Party) which itself was a product of two major events: Germany's defeat in World War I and the Global Economic Depression that began in 1929. While many historians are divided on the role that the outcome of World War I had upon the war onset of World War II, it did have an effect. Its loss in World War I, coupled with the 'Great Depression', helped align events in Germany which allowed Adolf Hitler and his extreme right-wing Nazi Party gain power under the promise a new and better future for Germany.

Germany was a devastated state at the end of World War I. She had suffered over 2.5 million dead (2 million on the battlefields), her armies on the brink of defeat when the armistice was signed, and her economy was in ruin due to the war, the Allied blockade, and reparations to the Allies. Her population was in the throes of potential revolution, with nationalists and communists/socialists vying for power in the streets of major cities, and a new liberal-democratic government under the Weimar Constitution was highly unstable. The Treaty of Versailles imposed tough restrictions upon Germany in order to prevent "German aggression" again.[29]

[29] In Article 231, the "War Guilt Clause", Germany took full and sole blame for the war and was thus accountable for all damage caused by the war. Part XIV of the Treaty of Versailles, which allowed for the Allies to take the resources of the Rhineland in compensation for several years severely hampered German efforts to rebuild her economy. Part V of the Treaty limited the size of the army to 100,000, reduced her Navy, and abolished her air force. France wanted a buffer area to impede future invasions; land was lost to new states Poland, Czechoslovakia, etc. Article 231 reparations that amounted to 226 billion German Marks (almost $500 billion US dollars in 2012) to be paid to the Allies, along with giving the Allies a certain amount of their natural resources like iron and coal.

The United States on the other hand was riding high after World War I, even with the effects of the Great Influenza Outbreak which killed millions of her citizens. Its economy was booming due to the business it had received during the war, and America was the wealthiest country in the world. While the French and British played down the role America played in the war, Americans knew they had won the war, for without them the Allies would have had best won a negotiated settlement instead of victory (Mosier 2001). After the war, the US demobilized its forces, and went back to maintaining a small military, all while disengaging itself from the world outside of foreign trade, and enjoyed the good life of economic growth and stability throughout the 1920s.

Germany was wracked with problems in the years after the war. The German economy suffered hyperinflation from 1921 to 1924, causing great discontent with the Weimar Republic, and pushed prices to rise to unfathomable levels due to initial government inaction and later its poor choices. By 1923, a new German government had created a new currency system that helped stabilize the German economy.

German politics after the war was in an upheaval. There was fear amongst the center Liberal moderates and right wing Germans that the growing bands of armed communists would help bring about a Bolshevik revolution takeover. This fear forced the government to find support from somewhere to shore up its defenses and ensure stability and end the communist threat. (Keegan 1990, 27). The government in 1919 began to support the "Freikorps," who were in reality made up of mostly center or right wing World War I veterans who helped the army fight major battles over Germany against the communists, and violence would continue between these groups until 1933 (Keegan 1990, 27).

Many local Freikrops members in the Munich area, including one Adolf Hitler, joined a local nationalist party, which was then called the German Workers Party. In 1923, the Nazi party, now headed by Hitler, attempted a coup. The now infamous 'Beer Hall Putsch' failed, and Hitler was forced into jail.[30] With the collapse of the coup, the party suffered, and along with a stabilizing economy, forced the party in hiatus for the rest of the 1920s as stability returned. By the mid-1920s, "Germany had made a good recovery. The currency had been stabilized, credit restored, industry revitalized and unemployment successfully contained" (Keegan 1990, 34).

While things were looking up for Germany and her slowly recovering republic, world events would cause Germany to turn a different direction. The Great Depression that began in 1929 not only hit the United State particularly hard, but Germany as well. The depression was so vast that there was over 10% unemployment in Germany and the liberal government could find no means to address the problem (Keegan 1990, 34).

Because of this, "the parties of the extreme right and left benefited accordingly at the parliamentary elections called as one [social democrat] government after another collapsed under the pressure of events" (Keegan 1990, 34). The Nazi party stepped into the void of leadership left by the moderate parties, and steadily gained popularity with a platform of deficit budgeting to invest in public works, heavy industry, and rearmament of the military, of blaming Jews and other groups for the loss of WWI, and of ending the communist threat to Germany. It was a platform that would prove to be a winner, as the Nazi party won a majority of the seats in the Reichstag.[31] Hitler and his party became a counter-weight to the growing threat of communism. The party's growth of power came

[30] Where he wrote *Mein Kampf- "My Struggle"*- the book which helped re-launch the Nazi party and put forth his radical beliefs on paper and to the public.

[31] Ironically, Hitler came to power after the failed coup via freely held elections and not armed force.

not only by the ballot box but with its armed militias as well. This duel combination made it a force to be recognized with, a force that even moderate politicians were forced to accept and work with.[32] With his growing power, Hitler was able to press his advantage and spread his influence to become Chancellor. But Hitler also had "luck," due to the timely death of President Hindenburg in 1934, and along with an attack on the Reichstag, gave the Nazi party the pretext to pass the Enabling Bill which combined the office of the Presidency with that of the Chancellor (Keegan 1990, 35).

Hitler then moved to enact his party's platform, and under the Enabling Act passed by the Nazi controlled Reichstag, gave Hitler dictatorial powers. Hitler began to replace local and state leaders of civil government and police forces with Nazi party members, giving Hitler complete control over the local and state governments. Hitler also moved to consolidate his hold over the party, and eliminated the potential threat from the SA, through the vicious use of the SS during the infamous "Night of the Long Knives" in late June and early July of 1934.[33] This move effectively ended the SA as an independent force within the party and the rise of the SS into its position of prominence which it would hold until the end of the Reich.

Hitler furthered his control over the German state through making the military oath a personal oath to Adolf Hitler and not his office as Chancellor, through rearmament and the slow and careful rejection of elements of the Treaty of Versailles (which military commanders supported), and through removal of generals who did not agree with him.

[32] Though until Hindenburg's death, Hitler walked a fine line and avoided offending the only institution that could threaten his power, the Heer (Army).
[33] The Sturmabteilung (SA), known as the Storm Detachments or "Brownshirts", and the Schutzstaffel (SS) known as the protection squadron.

In 1936 Hitler reoccupied and militarized of the Rhineland, which received only a muted allied response. In 1938 an emboldened Hitler annexed Austria in the Anschluss, continuing his stated objective of reuniting the German people and their lands to the Reich. Later in the year, Hitler got the approval of Britain, France, and Italy to annex the Sudetenland.[34] In March of 1939 Hitler would annex the rest of Czechoslovakia, which caused the Allies to respond by threatened Hitler not to act again, and sent France, Germany, and Poland rushing to rearm their militaries and signing mutual defense pacts out of fear of further Nazi aggression.[35] The policies of appeasement that the Allies had pursued with Hitler in order to reduce the chances of war had backfired. Instead of placating Hitler, the actions of the Allied powers had served only to embolden Hitler's demands for more territory.

Hitler was not done with his demands for the return lands he deemed a part of the former Second Reich.[36] He then sought out lands now owned by Poland along the 'Polish Corridor.' Hitler's position was still rather complicated geo-politically in August 1939. Great Britain and France posed major threats to his ability to control Europe, as did the Soviet Union even though the Soviet Union was not allied with Great Britain or France. In order to secure his eastern flank in a war with Great Britain and France, Hitler sent envoys to the Soviet Union, which produced the Molotov-Ribbentrop Pact that secured

[34] The Sudetenland was a predominately German speaking section of Czechoslovakia which geographically was heavily mountainous and contained most of the fortifications from which Czechoslovakia could defend itself from a potential German invasion. The agreement included the infamous phrase stated by British Prime Minister Neville Chamberlain that they had "peace for our time," which was proven wrong a year later.

[35] Which did nothing for Czechoslovakia and it subsequently was annexed.

[36] Lands that was a part of Imperial Germany from 1871-1918.

Germany's eastern border.[37] On September 1, 1939, Germany invaded Poland, which in turn brought France and the United Kingdom into the war.

In September 1939 the United States had no interest in fighting in the new "European War." It had spent the last decade in the throes of the Great Depression, with high levels of unemployment and a collapsed national economy. The US was only slowly starting to get out of the depression, and in 1940 and 1941 the economy would grow, but only due to the supplies and armament the US was making not only for herself, but for other nations in the world. Ironically, it would not be Germany that would bring the US into the ever expanding global war, but Imperial Japan.

II. Nazi Germany's Core and Shield at the start of hostilities

Nazi Germany in 1941 was a state at war, though one not fully mobilized for total war.[38] It was however a state built upon a composite of militant, socialist, and nationalist ideology, led by the Nazi Party who promoted theses virtues. German governance by the party was accepted by the majority of the population. In 1941, Germany was a major power economically, and through a large population was able to field a very large military. It was a state where the state controlled most aspects of society, via the Nazi party. The party ruled completely, having quashed internal dissent before the war. It was a racist regime, utilizing Jews as the scapegoats for Germany's previous ills in war and peace. Using these scapegoats, Hitler was able to direct popular anger at these groups and strengthen his own position of power and that of the Nazi party. Germany's core was strong and homogenous, which with a powerful economy and large population headed by

[37] The Treaty of Non-Aggression between Germany and the Soviet Union, which also secretly divided up Poland between them.

[38] That would not occur until 1943, and go into full swing in 1944 under Armaments Minister Albert Speer.

a dominating government was to prove to be one of the most dangerous and powerful regimes the world had ever seen.

Germany had a population that was willing to accept change under authoritative leadership in order to prevent the previous economic and military catastrophes from occurring again. Thus they were provided with some of the most generous social welfare programs in the world and a strong feeling of community that the Nazi party wished to instill in all citizens. It was a population that was willing to accept the Nazi party and its monopoly of political power for security, economic success, and stability. Thus the population pillar in Germany's core had great potential and was strong, even if it was oppressed.

Germany's economic pillar was in 1939 and in 1941 a very powerful force that had made a remarkable recovery from the Great Depression, but its success had come at a price and it was burdened with large amounts of government debt. Nazi Germany's economic miracle of high production and low unemployment was based on two factors: redistribution of jobs and deficit spending by the state. Hitler wished Germany to be self-sufficient, and cut most of its foreign trade in order to build up industries at home. The government went into a large amount of debt as it spent money it did not have on an arms buildup, on social programs, and on new industries. This all occurred because of the removal of the large Jewish population from the work force, allowing unemployed Germen men to take them. The Nazi party spent big on the economy, and by freezing Jewish assets and taking away their belongings, the Nazi party was able to offset some of the huge debt the government had accumulated.

Germany was also beginning to rely on slave labor to serve as a major component of its workforce. Its expansion in the East and West would open up new and vast amounts of resources that it did not have before the war. With the outbreak of war, the German economy was still largely geared for the civilian sector. Even though a large portion of the economy was already devoted to military-related production and expenditures, it was not on a wartime footing. It did not choose to increase taxes in order to pay for the war, and all policies in the newly conquered territories were based upon exploitation of them. Germany had an unbalanced economy, as its output was not fully devoted to 'total war', and instead was based upon exploitation of conquered states. The German economy was strong but with serious structural flaws.

Germany's governmental pillar was the true heart of Germany in the 1930s and 1940s, for it held the rest of the nation under its power and sway through propaganda, payouts, and violent means. In Nazi Germany, the party was the state, for the Nazi party had combined the state and the party into almost the same thing. In Germany the cult of personality for Hitler was fanatical. But Hitler was not naive, for he realized that power and authority should emanate not from his office, but from himself. To gain benefits in Nazi Germany, one had to be a member of the party. Only the military could claim (at least in the beginning) to be an outside neutral force, but between the oath to Hitler, and Hitler's bribery of the generals, the military was a strong supporter of Hitler and his regime early on. The party was backed by a very large internal police and paramilitary force, the SS and its many different branches. In Nazi Germany the lines between domestic and foreign affairs blurred, and under Nazi ideology they became almost one, as seen in its rhetoric and actions for conquest (Kershaw 2000, 29-50). Germany's

government was absolute and all powerful, as the party and government were one and the same; it was the key pillar of the German state in World War II. Surprising the party's hold on power would be tested and proven during the crucible of war, where it would hold the state together even when the war was all but lost, and it would hold out till the very end.

Germany's shield in 1941 was a very powerful and potent force, and from 1939 to 1941 had broken some of the best armies in the world, to include France, and seemed to be doing so again in Russia. It had conquered most of Europe, and seemed to be on the verge of doing what it could not do in World War I, win a two front war. While Germany's shield was strong, it was engaged against too many states even before the US entered the war.

The Wehrmacht (German Armed Forces) by 1941 was in many ways a very modern force, but a force that was still in development and unprepared for the prolonged war that if found itself involved in. Germany had reintroduced conscription in October 1935, and along with announcing the formal creation of the Wehrmacht, under the Oberkommando der Wehrmacht (OKW), began to ignore the restrictions on military armaments and size from the Treaty of Versailles.[39]

The German Heer (Army) was initially restricted to 100,000 personnel after the Treaty in 1919. After 1935, the Heer began to grow in size. By 1941 the German Heer was so vast that it was composed of several Army Groups (of almost 2.5 million in size, with 3,000+ tanks, and in over 160 infantry and 20 Panzer (tank) divisions) for its Russian campaign alone, along with several armies stationed in Africa, France, Italy, Poland, Norway, and the Balkans (Will 2006). The German Heer operationally preferred

[39] OKW was the 'Supreme Command of the Armed Forces', which was headed by Adolf Hitler himself.

large sweeping movements that led to encirclement, utilizing panzers and tactical air attacks to breakthrough enemy lines, followed by infantry which would cut into the enemy rear and encircle the enemy and either capture or destroy them (Citino 2005, 293). While the German army seemed highly mechanized (with having some of the best tanks and infantry fighting vehicles of the war), they did not have the supplies and resources to enact it, and most divisions relied on horses and donkeys to move their supplies, and most soldiers moved on foot. The German army was very strong, and could rely on vast pools of manpower. Its coordination with the German Luftwaffe (Air Force) made for a combined operations force that was unbeatable in the early phases of World War II.

The Luftwaffe in World War II was a service that was highly regarded, but still relatively new. Because of the treaty ending WWI, German was forced to abandon her large air force that she had created during the war. During the inter-war period German aviation centered on civilian aircraft (or warplanes masquerading as civilian aircraft) and working with foreign nations in order to train pilots. By 1941 the Luftwaffe was producing over 12,000 aircraft a year of all types. The Germans would create some of the best fighter planes in the world at the time, and some excellent dive and light/medium bombers. Luftwaffe doctrine for operational art and tactics was centered on gaining air superiority over the front which would allow for ground attack and interdiction of enemy ground forces in support of the Heer (Weigley 1973, 336). As such German air transportation was small, and German strategic bombing abilities were nonexistent. Germany's strength lay in its fighters and its support of its ground forces.

The Kriegsmarine (Navy) was the weakest of the three main branches of the Wehrmacht. A building plan had been created by the Wehrmacht for a fleet of massive

size to be ready by 1946 to take on the Royal Navy, but in 1939 this plan was nowhere near ready. She only had a handful of modern battleships, cruisers, destroyers, minesweepers/minelayers, and submarines (U-boats) to use against an enemy. Hitler's admirals knew they could not compete at sea with the great naval powers (i.e. the US and UK) in a traditional sense, and relied on commerce raiding and unrestricted submarine warfare as their primary means of fighting. Additionally, Hitler's fear of losing capital ships meant that they were used rarely and its surface fleet acted as a "fleet-in-being" (Gray 1999, 126-127). Thus the Kriegsmarine would enact a similar strategy at sea as it had in the First World War, unrestricted undersea warfare and commerce raiding.

Operating outside of the Wehrmacht was the feared SS.[40] The SS also had evolved from an armed wing of the party to the national police and counter-intelligence force, along with its own armed forces (the Waffen-SS) that consisted of several corps and divisions (to include armored 'panzer' divisions) sized formations that received the best equipment and training in Germany. The SS served several roles: as both an elite strike force in combat, as a guardian of the morale and discipline of the Wehrmacht, and as guardian of the party and state as a whole. For internal security, the SS was ruthless and highly efficient at quashing internal discontent.[41] They were brutally efficient, violent, and feared.

Officer and enlisted training on a whole was rather quite good, with many historians viewing the German solider as one of the best trained and most efficient

[40] The Waffen-SS served tactically and operationally under the Wehrmacht at times, but was outside the military's control beyond battlefield use.

[41] The SS internal security forces included the Waffen-SS (armed wing- field army), Reich Main Security Office [which ran the **S**icherheist**d**ienst (SD), **Ge**heime **Sta**ats**po**lizei (Gestapo), and **Kri**minal**po**lizei (Kripo)], and numerous other offices, corps, and groups (like the offices that ran education, race and settlement, and concentration camps)

fighters in history (Hastings 2004, 91-92). Enlisted personnel were excellent fighters. Officers were a mixed bunch, with many considered highly professional and brilliant on the battlefield, but many were indoctrinated under the Nazi spell, which turned a blind eye (if not active participation) to atrocities carried out against civilians and combatants alike, making them morally corrupted.

Germany's shield in 1941, despite setbacks on the Russian Front, was a formidable force, and if utilized properly could bring about victory in a war. Yet glaring weaknesses in production, strategy, doctrine, logistics, and a growing fear of the SS's role security affairs were serious faults within the shield. The shield by 1941 had proven effective thus far. While it had failed to finish off the Soviets, it had inflicted unbelievable damage to the Red Army in the early months of the war to the point where Germans were convinced that victory would occur in the summer of 1942, and that ultimately the United States posed no threat to the Reich.

III. United States' Core and Shield at the start of hostilities

The United States in 1939 and in 1941, it was a functioning democratic republic. The population pillar was a diverse mixture of races, ethnicities, and nationalities that (more or less) accepted each other and interacted with each other at various different levels and in different ways. While not all citizens were treated fairly by others (or under the law), the population was loyal to the government and supported its rule if not its polices.

The economic pillar, while damaged and under restructuring due to the effects of the Great Depression, was a viable open market capitalist-based economy. With slowly shrinking unemployment (from its high in the middle and late 1930s), a growing

manufacturing base, and large pool of workers, the US economy was still one of the most powerful in the world, and full of great potential despite the effects of the Great Depression (Herman 2012). Its economic model of restricted capitalism was still viewed as legitimate by both the population and government.

The governmental pillar was backed by popular support for the people, who did not question its foundations, only the methods and ideologies that operated under that foundation. That foundation, the Constitution and its associated laws, saw a federal form of government operate with board popular support that utilized a separation of powers between not only the federal branches of government, but between the federal, state, and local governments as well. The government demanded from its population and economy resources which came in the form of participation, taxation, and physical service or goods (if and when required). In return for these services, the government provided services to the people in the form of direct goods and services, promotion of various interests at home and aboard, measures to promote economic growth, and most importantly for this study, protection via national defense. Citizens and corporations acquiesced to the demands of the government because the government in return responded to their demands as well. Because these effective trade-offs were acceptable to the citizens, the citizens continued to hold faith in the legitimacy of its institutions.

In response to the events of 1939, the US had undertaken dramatic changes to all aspects of its shield. Utilizing the various elements of national power, the US began to diplomatically and economically pressure Germany and Japan to pursue different policies other than war, which eventually failed. United States blocked trade with Germany and Italy in 1940, all while finding ways to help supply Great Britain and the Soviet Union in

1941 (via Lend-Lease Act, etc.). Germany also was under military pressure through the creation of 'Neutrality Patrols,' where the US Navy and Coast Guard defended convoys transiting from the US to Iceland, and created a large zone in which belligerent powers could not operate (most of the north-western Atlantic Ocean area) without the threat of attack by the US. As such, the US mainly targeted Axis interests and naval assets while overlooking and actively supporting the interests of the Allies.

The United States had also begun to beef up its intelligence agencies. It created the "Coordinator of Information," which was the early version of the Office of Strategic Services (OSS), an agency that would perform both intelligence gathering and covert operations throughout the war in all theaters of war.[42]

The Armed Forces of the United States had seen a dramatic expansion since 1939. New designs of aircraft were beginning to be produced in greater and greater numbers. New warships from carriers, battleships, and cruisers all the way down to small landing craft of every type were in construction at naval dockyards in ever growing numbers.

In spite of all of its preparations, the US was still woefully unprepared for the war ahead. While the Navy had a number of modern battleships being designed and under construction, its fleets still consisted of older WWI era battleships (Hone and Hone 2006, 172). The US also had a large fleet of the new and improved Essex-class carriers under construction but few carriers in commission (Weigley 1973, 283). The US Navy and Merchant Marine were unprepared to maintain and operate the convoys required to transport the vast logistical requirement or personnel for the various fleets, air forces, and Army and Marine divisions required for the several campaigns all around the globe, nor supply its future allies. It did not have the capabilities or forces necessary to protect those

[42] The OSS would eventually form the core of what became in 1947 the US Central Intelligence Agency.

convoys from a concerted submarine offensive against it. It had nowhere near the supplies and armor necessary to equip army sized formations, nor the landing craft necessary to put them ashore. Additionally its army air force was nowhere near equipped to launch sustained strategic bombing campaigns in any theater of war, nor the interceptors to protect those bombers. It also did not have the quantity of aircraft for conducting air superiority, ground support, interdiction, reconnaissance, etc. that ground commanders would demand for their campaigns. The public's isolationist tendencies and philosophies were hard to change, and this was reflected in the dramatic, uneven, and slow buildup of its shield from 1939 to 1941. The US Army in 1939 ranked 17th in the size of its army behind Romania, and could barely field 5 divisions compared to the 136 German divisions involved in the invasion of France (Atkinson 2002, 8).[43]

In 1941 the United States was quite the "sleeping giant," full of potential with vast manpower reserves (larger than Germany's by over 40 million), a recovering economy that was re-tooling itself for war and a government that was highly regarded and effective. The shield of the US was in rapid (and somewhat haphazard) transformation. All of the armed services were expanding rapidly, testing new technologies, and creating the necessary supply lines and organizations necessary for war on a vast magnitude unseen in human history. It was however still woefully unprepared for war, and it would take great effort on the part of the US to take its vast potential and turn it into a fighting force that would fight globally while supporting its allies and defeat two major powers that were on opposite sides of the world from each other.

[43] It should be noted that American divisions have traditionally been 2 to 3 times larger than most other states' divisions were in size, and continue to be so to this day.

IV. Great Britain, the Soviet Union, and the War before America Entered

While the Allies Powers of the United States are not the focus of this dyadic war, World War II would be incomplete without briefly mentioning the capabilities America's allies.

The United Kingdom (along with its vast Commonwealth) was the ally of allies to the United States, and after war began, the US and Britain would combine their nations' war efforts in a way unseen before in history. The British Imperial General Staff and US Joint Chiefs of Staff combined to create the Combined Chiefs of Staff, and coordinated the strategy of both states to the point where they were true partners (Weigley 1973, 318). When the US entered the war, the British were the senior partner, and this effected strategy early in the war, and in particular Churchill's fascination with campaigns in the Mediterranean Theater.

Britain was an empire in decline. Its manpower and national confidence were damaged by the events of World War I, and in World War II it had been pushed to the brink of defeat numerous times. Furthermore, Britain was running out of manpower for a global war, and became highly cautious and conservative in its thinking and actions because of this. While it had very large armies in the field, and one of the finest navies and air forces (second only to the US by 1944), it was a force greatly supplied by the US. By 1944 and the launching of Overlord, and the predominance of US forces in not only the European Theater, but in the Pacific, the US would become the senior partner in the alliance, something Britain greatly resented.

The Soviet Union was the other major ally of the US in the fight against Nazi Germany, though as trusted by the US as Britain was to become. The Soviet Union was a

weakened stated because of the rule of Joseph Stalin and the Communist Party. In late 1941, it appeared all was lost after the German invasion, but the Soviet Union, with its immense territorial size and enormous manpower reserves was able to hold on and eventually stop the German onslaught.

Throughout the war the Soviet Union would be engaged with the majority of formations within the German Heer, while the Western powers dealt with the rest of the German Heer, and the entirety of the German Kriegsmarine and majority of the Luftwaffe. The Soviets fought with a ferocity against the enemy (and that ferocity was reciprocated) unseen in any other fronts in World War II (except for some instances in the Chinese and Pacific Theaters). Losses were enormous, and the Soviets and Germans both fought till the death in many battles, and both fought in many ways stupidly.[44] Without US supplies and the destruction of the Luftwaffe by the US, the Soviet Red Army would never had been able to push back the Wehrmacht out of Russia as swiftly as it did. This should not detract from the fact that the majority of German Heer units were engaged against the Red Army, nor the bravery of Soviet service members. For without the Red Army the US would have had a much more difficult war. The same does holds true for the Soviet Union, for without the US, the Soviet Union would have lost the war.

While not to downplay the incredible feats of the Wehrmacht during the first years of the war, it is not the major element of this case study. Suffice to say, the Wehrmacht again and again surprised the world by massing its forces in a critical location, launching massive attacks, and breaking through enemy lines which allowed them to drive deep into the rear of their enemies, which forced their enemies to either

[44] Soviet Red Army tactics were not very advanced and dependent on mass of manpower and firepower which cost them a great many lives in failed assaults, but its operational art by 1944 was very impressive.

retreat or be surrounded and destroyed. This occurred time and time again in Poland, the Netherlands, Belgium, Norway, France, the Balkans, Crete, and at times in the see-saw battles of North Africa. Before June 1941, only one country stood in the way of Hitler: Great Britain. Britain had been able to extricate her Expeditionary Forces from the disaster in France, and fought on along at sea, and in the air, and in North Africa. While Britain expended itself halting Nazi aggression, it could hardly defeat Hitler on its own, and was in desperate need of America, who it began to court the United States in an effort to buy arms and eventually bring America in to the war.

In June 1941 however, Germany would launch the largest operation in history, but would find that unlike other enemies, the Soviet Union would not fall easily. The first days of Operation Barbarossa were brilliant tactically and operationally for the Germans, who utilized deep penetration operations to encircle and destroy entire Soviet Fronts (Army Groups) and Armies, and advanced over a huge swath of the Soviet Union. By November of 1941 they were on the doorstep to Leningrad and Moscow. It appeared that the Soviet Union was on the verge of collapse. The arrival of winter however changed all that. The Germans were unprepared for winter operations, with its soldiers not having proper equipment for winter operations, nor their tanks and planes the right lubricants. The Germans made one last attempt to take Moscow in the middle of November when the ground froze, but failed. Germany was too weak now to take Moscow, Leningrad, or the Caucasus before the spring 1942.

VI. The United States enters the war

A series of disputes between the US and Japan over Japan's ongoing war with China and Japan's militant policies in general had led the US to use political, economic,

and military pressure to end the conflict and its militant policies. The strategy backfired, and it led the Japanese to go to war against the United States as it felt the American peace proposal was a worse outcome than risking defeat in war. On December 7, 1941 the Japanese launched a coordinated offensive against the US, Great Britain, the Netherlands, Australia, Burma, and the Philippines. The opening act of offensive operations was the Japanese Combined Fleet's attack on the US Pacific Fleet and against military installations in and around Pearl Harbor, Hawaii.

The shock of the attacks against the US overwhelmed the weakened defenses the US held in the Pacific. But initially the US was only at war with the Empire of Japan. Adolf Hitler however felt that the United States would eventually go to war with Germany. Thus far the policy of appeasement that Germany utilized towards the US had failed, as US Neutrality Patrols and arming of Britain and Soviet Union were harming the German war effort. Seeking to gain an advantage over the British and Soviets, Hitler decided to go to war with the US in the hope of helping his efforts against the Soviet Union. Thus, Hitler honored his alliance under the Axis Tripartite Pact with Japan and declared war on the United States on December 11, and began unrestricted submarine warfare against the US.

The US was woefully still unprepared for war, but as it was now at war could completely devote its significant resources to the effort. The US expanded its draft of men, expanded production orders to US companies, restricted elements of the economy to support the war effort, allowed women into the workforce to help offset the loss of men in the economy, created the Victory Program for managing War Department requirements, and raised taxes and bonds to pay for the war effort (Weigley 1973, 316-

317). All of this would prove decisive down the road for the US, but for the first year of the war, the US had to utilize mainly what it had on hand in 1941.

American military leadership had a "simple" plan for winning the war against Germany. Build up the armed forces, land their troops in Europe, and drive their forces to take Berlin and occupy all of Germany (Weigley, 1973, 312-359). It was a direct strategy, meant to avoid the errors perceived after World War I, where partial occupation was seen as a failure, as was the failure to completely destroy the enemy's will and ability to fight. Throughout 1942 the US Joint Chiefs continually pushed for an invasion in France in 1942, but the British disagreed with the plan, and wanted instead to conduct future operations in the Mediterranean Theater of War, which US commanders felt would allow them after the war further British interests in the region. US strategy was based on the "strategic tradition often linked to Ulysses S. Grant in the Civil War. The surest route to victory was to obliterate the enemy's army and destroy his capacity to make war. As the world's greatest industrial power, with a military expanding to 12 million men, the United States could do that- particularly now that the nation belonged to the powerful alliance [of the Allies]" (Atkinson 2002, 11). However, FDR overruled his military advisors and sought unity with the British, and approved of operations to be conducted not in France for 1942 or 1943, but in the Mediterranean as the British desired (Weigley 1973, 318-333).

VII. Battle of the North Atlantic and the North African and Italian Campaigns

The Battle of the Atlantic was the longest campaign of the war. It started in 1939 with the Royal Navy's blockade of Germany, which prompted the Kriegsmarine to respond with its own blockade of Britain with the use of surface commerce raiders,

bombers, and mainly Unterseeboots (U-boats, or submarines). Thus the Battle of the Atlantic was a battle of the German U-boat versus the convoys and their escorts (both surface ships and aircraft) as the Germans attempted to cut off supplies to Britain and knock her out of the war (Keegan 1989, 105-106).

The campaign would last until the end of the war, and the threat of German U-boat attack was a constant threat to Allied navies and their merchant marines. At the start of the war the US had neither their ships or aircraft to fully implement a proper convoy system for convoys along the US coast, in the Atlantic, and the rest of the world, and Germany took advantage of this. The lack of escorts, particularly along the American coastline (as most were directed for use in hunter-killer groups or defense of trans-Atlantic convoys), and lead to heavy losses early on.

By August 1942, the US Navy finally began to have the resources to fully implement proper convoy protection schemes for most of its convoys. This prompted the Kreigsmarine to shift operations to the central Atlantic, where the Allies had limited air cover due lack of aircraft available at the time. Massive, weeks long battles occurred for the next several months where U-boat "wolf packs" (squadrons of five to twenty U-boats) would attack the convoys and their escorts, which lead to heavy losses in Allied shipping and much distress amongst the Allied high command. Thanks to technological advances in ASDIC (sonar), anti-submarine weaponry, the breaking of the German Enigma code, long range air patrols in bombers with radar, and a vast new fleet of escort ships (new escort carriers and destroyer escorts) and new merchant ships (the cheap Liberty ships),

the U-boat threat began to diminish after May 1943 ("Black May") (Keegan 1989, 115-120).[45]

During March and April of 1943, large battles against several convoys seemed to threaten the lifelines to Britain and Africa, with the allies losing almost 100 merchant ships. But in May everything changed, as America's mass production and technology finally caught up to the Kreigsmarine who lost 43 U-boats total, compared to 58 Allied vessels and forced the Kreigsmarine to suspend U-boat operations (Keegan 1989, 115-120). After May 1944, the U-boat threat existed, but was greatly reduced. America and her allies now had command of the seas in the Atlantic Ocean and in the Mediterranean. The Battle of the Atlantic was effectively over, and Germany had lost. The war would now be decided on land.

As the British were finally pushing Rommel back from Egypt, a combined Anglo-American force under General Dwight D. Eisenhower launched Operation Torch, which landed in three places along Vichy French North Africa on November 8, 1942. As the American proposed invasion of France was impractical in 1942, President Roosevelt had directed the US JCS to follow the wishes of British, as it would allow for US troops to actively engage German forces (Weigley 1973, 320-322). The operation's goal was to bring Vichy French forces to the side of the Allies, bring up a force into the rear of Rommel and finish him and his Army Group off, and free North Africa of Axis influence and allow for further operations in the Mediterranean Theater.

[45] Enigma was a electromechanical rotary cipher machine that Germany utilized to communicate with its units', the Army used a three rotor machine, the Navy a 4 rotor. The Allies named the breaking of the code as Ultra through the diligent work of code breakers who use of capture machines and codes, brute force math, and new computers.

Operation Torch was a success despite several problems that occurred during and after the invasion, and eventually Vichy French forces either surrendered or joined the Allied forces.

> Measured by the proportions of the later war- of Normandy or the Bulge- the first engagements in North Africa were tiny, skirmishes between platoons and companies involving at most a few hundred men. Within six months, the campaign metastasized to battles between army groups comprising hundreds of thousands of soldiers; that scale persisted for the duration [of the war]. North Africa gave the European war its immense canvas and implied- through 70,000 Allied killed, wounded, and missing, the casualties to come. No large operation in World War II surpassed the invasion of North Africa in complexity, daring, risk, or- as the official US Army Air Forces history concludes- "the degree of strategic surprise achieved." Moreover, this was the first campaign undertaken by the Anglo-American alliance; North Africa defined the coalition and its strategic course, prescribing how and where the Allies would fight for the rest of the war (Atkinson 2002, 3).

In North Africa, the US Army, Army Air Forces, and amphibious Navy learned important lessons, and became a true fighting force. The war in North Africa, along with the defeat and capture of the German 6th Army at Stalingrad in January of 1943 by the Red Army had turned the tide against the Third Reich. Operation Torch and the war in North Africa had produced a great first victory of the US, and the capture of over 230,000 Axis troops was a significant blow to the Axis, but the war was far from over.

After the securing of North Africa, the Allies lunched Operation Husky in July 1943, the invasion of Sicily by the US Seventh and British Eighth Armies. The Allies feigned attacks against Corsica and Greece, but landed in Sicily as it was the closet option of the three. After a short campaign, Sicily was secured, though infighting between the American Seventh Army commander (General Patton) and British Eighth Army commander (General Montgomery) allowed for the elite German panzer units on the island to escape.

Operation Husky was followed up by Operation Baytown, the British landings across from Sicily along the 'toe' of Italy, which produced the surrender of Axis Italy, and its subsequent occupation by Germany. Operations in Italy were the main show for the US and Britain in 1943, but already forces were being shifted to build up for Operation Overlord, the invasion of France. The US Fifth Army then landed along the Italian western coast near Salerno in Operation Avalanche (September 9, 1943). The operation was a close run event, and the Germans almost succeeded in pushing the Americans off the beachhead due to its swift armored counterattack. However, the US held on, and later met up with the British Eighth Army moving up the 'toe' to Salerno. Shortly after this, General Eisenhower was transferred from Supreme Command in the Mediterranean to Supreme Commander for Overlord in England.

The terrain of Central Italy was heavily mountainous, making for an excellent defensive position. The 'Winter Line' or 'Gustav Line' stemmed the Allied advance up Italy short of Rome from October 1943 to June 1944. By this time however, Italy became a secondary front to Allied strategy, as the buildup for an invasion in Northern France

became the priority, along with the air war that was being conducted against Germany.[46] Germany on the other hand had only one strategic objective, survival from an overwhelming coalition of enemies bent on her destruction.

VIII. The Air War, the Campaign in France, and Ending the Third Reich

The air war against Germany was full of promises of easy success by Allied air commanders, but in fact it was hardly easy and turned into a long, drawn out war of proportional attrition between the Allies (mainly Britain and the US) against Germans, where the Allies were able to eventually overwhelm the Germans in the air. US air theorists believed that strategic bombing could shorten the war and forsake the need for ground troops (Weigley 1973, 334-335). US strategic bombers would be able to bomb Germany's war industries and supply lines into oblivion and if necessary cause terror attacks which would cause the government and population to give up hope and end the war.

The air war against Germany did not go as planned. The strategic bombing campaign of the US Eighth Air Force did not start of well, and the bombers of the Eighth Air Force were ravaged in their deep penetration missions into Germany as the Luftwaffe was able to attack the unprotected bombers.[47] As such, bombers were restricted to attacking locations that were under the protection of US fighters, which severely limited their range of targets. At night British bombers conducted bombing runs which were even

[46] Note: throughout 1943, the Soviets launched a series of offensives, and slowly pushed back the Germans. Germany attempted to regain the offensive with Operation Citadel: Battle of Kursk- which involved the largest tank battle in history- and failed. For the rest of the war, the Soviet Red Army would be on the offensive, and would slowly ground down the Heer via firepower and attrition. The Heer deployed over 60% of its strength at all times to the Eastern Front in order to combat the continual offensives of the Red Army.

[47] Unprotected bombers as in having limited to no fighter cover during deep penetration missions into Germany.

more inaccurate than US day-light bombing, whose sole intent was to terrorize and kill Germans (Weigley 1973, 338-340).

By early 1944 US strategic bombing served two purposes. First it was to support preparations for the Allied landings in northern France. Second was to destroy the Luftwaffe. US air commanders realized that until the Luftwaffe was neutralized as an effective fighting force, strategic bombing would not work, nor could the Allies invade France without air superiority. US commanders were forced to take a dramatic change in tactics and strategy in order to win air superiority before the upcoming invasion (Weigley 1973, 34343). New planes and technologies (having new fighters such as the P-51 Mustang and expendable fuel pods) gave US commanders a chance to complete their objectives (Weigley 1973, 342). US bomber formations were no longer the main weapon to be used against targets in Germany, but were now bait for Luftwaffe fighters, with the hope that new fighters would be able to destroy the Luftwaffe's fighters. This cynical and coldly calculated plan worked and by May 1944 the Luftwaffe had been shattered, giving the Allies air superiority for the invasion. Further, US and British tactical air was of immense importance to helping ground units during the ground campaign by attacking enemy formations and interdicting their movement during daytime, allowing Allied ground forces to advance.

After the invasion US bombers resumed their attacks against German infrastructure and industrial production facilities. This offensive proved not to be as effective as hoped, and with fewer and fewer targets in the open as the Germans had shifted their industrial production to underground facilities or dispersed them, the US began to target Germany's oil production and transportation network, which had

dramatically negative effects upon the German Wehrmacht's ability to maneuver its forces. After the war, the US Strategic Bombing Survey would find that it was the combination of destruction of the Luftwaffe's fighters in 1944 and the bombing of Germany's oil production and supply lines that had the greatest effect upon the enemy, and that their methods were truly decisive in shortening the war because of its support of ground forces (Weigley 1973, 357-358).

While the bulk of the German Heer was getting chewed up on the Eastern Front, the Western Allies were preparing for a massive offensive of their own during the spring of 1944. The Italian front had become a side show, and resources there were just enough to keep down German forces in the area and drain them away from the Eastern and Western fronts. The Germans maintained a large force in Norway and in France, spread out along the coast and deep in the interior for counter-attacks. Germany's hope was to repel the invaders on the beaches, but barring that, delay them until reinforcements could launch a counter-attack and push them back into the sea before their lodgment was too strong to push back. The Germans were strategically on the defensive until they could launch an operational offensive to defeat the upcoming Anglo-American invasion. This would all have to be done without air cover or naval support.

The Germans had several possible sites for an Allied invasion in mind, but they mainly revolved around two areas: the Pas-de-Calais and Normandy. The Pas-de-Calais was the most heavily defended piece of real estate in Europe, as it was the shortest distance between Britain and France. Normandy had beaches similar to Pas-de-Calais, but was less heavily defended. It was also further away for the ships and aircraft

supporting the invasion to travel than Calais, and because of this Germany believed that the Allies would land at Calais (Weigley 1973, 345).

The Allies worked hard to maintain the perception that Calais was the primary invasion location, and through Operation Bodyguard, the Allies enacted one of the most complex, comprehensive, and successful deception operations in history. The Germans were convinced that US Lieutenant General George S. Patton would lead the invasion at the Pas-de-Calais with his (fake) First US Army Group, while any landings at Normandy would be a diversion (McManus, 2004a). This, along with poor weather and other deception operations, helped the Allies deceive the Germans to where Operation Overlord would take place, thus confusing their ability to respond.

Operation Overlord was the overall name for the Allied invasion of Normandy. This operation was evidence of America's primacy in strategy and as the senior partner in the war effort. While Britain would certainly be providing the majority of naval forces, the US Navy was heavily involved in the operation, for without it the invasion of this magnitude could not have occurred. Further, US airpower played the predominant role during the campaign, and while many of the main commanders were British, the Supreme Allied Commander was an American. It was a massive undertaking, involving the landing of nine infantry and airborne divisions into the Normandy area during the assault phase of the invasion along five beaches codenamed Sword, Juno, Gold, Omaha, and Utah (McManus, 2004a). It would be followed up with many more divisions in the weeks and months afterwards. While the invasion did not meet its initial objectives, by the end of D-Day (the day of the landing), the Allies had a lodgment along the coast with over

150,000 troops ashore. Over the next few weeks more and more troops would and slowly expand the beachhead.

By mid to late July, the Allies had been slogging their way out of Normandy. The terrain of hedgerows and rivers along with the heavy concentration of German forces had slowed the allied advance to a crawl, and many feared that a stalemate would occur. The Allies were forced to fight over easily defended terrain in head on attacks. British offensive operations in and around the city of Caen (Perch, Epsom, Charnwood, Goodwood, and Spring) all had failed to breakthrough German lines and caused a great many Canadian and British casualties (McManus, 2004b). An unintended effect of the failed British offensives was the concentration of German forces around the British along the Allies left flank.[48] This weakening of the German line on the right allowed the US First and Third Armies under Bradley and Patton an opening to exploit, which it did on 25 July 1944 in Operation Cobra.

The Americans were able to mass their forces for break through the German lines, and elements of the US First and Third Armies drove hard (via maneuver) into the German rear areas. A German counter-attack at Mortain failed to contain the offensive, and the Germans were forced into a retreat. Eventually a major portion of the German forces in the West were trapped in the area near Falaise and Chambois. Known as the 'Falaise Pocket' or 'Falaise Gap', German resistance crumbled (McManus, 2004b).[49] This, along with Patton's Third Army advances across the Seine River and the Allied landings in Southern France via Operation Dragoon forced the Germans to retreat to the

[48] Field Marshal Montgomery later claimed this was his plan all along, something that is not true, even if he adapted his plans throughout the campaign (Keegan 1989, 392-393).

[49] Although a major portion of the German Heer in the West were able to escape, they did so without their heavy weaponry or armor, and it was none-the-less a major Allied victory and an end to German control over France.

fortifications along the Franco-German border (Weigley 1973, 346-347). By the end of August 1944 most of France (including Paris) and small portions of Belgium had been liberated, and to many it seemed as if the war was going to be over soon. Thus far the campaign in Western Europe had turned from one of slow stalemate in the Normandy area to a massive breakout of a vast scale. Allied (and mainly American) preponderance of material and forces was critical, as it allowed them to maneuver and exploit holes in German lines. Further, while the inferior Sherman tank could not always defeat a German panzer head on, the Americans had so many tanks compared to Germany that the US simply out massed and out maneuvered the Germans at every turn. They had air superiority over the battlefield, forcing the Germans to maneuver at night to avoid air attack.

American artillery was the outstanding branch of the war for the American army, with the ability to coordinate firepower in such a fast and effective manner that the Germans feared it. American units were not only well supplied, but over supplied in necessary material. American divisions were completely mechanized and all contained some armor for infantry support. Even if the Germans were truly better man for man compared to the Americans, in the larger picture it did not matter, for the Americans use of everything to include manpower simply was overwhelming the Germans and their use of firepower and maneuver over manpower was something the Germans could not stop.

For Germany, the summer of 1944 had been a disaster. At sea they could no longer pose a credible threat to the Allied navies. In the air their fighter force had been decimated, and Allied strategic bombing was taking its toll on war production and morale. In the Mediterranean Theater, Rome and all of Italy below Florence had fallen to

the Anglo-American armies. On the Eastern Front, Germany was forced to weaken its forces to support the effort in the West, which the Soviets exploited in Operation Bagration and destroyed the bulk of German Army Group Center. It cost Germany over 400,000 casualties and the Soviets were now advancing into Poland, the Baltic states, and the Balkans. In the West, France had fallen, and the Anglo-American armies were along the German border following Eisenhower's 'Broad Front' offensive strategy.[50] Germany's units were simply running out of trained (and untrained) manpower. Losses had been so great that the average size of a division shrank throughout the war. Production was slowly increasing but it was not enough to stem the tide of the Allies preponderance of weaponry and supplies.

Ending the war by Christmas 1944 would not to happen. Both in the east and in the west the Allies were plagued with supply problems, for the Allies had advanced beyond their supply forces' abilities to resupply them at the time. US General Eisenhower, the Supreme Commander of Allied Expeditionary Forces in Western France, was presented with two planned offensives in September 1944, but only enough supplies to enact one of them which temporarily ended his use of the 'Broad Front' offensive strategy for a 'Narrow Front' offensive strategy. One was for the US Third Army (supported by the First Army) under General Patton to race for the Upper Rhine River in the south of Germany and gain a foothold over the river and into Germany. The second was presented by Field Marshal Montgomery, which was to land paratroopers along a corridor, and for them to capture bridges in Holland while the British XXX Corps would race up the highway and secure the bridges, creating a bridgehead over the Lower Rhine

[50] The Broad Front strategy meant that all allied armies were advancing along the front simultaneously, as compared to a narrow front where only one army would attack at a time.

River in North-Western Germany.[51] Under political pressure, Eisenhower sided with the British Montgomery over Patton's plan, and Operation Market Garden commenced on 17 September.[52]

Operation Market-Garden was a major failure, as it failed to take the bridge over the Lower Rhine at Arnhem and saw the British 1st Airborne Division destroyed in battle against German SS Panzer divisions in Arnhem. After Market-Garden, the Allies settled down into small offensives along the border, slowly gaining ground but taking losses, all while building up supplies for an offensive in late winter or early spring, which in turn allowed the Germans to fortify their defenses. The failure of Market-Garden, along with the slow opening of the Scheldt estuary meant that the war would not end before Christmas.

Germany took full advantage of this, and bled the Allies in battles to take the Scheldt estuary, Hurtgen Forrest, cities of Aachen, Metz, in Roer River Valley, and other places along the defensive Siegfried Line.[53] Germany however felt that by the winter of 1944 the war was lost without some momentous change.[54] German commanders knew they could not defeat the Allies without knocking them out of the war, or persuading the Western Allies to join them against the Soviets. Out of this desire to concentrate all forces against the Soviet menace was a plan to push back the Western Allies with an offensive that would retake the vital port of Antwerp and cut off the British and Canadian

[51] Liberal use of the word highway, it was a one lane road for much of the highway.
[52] Field Marshal Montgomery had failed to capture the Scheldt estuary and thus his failure to open the major port of Antwerp was a costly mistake, forcing supplies to come from Normandy until November 1944. The Allies should have taken Antwerp first before going off on Market-Garden (Hastings 2004, 19-20).
[53] In the Roer River Valley the Germans blew up dams to slow the US Ninth Army's advance in that area.
[54] This is not to say that Germans discussed defeat. They did not, as Hitler forbad "defeatist talk" and the SS enforced it ruthlessly.

Armies from the Americans. Thus the plan Hitler envisioned was with the new strategic situation, the Allies would sue for peace, and then the Wehrmacht would be able to redeploy its forces to combat the Soviets, and if lucky be joined by the West against Stalin.

Operation 'Wacht am Rhein' (Watch on the Rhine) was the German offensive that attempted to force the Allies into a settlement. The operation, now known as the 'Battle of the Bulge,' was initially a success for Germany as it utilized bad weather to negate American air superiority and attacked along a weakly defended line of the Western Front at the Ardennes Forrest. But the offensive, due to stiffening American resistance (such as the 101st Airborne's brilliant defense at Bastogne) and a lack of German supplies, got bogged down.[55] The 'Bulge' in allied lines was pushed back through the aggressive counter-attack by Patton's Third Army and the clearing of the weather to allow for the massive use of American air power.[56] For the US, it was the largest ground battle it had ever fought, and what seemed to be a monumental failure for the Americans turned into a decisive victory. For Germany, it was a disaster. Germany had used up the last of its strategic armor and infantry reserves for this offensive, and it was for nothing. Instead of a slow and steady war of attrition in the German heartland, Germany was severely weakened and its defeat now inevitable.

After the Bulge in Allied lines had been defeated, the US and Britain launched offensives that centered around securing the ground west of the Rhine River, and crossing the river itself. By the middle of March, the American First Army had a full bridgehead

[55] To include the 101st Airborne Division's General McAuliffe's famous response to a German surrender demand, "Nuts!" and when pressed by the Germans for what it meant, replied it was plain English for "Go to hell".

[56] Third Army's advance to relieve Bastogne was perhaps Patton's finest hour as a military commander.

over the Rhine River thanks to the damaged but captured at Remagen and subsequent US built bridges nearby. This was followed up by Patton's Third Army crossing the Rhine at Oppenheim, and the British Operation Plunder/Varsity crossing at Rees and Wesel by the British Twenty-First Army Group. By the start of April, US (along with British, Canadian, Polish, French, etc.) divisions from three Allied Army Groups of almost 100 divisions (mostly American) were swarming deep into Germany, overwhelming, out maneuvering, and out flanking the Germans. Germany Army Group B was surrounded in the Ruhr pocked on 01 April which surrendered by the 18 April (taking 325,000 German captives). US Twelfth Army Group under Omar Bradley then became the main thrust of the war, although all Allied Army Groups in the west were on the offensive, and by the 9th of April had reached the Elbe River, the demarcation line for US/Soviet forces. The US and Western Allies would overrun all of Germany west of the Elbe, and were also into Austria and parts of Czechoslovakia by V-E Day.[57]

In the East, the Soviet Union relentless pushed the Germans back, culminating in the capture of the capital of Berlin on May 2, 1945. After January 1945 however, Germany was a dying state. That it refused to die even when all was lost and there was no hope of victory was due to the extraordinary powers that the Nazi Party maintained until the very end of the war (Kershaw 2012). Even though the Allies had air superiority, and were destroying production centers, transportation networks, oil storage and production sites, and devastating entire cities (killing hundreds of thousands of civilians), the Germans fought on. The Nazi party had complete control over the governance of the state, and management of its economy, and even the hearts and minds (perhaps better

[57] Victory in Europe is May 8, 1945, although the Soviets use May 9, Victory Day, as the date for the end of the war.

described as their minds and 'balls') of the people. The citizens lived in greater fear of the Nazi SS police and Nazi party than it did the Allies, and same was true of the military. Hitler and the Nazi leadership would not surrender, it was to them 'victory or death', and that was their view not only for themselves, but the entire German Reich (Kershaw 2012).

It would take the Allies killing millions of Germans, both on and off the battlefield (unless one considers strategic bombing of a city a battlefield) and the armaments of war, along with the total occupation of the state (to include the capture of its capital) and the almost complete destruction of its ability to resist (armed forces, security forces… i.e. its shield) before Germany would surrender. Even in the final days, the SS continued to keep the people in line, and only until overrun, arrested, and disbanded did the SS no longer cause fear over the population and armed forces. By this time the German economy had collapsed, its armed forces were either completely captured or destroyed, and their governments in ruins and under Allied occupation were most members of the population able to look elsewhere for governance and protection (the Allied Occupation Governments). This breaking of national willpower and morale was due not only due to the high losses of population, but the collapse of the economy as well. With its collapse, the population became dependent on the good will of the Allied Powers in order to survive. No state has been so thoroughly conquered and destroyed since Hannibal's own Carthage.

IX. Hypothesis Outcomes

H_{Core} = States with stronger Core's and Shields, who are able to defend them while defeating the enemy's Shield and/or damaging the enemy's Core will be more likely to win wars.

Evidence for Hypothesis (Core): At the start of the war, Germany had a very strong core due to the Nazi party's hold over the population and economy, even though the economy had some major structural problems. The Americans also had a strong core, even if it was even more unprepared than the Germans for a prolonged war.

Throughout the war Germany was unable to attack the US's core directly, but it was able to directly attack the Core of the Great Britain and the Soviet Union. The only way to attack the American core would be by causing heavy casualties and force the US to accept a negotiated peace. The United States, in conjunction with other allies, was able to both directly and indirectly attack the German core.

The attacks by the US and her allies upon the German core were total in its methods and in its outcome. The United States conducted strategic bombing of German cities and production, killing hundreds of thousands if not millions by aerial strategic bombing and causing severe harm to the German economy and infrastructure. The US also maintained a blockade, but this had already been accomplished by the British. The US and here allies were however, able to launch direct attacks upon the German core, and in the process captured the entirety of German national territory, while completing the complete capture and destruction Wehrmacht as a fighting force. Germany's economy was in ruin, its government collapsed and under Allied occupation and military government, and its population completely dependent on the Allies for survival.

Because of the lack of attacks by Germany on the American core, and America's overwhelming victory over the German Wehrmacht, and the complete conquest of Germany's core, there is strong support for this hypothesis.

$H_{Population\ Losses}$ = The greater the state's casualties (damage to the population pillar), the less the likelihood of victory.

Evidence for and against Hypothesis (Population Losses): If one conducts an analysis of losses of the US and Germany in World War II, the Germans have far greater losses. If you take into account the other allies, the Soviet Union alone has more losses than the Germans and Italians combined. Thus in a dyadic analysis between the US and Germany, it holds true. In Allies vs. Axis, it does not. Therefore, the evidence is contradictory. If one takes into account that the Soviet Union could afford such losses and still fight on, it explains a lot. However, by 1944, German losses had been so great that is was unable to fully man its armed forces with trained (and even untrained) recruits, and with this knowledge, casualties played a major and attritional role in Germany's defeat.

$H_{Economy\ Losses}$ = The greater the state's economic losses (damage to the economic pillar), the less the likelihood of victory.

Evidence for Hypothesis (Economic Losses): America's economy grew throughout the war in terms of GDP and production. Germany's economy suffered immensely throughout the war due to strategic bombing, and later on due to the loss of resources and territory. By the last few months of the war the German economy collapsed and was dependent on the Allies for their good will. Therefore as Germany's GDP

declined throughout the war, and America's rose, there is strong support for this hypothesis in this case study.

$H_{Governence}$ = The greater the state's government cohesion, the greater chance of victory (as it is more resilient to stress placed upon it).

Evidence for and against Hypothesis (Governance): Both the US and Germany had great cohesion within their governments and in their society. For the US it was because of its inclusive (if imperfect) government and imperfect cultural values (i.e. civil rights issues), but for the time it was one of the most cohesive and popular governments in the world. For German, cohesion came at the expense of minorities (Jews, etc.), and a very radical authoritarian police state under the Nazi Party and SS. For the US, its governance was never truly stressed, and thus never under the threat of collapse like Germany. Therefore, it being very strong was able to weather heavy casualties and self-imposed limitations at home. Germany on the other hand, was also very strong, due to its strong armed tactics. And it would take the complete overrunning of the country, and the complete destruction of its armed forces to bring about the end of Nazi governance in Germany. Therefore, this war had two states with very strong governance, and has evidence both for and against this hypothesis.

$H_{Offensive\ Initiative}$ = States who maintain offensive initiative will have a greater chance of victory.

Evidence for Hypothesis (Offensive Initiative): While Germany early in the war had offensive initiative, it overextended itself with having too many campaigns on too many fronts, and the allies were able to take advantage of it. After the defeat in North Africa (along with the failure at Kursk), the Germans were on the strategic defensive for

the rest of the war. Its efforts to regain the offensive on the Western Front through the attacks at Mortain and in the Ardennes were merely operational offensives that failed to gain the strategic initiative. Consequently the Germans were pushed back and defeated, having spent the last years of the war on the defensive and being beaten by the offensives of the Allies and in particular the United States and Soviet Union. Therefore there is strong support for this hypothesis in this case study.

$H_{Warfare\ Method}$ = States that utilize 'unrestricted war' means of both conventional and unconventional warfare will have a greater chance at victory than those who solely utilize purely unconventional or purely conventional methods.

Evidence for Hypothesis (Warfare Methods): Both sides utilized conventional and unconventional forces during the war. However the Germans primarily relied on conventional forces, while the Allies, and the US and Britain in particular strongly augmented their conventional forces with capable unconventional forces such as the OSS, SOE, SAS, and other organizations and utilized partisans behind the lines to disrupt conventional forces. As the Allies, and the US in particular utilized both methods heavily and won the war, there is some evidence for this hypothesis.

$H_{Maneuver\ Doctrines}$ = States that utilize maneuver doctrines will have a greater chance of victory.

Evidence for and against Hypothesis (Maneuver Doctrines): Both Germany and the US heavily utilized maneuver doctrines for most of the war. By 1944 however, Germany began to move away from this doctrine to fixed defensive positions, as Germany did not have the resources in which to fully enact a maneuver doctrine, nor elastic defense doctrine due to heavy losses in Germany's armored formations (and

Hitler's insistence on holding all territory to the last man). The Americans, who had the resources to enact the doctrine, excelled and continually outflanked, overwhelmed, and bypassed the enemy in great sweeps of encirclements and flanking attacks. Therefore there is evidence for and against this hypothesis as it worked for the Americans, but not for the Germans.

H_{Mass} = States that utilize mass at the point of attack on offensives will have a greater chance of victory (i.e. the "schwerpunkt").

Evidence for and against Hypothesis (Mass Doctrines): The Germans excelled at massing their troops at the point of attack strategically, operationally, and tactically at the early stages of the war, and tactically throughout the war. However, after receiving such heavy losses throughout the war, Germany was unable to mass forces effectively at the strategic and operational levels after 1943 except during the Ardennes Offensive. The Allies, and in particular the US was able to mass its forces at critical points tactically (the "schwerpunkt") throughout the war, and repeatedly turn those tactical offensives into operational and strategic success in Italy, in France, and throughout Northern Europe. Germany could not compete with the American's vast mass production, which while providing inferior tanks, still overwhelmed German lines and lead to breakouts and the defeat of Germany. Therefore there is strong support for this hypothesis.

$H_{Battlefleets}$ = The greater the losses to a state's battlefleet, the greater the chances of defeat

Evidence for Hypothesis (Battlefleet Losses): Germany was unable to sink an American capital ship throughout the war (though it did sink several British and Soviet capital ships). The Americans were able to help the British hole up and sink several Vichy French and German capital ships, and Germany lost the majority of capital ships in

the war compared to the US and Britain, who also had control of the sea and won the war. Therefore there is strong support for this hypothesis, as the Germans were unable to fully contest command of the sea with such few capital ships and its U-boat fleet.

$H_{Sea\ Control}$ = States that utilize sea control doctrines will be more likely to win wars

Evidence for Hypothesis (Sea Control): Only the Anglo-Americans sought control over the sea. The German Kriegsmarine was much smaller than the Royal Navy and US Navy, and as such could not compete with them in head on naval battles for control over the sea lanes. As such they sought to utilize a sea denial strategy against the Anglo-Americans, and at times performed well. However they never truly contested the seas for control over them, and the Anglo-American navies were able, especially after 'Black May' in 1943, to have control over the seas and secure sea lines of communication. Therefore there is strong support for this hypothesis in this case study.

$H_{Conservation\ Forces}$ = States that utilize conservation of force strategies and operational art will have a greater chance of a prolonged war and defeat

Evidence for and against Hypothesis (Conservation Forces): While Britain certainly used a conservation of force strategy, both the US and Germany did not. Both believed in aggressive maneuvers to win the war as quickly as possible. Due to the size of forces involved, the war turned on into a very prolonged war. As both the US and Germany did not utilize conservation of force strategies, this hypothesis requires further testing.

X. Conclusion

America's victory in the war can be broken up into two categories, what the US did to win the war, and what Germany did to lose it. While the US had sheer numbers on its side, in terms of manpower and manufactured weaponry, numbers in themselves do not win wars, but how they those advantages are employed and how disadvantages and vulnerabilities are minimized. The US won by protecting her core and shield all while destroying the shield and heavily damaging and capturing the core of Germany.

By December 1941, Germany was embroiled in a war that already expanded beyond the continent of Europe to the entire world. It failed to destroy the British Expeditionary Force at Dunkirk, and win air superiority over Britain in 1940. It failed to build strategic bombers to bomb Soviet production sites in the Ural Mountains, and failed to knock the Soviet Union out of the war in 1941 before the Soviets could regroup. It also failed it its blockade of Britain, or capture the Suez Canal. German victory was within the realm of possibility until December 11, 1941. After December 11, 1941, this realm of possibility began to fade; as Germany's greatest strategic error was going to war with the United States.

The United States for her part was not destined to win merely because of her manpower and material production strength. It would require overcoming her own errors and exploiting the enemy's. The United States early on was forced to rely upon the sacrifices of the Soviet Union, and the leadership of Great Britain before she herself would assume the mantle of leadership.

The United States pressed its advantages to the maximum, and in particular that of industrial production of war material, so much so that she could more than supply not

only her own forces, but also provide vast stockpiles of resources to all the other allied powers.

Germany was overwhelmed, first at sea, next in the air, then in material, in manpower, and finally on the ground. The importance of D-Day cannot be overstated. It allowed the Soviets to fight far fewer troops. The preparations for D-Day saw the Kriegsmarine and Luftwaffe devastated as fighting forces, and D-Day and subsequent offensive operations brought an end to the Heer. American material, manpower, tactics, and operational art, in concert with her Allies outmaneuvered, overwhelmed, and destroyed Germany. It was war like no other since the three Punic Wars and the eventual destruction of Carthage perhaps.

Germany could not harm America's core until she defeated the British and Soviets, and consequently was unable to do so thanks to American support. Germany's core however was devastated by the American war machine and by supplying its allies. Germany had bit off more than she could chew and in doing so, was stretched to the limit, unable to protect her core and shield, and lost the war.

Chapter Conclusion

What is to be made of these two case studies? They show that there is overall support for the Informal Theory, along with many of the hypotheses, but not all of them (see Table below). Furthermore, the case studies show that the strategies and many other aspects of waging war change over time, and are not static or only a one choice final option. They instead evolve and change over time, as domestic and military factors (of both states) are taken into account by leaders and the population of the state.

These two case studies show several important things. First, in both wars, the economies and populations suffered as all states involved were forced to shift resources from their cores to their shields. The United States was able to handle it quite well. Japan did so ably, but there were problems with its balancing act. Russia could not handle it, and because of the losses on the battlefield and failing economy, caused the population to rise up in revolution. Germany as a state was completely crushed, and its population and economy suffered terribly for its aggression, which eventually led to total occupation of their state and an ending to the Third Reich.

The case studies also show that for at least some periods of time, each state would attempt to utilize similar if not the same strategies, operations, and use of principles of war as their enemy would. More often than not, victory was achieved by the state that was better able to utilize certain principles to the point where the enemy could no longer fight in a similar manner and was forced to change how it fought. In the Russo-Japanese War, both attempted to fight a war of maneuver. At Port Arthur, both were forced into fighting a siege. However in the battles fought in Manchuria, the Russians were constantly beaten back, on the defensive, and unable to go on the offensive and turn the tide of the war. In World War II, both utilized similar maneuver and firepower doctrines, but as the war dragged on for Germany, she was unable to man and equip forces to enact it, and was forced to rely on static defenses while the Allies relied on defense-in-depth while on the defense and when on the offensive they utilized firepower and maneuver with overwhelming forces at the schwerpunkt, which Germany could not stop.

Table 5.1: Case Study Hypotheses Outcomes Compared

Hypothesis:	Russo-Japanese War	World War II (Germany vs. US)
H (Core)	Support For	Support For
H (Population Losses)	Support For and Against	Support For and Against
H (Economy Losses)	More Information Required	Support For
H (Governance)	Support For	Support For and Against
H (Offensive Initiative)	Support For	Support For
H (Warfare Methods)	More Information Required	Support For
H (Maneuver Doctrines)	Support For	Support For and Against
H (Mass)	Support For and Against	Support For and Against
H (Battlefleets)	Support For	Support For
H (Sea Control)	Support For	Support For
H (Conservation Forces)	Support For	Support For and Against

While it is easy to state certain principles of warfare, certain strategies and operational arts, and doctrines are timeless or hold true and should be utilized by commanders all the time based on what we have learned in this chapter, we must remember one thing. These are only two wars out of hundreds of wars in the past two hundred years, and do not provide much detail beyond these two wars. Therefore, further research requires either with many more case studies, or quantitative analysis.

Chapter 6:

Quantitative Analysis

Thus far I have reviewed the literature of military theory and political science. I have also reviewed the problems within the field of study and offered up a new Informal Theory of Interstate Warfare, which seeks to fill in missing data within the field and correct some of the problems within the field. Next I tested the general theory and specific hypotheses with two case studies. In this chapter I will explain how the hypotheses will be tested quantitatively, along with the variables that were operationalized in order to test the various hypotheses. I will then present the statistical models that tested the hypotheses, and explore the results found. I will conclude with a final combined model, and some concluding thoughts to the results.

While wars and won or lost based upon the ability of a state to defend its core and shield while simultaneously stressing and damaging the enemy's core and shield, execution of that general plan is more difficult. In the previous chapter two case studies were presented. They described those wars through the important lens of the strategic and operational levels of warfare, how the states involved fought those wars, and why their cores and shields helped produce victory or defeat. However, those two case studies were merely two wars, between four belligerents. The question then becomes, can the Informal Theory of Inter-state Warfare be applied to most of it not all wars? This could be done via case studies as well, but that would require more time, effort, and hundreds if not thousands of pages.

However, one can approximate this effort by use of quantitative (statistical) analysis. The approach has both strengths and weaknesses. It can simply boil down the very important issues in a way that case studies cannot simplify. But it has the potential of losing perspective as well as true understanding of events. Because of the data and

information problems stated in the previous chapter, along with the requirement for vast mathematical problems which require that information, statistical analysis can only gain us an incomplete clarity, but some level of clarity none-the-less. Until such a time that more information becomes available to researchers, only the combination of qualitative and quantitative analysis can provide the level of clarity in this imperfect and incomplete area of study.

What this study can provide through quantitative analysis is some of the many determinants of war outcomes, with an emphasis on areas related to the overall theory presented in chapter 4. As seen in the study of the evolution of warfare and strategy, along with the two case studies, is that not every war ends the same, or for the same reason beyond a rather "big picture concept" of the core and shield of the state. But what leads a war to end when it does, and what strategies and operational art were utilized is of prime importance. One must be wary of the value of statistics. Like in football, the same plays will not always work when utilized. However, certain plays played over a time frame do tend to succeed or fail more often, and as in football with various plays, certain strategies and operational art should be utilized more often than others. This can perhaps give one an idea as to what military theories and political actions are successful, and which ones are failures, and create a train of thought for how one should expect states to act and respond to enemy actions when engaged in war.

I will now expand upon the dependent, independent, and control variables utilized in the data set created to test the general theory, explain the coding involved, and show how these variables relate to certain hypotheses. The models utilized rely primarily on Logit and Multinomial Logit forms of probability theory within statistics, which should

"allow us to predict, with reasonable confidence, the outcome of wars" (Stam 1996, 111). Then I will analyze the results of the various models run, the value of certain variables utilized in the coding, and whether or not the hypotheses were upheld through this study. Finally the chapter will conclude with some final thoughts on the Theory and the quantitative analysis conducted.

Research Design

In order to examine the validity of the Informal Theory of Interstate Warfare, and the several hypotheses created to test it, the quantitative analysis utilizes directed war dyads (i.e. war between two states). The wars utilized for the data set were based upon the Correlates of War (COW) data set (Sarkees and Wayman, 2010), which covers interstate wars after 1815 with the beginning of the new order in international politics. My analysis therefore utilizes all interstate wars within the timeframe from 1816 to 2007. The COW Project first makes the determination of what is a state, which was written extensively about in chapter 4. In order for a war to meet the criteria to be decaled an interstate war under the COW Project, states involved in the war must be members of the interstate system, be between the regular conventional forces of two or more states, with political leadership of each state directing the war in some manner (i.e. excluding rebellious forces, etc.), and have had at least 1,000 battle deaths during the course of the war. It is perhaps this 1,000 battle related deaths threshold that will cause some scholars some heartache (to include myself), but as it is the accepted baseline within political science, and as the standard baseline, it will be utilized in this study. Further the two wars utilized in the previous chapter's qualitative analysis were coded as interstate wars in the COW Project.

The unit of analysis in this thesis is the interstate dyad, which is defined as a pair (or more) of states that are members of the interstate system, where system status is defined by various codings and rules within the COW Project (Sarkees and Wayman, 2010).

The COW list was modified from its current state in several ways. First several wars were broken up into multiple wars, and in some cases by theaters of war (World War I, World War II, etc). The Vietnam War was broken up into two wars, one from 1965-1973, and the other which did not include the United States in 1975. Other wars were edited as minor allies were removed from the Seven Weeks War, Franco-Prussian War, Korean War, Vietnam, Kosovo, Afghanistan, and the two Persian Gulf Wars. Two wars were also deleted, the War of the Communist Coalition (which was viewed as a subset of the Vietnam War), and the Bosnian War for Independence, which I viewed as a civil or intrastate war (i.e. internal or civil war).

The data set utilized in the analysis differs greatly from those used in most previous studies of war outcomes, such as Stam (1996). Stam and those who have used Stam's data in their own research rely on a single observation per war dyad. While Stam's work revolutionized the way we think about politics and war, and in particular the use of strategies, the limitations of a single observation per war has several limitations, which is one problem with previous data sets. Further, most data sets, including the COW Interstate war data set does not include any variables about military strength, strategy, doctrine, operational art, or anything else military related beyond pure troop strength and national indicators of production (CINC scores).

Because of these problems and limitations, I take a different view for my data set: that wars should be broken up into distinct timeframes that take into account the changes for strategy, operational art, principles and doctrinal changes made during the war.[58] My data set is broken up into timeframes instead of just a view of the war as a onetime, whole event. These timeframes, however, are not time dependent (as in broken up by every week, month, or quarter) but instead are completely dependent on the changes of variables within the strategic and operational levels of warfare that occurred during the war. Therefore, any time a strategic or operational variable changed during the war by either dyadic side, the timeframe ends and a new one begins. Because of the emphasis on strategic and operational levels of war, along with the principles and doctrines of war, the tactical level of warfare was skipped all together in this data set.

Dependent Variable(s)

Utilizing a similar method utilized by Stam (1996) and Bennett and Stam (1998), two different dependent variables were utilized. Since we are looking for what variables led to certain war outcomes, war outcomes are the dependent variable utilized. The first dependent variable is that of a binary coding: of win or lose. Because there are just two outcomes (instead of three), all draws are coded as a loss, as it is my belief (as stated in Chapters 4 and 5) that only victory can guarantee survival of the regime, but a draw or loss significantly raises the specter of regime collapse, and thus a draw is deemed to be just as bad as a loss, instead of just dropping draws from the analysis.

[58] All codings in this data set for military variables come from primary and secondary historical sources, but mainly secondary sources of Dupuy and Dupuy (1993), Clodfeiter (2008), Sarkees and Wayman (2010). However, for the coding, further research was required beyond these sources, and they can be found in the Bibliography.

The second dependent variable is an expansion of the first dependent variable, similar to that of Bennett and Stam (1998). Thus there are four possible outcomes in war, coded as a win, loss, or draw (negotiated peace or stalemate), along with a forth possibility, continuance of the war. Because of the need to break up timeframes, this additional variable of continuance of the war allows for changes in the independent variables instead of a single observation throughout the war.

The reasons for two different, and yet similar models and different dependent variables is to first simplify war and its final timeframes down to its most basic form, under a binary win-loss dependent variable utilizing logistical regression. Yet this however only shows the final timeframe of a war, and not the entire war as a whole. As such, the second dependent variable of Win, Lose, Draw, or Continue was used (under multinomial logistical regression) in order to better clarify the events in a war, with continue serving as the baseline for the regression in the second type of model run. Further analysis is conducted through cross tabulation in order to examine the coding of variables, with an emphasis on the continue dependent variable for purposes of clarifying the use strategies during those continue timeframes.

Independent (Explanatory) Variables

Under the coding of Stam and others, war strategies, doctrines, etc. are one time variables that do not take into account the changes of war. Furthermore, the coding of military variables tend to be very broad (such as maneuver-attrition-punishment), and strictly rely on strategic level variables. In order to provide greatly clarity into the determinants of war outcomes and test the overall validity of the Informal Theory and its various hypotheses, the data set coded variables not only at the strategic level of war, but

also that of the operational level of war, along with doctrine and use of several principles of war. For the population and economic variables, both binary variables ("dummy variables") and quantitative continuous variables were utilized. For most military related variables, the use of binary variables (for use or non-use) was utilized.

At the strategic level of war, several variables were tested. Three variables were tested at the political-strategic level, all of which were binary variables. The first, War Aims, was coded by how decided its war aims, with a 1 coded for complete takeover and removal of the enemy government (or annexation of that state), and a 0 for anything less (or "limited") than the complete occupation and overthrow of the enemy state. The second, Wartime Economy Production was coded a 2 for complete mobilization of the economy for wartime use, a 1 for partial mobilization for wartime use, but with a strong civilian sector, and a 0 for use of what industries were on hand at the start of the war. The third political-strategic variable was Manpower Policy, coded 2for introduction of a draft, 1 for calling up of reserve formations, and 0 for use of only regular active forces during the war.

Below the political-strategic level are military-strategic variables, four of which were tested. The first was Force Utilization. Force utilization centered around how states fought during a war, relying on three main modes of fighting: terrorism, unconventional, or conventional warfare. A 4 was coded for use of conventional warfare only, a 3 for use of both conventional and unconventional warfare (with the primary means being conventional), a 2 for use of unconventional warfare only, a 1 for the use of unconventional warfare and terrorism (and the primary effort being unconventional), and a 0 for the use of terrorism only.

The second military-strategic variable is the state's Targeting Policy. A 3 was coded for targeting not only military targets, but infrastructure and industry, and the specific targeting of civilians. A 2 was coded for the targeting of military targets and infrastructure and industry, and a 0 for only military targets. The third variable is a state's Engagement Policy, which is in effect the Sun-Tzu vs. Clausewitz debate at the strategic level. States could either seek out the enemy through direct attacks upon its shield and core with destruction of the enemy's armed forces in open battle (coded as a 1), or seek indirect attacks upon the shield and core via blockades, mainly disrupting and destroying the enemy's lines of communication at the expense of direct action, hit-and-run operations, guerrilla warfare, etc. (coded as a 0). The fourth variable tested is a binary variable, for Strategic Offensive Initiative.

This variable ties in, and was coded for the operational level of warfare as well. Offensive initiative is an important variable for this study, and a thoroughly military one with political and military implications. It is also a complex variable even though it is coded as a binary variable as 1 or 0. In the coding it is broken up into two distinct variables of Strategic Offensive Initiative, and Operational Offensive Initiative. Offensive initiative is not a strategy, or a doctrine, but an action taken by armed forces. This action is to attack, and to follow up the initial attack with still further attacks, thus giving one state the initiative as it puts the enemy on the defensive as they respond to the attacks. At the operational level of war, offensive initiative is a series of offensive tactical battles in a theater of war in which some territory is taken and the enemy is on the defensive. At the strategic level of war, it is forcing the enemy to respond to actions in a theater or several theaters. In war, an armed force may prefer to be offensive strategically, as in securing

vital terrain but defensive operationally and tactically, as in forcing the enemy to attack them in their defensive position. Therefore there are 4 major combinations that are coded in two different variables for the strategic and operational levels of war.

Strategically offensive and operational offensive is where one state's shield is attacking the enemy and pushing them back, and dictating where the enemy will fight, or forcing them to retreat. Strategically offensive and operationally defensive is where one state's shield has secured some vital territory or conducted some action which places them operationally and tactically on the defensive, but because of their action, forces the enemy to attack them not both at a time and on ground not of their choosing. Strategically defensive and operational offensive is when a state's shield is trying to end the strategic offensive of the enemy by attacking them operationally and turning the operational offensive into a strategic one. Finally there is the strategically defensive and operational defensive, where the state on the defensive is just reacting to enemy attacks. This variable is important as offensive operations allow for the securing of territory and either capture or destruction of elements of the shield and core of the enemy's state.

After the strategic level, the operational level of warfare is tested (as seen in the operational offensive initiative variable). Two binary were utilized, one was National Territory Lost during the time frame (1 for loss, 0 for no loss), and the other was Territory Gained during timeframe, of any type of territory- be it a state's own territory, enemy territory, or an allied occupied territory (1 for gain, 0 for no gain). Another binary variable was created, similar to the strategic level engagement policy, but more so at the operational level of war, reliant on theater making decision.

After the operational level of war, military doctrine and principles were tested, mainly for land warfare. All were binary variables, with a 1 for use and 0 for not used during the time frame (with the exception of three variables explained further below). The doctrinal principles of firepower, maneuver, mass, attrition, static defense, withdrawal, encirclement, and conducting sieges were all coded to be tested within the data set.

Of foremost importance of these doctrinal principles were firepower, maneuver, and mass. Maneuver doctrines hold a place of prominence not only within Allan Stam's coding, but also within much of military theory. Maneuver doctrines imply offensive operations, flanking movements, and deep penetration operations. This doctrine is of key importance to the US Army today in conventional warfare, and as so with most militaries of the world. This coding differs as it is a doctrine, not its enactment (though doctrine may change as the ability to enact it may diminish, forcing a change in doctrine).

The concept of mass has taken on different forms in military theory. Most prominent is the concept of massing one's troops at a critical point of attack upon an enemy line, which von Clausewitz called the 'Schwerpunkt", which today has been misidentified as "Center of Gravity". This coding using Clausewitz's original concept, did one state enact the massing of forces at a critical point in a battle at the enemy line in order to break it (or hold off a breakthrough) in the manner von Clausewitz describes. This hypothesis seeks to see if the "Schwerpunkt" is only a tactical variable, or an operational level variable that von Clausewitz described, and a key to victory in campaigns. This is done by coding for concentration of offensive operations in operations

at the operational level (i.e. theaters) with one or more corps (i.e. two or more divisions) or above conducting an attack or defense.

The third concept, that of firepower, is based upon the doctrine that places high value and use of artillery, air strikes, naval gunfire support, and armor upon enemy concentrations of forces to break up attacks or defensive positions in place of doctrines that require heavy amounts of manpower.

Three other land warfare doctrinal principles were tested as well. These doctrines were more complex and nuanced than the previous ones, all of which were binary variables as well. Instead of being coded as use or non-use, they were coded as either or statement during the timeframe. The first is Land Offensive Doctrine, which combines firepower and maneuver doctrines (coded as 1) or attrition and mass doctrines (coded as 0). The second is Land Defensive Doctrine, which is either elastic (coded as 1) or static (coded as 0). Finally there is Manpower Doctrine, which is how troops are utilized in combat and how they are seen; either as expendable, coded as a 0 or to be conserved, coded as a 1 (like the British in their doctrine in WW2).

Naval warfare was also coded in the data set, something very few data sets have done. A battlefleet is viewed in the traditional sense: the size of a state's capital ship fleet. The size of battlefleet's losses is purely a quantitative number, reflecting no qualitative information on those capital ships included in the count. To do so would require a vast amount of data and mathematical formulas, not to mention simulations and war games to go along with those formulas to test. Utilizing the data from George Modelski and William Thompson's (1989) work in *Seapower In Global Politics: 1494-1993*, with some minor additions to include states that were not deemed as major powers by Modelski and

Thompson, yet still had capital ships. I calculated the losses of capital ships based upon the changes in the Modelski and Thompson data set. I ignored Modelski and Thompson's use of attack and ballistic missile submarines as capital ships, and retained the aircraft carrier as the main capital ship long after Modelski and Thompson do in their data set, but with an emphasis on a medium sized carrier or larger as the main capital ship from 1960 to 2007. For example a US Nimitz class carrier was counted as a capital ship, but the British Invincible class used in the Falklands War was not as it was viewed as a light carrier. This data was also utilized in the data set for other variables, such as number of capital ships at the start of the war, size of battlefleet at the end of the war. Another variable was a binary variable reflecting which state had the larger battlefleet at the start of the war, and with the final variable again being a binary variable with the state had the larger battlefleet at the end of the war, coded as 1 for larger, 0 for smaller, or both as 0 if neither had a battefleet.

However, states do not necessarily need capital ships in order to exert control over an area of the ocean, nor does the presence of capital ships mean that a fleet and move unhindered in an area without the threat of the other. Some navies choose not to engage a larger foe, others contest them bitterly. Navies either choose to control the sea for their own use, or deny its use to the enemy. In this hypothesis, naval warfare doctrine was coded in two different variables. The first variable was based upon an ordinal scale coded from 0 to 4, starting with Sea Denial doctrines with the emphasis on attacking the enemy's sea line of communications. The second was a Sea Denial doctrine with an emphasis on the enemy's battlefleet. The third was a Sea Control doctrine, where the emphasis was protecting one's sea lines of communication while attacking the enemy's

sea lines of communication. The forth was a Sea Control doctrine where protection of the battlefleet and attacking and destroying the enemy's battelfleet was of primary importance. The final variable on the ordinal scale, coded as a 4 was a Sea Control doctrine that sought to both protect one's sea lines of communication and battlefleet while destroying the enemy's battlefleet and sea lines of communication. The second variable is binary variable, for use of a sea control doctrine with an emphasis on total sea dominance (coded as a 1) or a sea denial doctrine or partial sea control doctrine (coded as a 0). A third and fourth binary variable were based upon whether or not a state utilized Commerce Raiding and a Traditional Blockade in their wars, coded 1 for use, and 0 for non-use.

Finally two variables for air warfare were tested. Any states engaged in war before the Wright Brothers flight was dropped from the coding in these two variables. The first was a state's Bomber Doctrine. If a state utilized strategic bombing, along with interdiction and tactical bombers, it was coded with a 3. If a state's bombers only were utilized in an interdiction and tactical bombing role, it was coded as a 2. If a state's bombers were only utilized in a tactical bombing role, it was coded as a 1, and if it had no bombers, it was coded as a 0. Fighter-bombers were not considered bombers for this coding.

The second air variable and last military variable in the data set was a state's Fighter Doctrine. IF a state utilized its fighters in an air superiority role and for forward air support, it was coded as a 3. If it only was used in a forward air support and air defense role, it was coded as a 2, and if only in an air defense role, it was coded as a 1. If the state had no fighter aircraft, it was coded as a 0.

In addition to military variables, the population and economies of states before, during, and after the war were added to the data set to help test the greater Informal Theory. In order to test the population hypothesis, a series of quantitative and continuous variables for the size of a state's population at various times before and during the war were utilized. This data mainly came from the population data that the Angus Maddison data set (2008) had compiled, most prominent variables utilized in my data set being population at the beginning of the war, and population at the end of the war. This basic data was further refined to include averages of pre-war and wartime population growth, pre-war and wartime population growth percentage, and nominal dummy variables to denote if a state's population had decreased during the war timeframe.

Other population variables were taken from the Correlates of War (CoW) data set (Sarkees and Wayman 2010), with in particular emphasis on military personnel at the start of the war, maximum military personnel, and personnel mobilized (which was the difference between the start war and maximum wartime military personnel variables). Casualty variables (battle deaths) also came from the CoW data set, but some casualty figures, such the Mexican-American War were modified to reflect information from Michael Clodfeiter's *Warfare and Armed Conflict* (2008), as I believe it to be the definitive source on wartime casualties.

Economic variables were also gathered in the data set. The data set includes a state's economy at various times before, during, and at the end of a war. This data mainly came from the Gross Domestic Product (GDP) data that the Angus Maddison data set (2008), most prominent being GDP at the beginning of the war, and GDP at the end of the war. This basic data was further refined to include averages of pre-war and wartime

GDP growth, pre-war and wartime GDP growth percentage, and binary variable to denote if a state's GDP had decreased during the war timeframe. Other economic variables were taken from the Correlates of War (CoW) data set (Sarkees and Wayman 2010), with in particular emphasis on military expenditures at the start of the war, maximum military expenditures, and end war military expenditures.

Control Variables

In order to control for the variables utilized above, three important control variables were utilized in most combined models in order to bring stability and balance to all models. These three variables are quite commonly seen in most models and within the political science literature: Initiator of the war (binary variable coded 1 for initiator, 0 for non-initiator), battle related deaths (total number), and the Polity IV Score (which codes states from -10 to 10 in an ordinal scale, with -10 meaning most autocratic, and 10 meaning most democratic, with the US coded as a 10 through the entirety of the Polity data set).

Tested Binary Win-Lose Models and Results

Several models were run, based upon testing the most prominent hypothesis specific variables along with the control variables to ascertain the most important variables for each hypothesis. For the following tests, only the binary win-lose dependent variable was utilized for these models. The most prominent variables were then brought together into a unified model for the final results.

DV: Win-Lose Models using Logit Regression

Population Only Models

Table 6.1: WL Population Models

	Pop Model 1:	Pop Model 2:
Binary W == All Other Outcomes	Combined Pop	Simplified Model
Outcome -->	Win War	Win War
Pre War Pop Avg	-0.5894 (.22)***	-0.0012 (1.58e-03)
Pre War Pop Growth Pct	4.003684 (32.2087)	
Pre War Larger Pop Growth	-1.022241 (.4936)**	-0.6066114 (.3961)
Start War Pop Larger	0.0006095 (.00025)**	
Start War Population	72.0063 (439.8)	
War Pop Growth Pct	-23.10375 (11.90)*	-22.68366 (8.1367)***
End War Pop	-0.0259 (.09)	
War Pop Decrease	-1.763115 (.8409)**	-2.29804 (.7664)***
Start War Mil Personnel	-0.0246721 (.0373)	
Max War Mil Personnel	0.0243177 (.0373)	
Personnel Mobilized	-0.024529 (.0373)	
Casualty Ratio	0.0018845 (.0168)	
Initiator	-0.0176223 (.4537)	0.7827974 (.3888)**
Battle Deaths	-0.000984 (6.57e-04)	-0.00166 (5.78e-04)***
Polity IV Score	0.005424 (.0297)	0.0023234 (.0243)
Coefficients (Std Error)	Log Likelihood:	Log Likelihood:
*p < 0.10	-112.14623	-124.37375
**p < 0.05	LR Chi² (15):	LR Chi² (15):
***p < 0.001	62.29	38.7
	Pseudo R²:	Pseudo R²:
Note: All actual populations,	0.2173	0.1346
averages, and deaths are rounded	No of Observ:	No of Observ:
to the nearest thousandth	626	633

The initial model, Population Model #1 (Table 6.1), ran every single population variable available with the three standard control variables stated earlier. The significant variables from the first model were run a second time in Population Model #2 (Table 6.1), a simplified model. From the simplified model, we see that wartime population growth has a negative effect on the state's ability to win a war the larger it is, and that a

decrease of the population on the wartime will have a negative impact on the ability of a state to win a war. This result is significant as it holds in line with H(Population Losses), when a state's population pillar is damaged, it will hamper the ability of the state to win a war, and therefore find strong support for this hypothesis when measured alone without other wartime variables outside the control variables.

Economic Only Models

Table 6.2: WL Economic Models

	Model 1:	Model 2:
Binary W == All Other Outcomes	Combined Econ Model	Simplified Econ Model
Outcome -->	Win War	Win War
Pre War GDP Avg	-0.0165 (.00117)	
Pre War GDP Growth Pct	2.699246 (3.8571)	
Start War GDP	0.000147 (.22)	.000276 (1.11e-04)**
Wartime High GDP	-0.0234 (.01)*	
Wartime GDP Avg	0.0406 (.03)	
Wartime GDP Growth Pct	-0.1335451 (3.0562)	
End War GDP	-0.00169 (.00148)	
Start War Mil Expenditure	0.0000915 (5.82e-05)	
Max War Mil Expenditure	-0.0000605 (6.77e-05)	
End War Mil Expenditure	-0.0000122 (5.54e-05)	
Initiator	0.4406896 (.3586)	.3577 (.2323)
Battle Deaths	-0.00107 (5.57e-04)*	-.000233 (5.05e-04)***
Polity IV Score	0.0369308 (.0275)	-.0247 (.0166)
Coefficients (Stand Error)	Log Likelihood:	Log Likelihood:
*p < 0.10	-149.59153	-284.25613
**p < 0.05	LR Chi² (15):	LR Chi² (4):
***p < 0.001	55.7	59.39
	Pseudo R²:	Pseudo R²:
Note: All actual money amts,	0.157	0.0946
averages, deaths are rounded	No of Observ:	No of Observ:
to the nearest thousandth	736	957
Note: High Correlation between Start War GDP, Wartime High GDP,		
End War GDP variables in Economic Model #1		

The initial model, Economic Model #1 (Table 6.2), ran every single economic variable available with the three standard control variables. The significant variables from the first model were run a second time in Economic Model #2 (Table 6.2), a simplified model. It should be noted that a high level of correlation between the start of the war GDP, wartime high GDP, and end of the war GDP variables. As such, two variables were dropped, and for the rest of the models utilized in the win-lose dependent variable models, only Start War GDP or End War GDP was utilized. From the simplified model, we find that the higher the GDP a state starts off with, the greater the chance it has for victory in war. Thus we find some support for H(Economic Losses), however, further testing in a combined model is required.

Military Strategy, Doctrine, and Operational Art Models

Several models were run for the very large amount of military strategy, doctrine, and operational art variables in the data set. The first model (Table 6.3) purely looked at strategic level variables. The second model (Table 6.3) utilized only operational level variables, along with military doctrine and land warfare. The third model (Table 6.4) was a look at the naval and air warfare variables in the data set, with the forth model (Table 6.4) being a composite of all the variables within the data set.

The fourth model (Table 6.4) served as the basis for two simplified models. The first simplified model (Table 6.5) found highly significant the targeting policy of states, along with offensive initiative as being highly significant. Both were strongly positive, showing that wars are won by offensive initiative and through the targeting policy. What was also found highly significant, though in the negative was the use of commerce

raiding and full traditional blockade strategies. On their own, they harm the state that employs it more so than if had not, which is a very intriguing finding.

The final simplified model (Table 6.5) was again a simplified model. This time it found that not only is offensive initiative important, but so is that of actually gaining territory from the enemy. Furthermore, a land offensive doctrine that emphasized firepower and maneuver was also significant in helping to attain victory, as was use of naval warfare doctrines that emphasized not only the blockade of enemy port, but power projection against the enemy as well.

These military-only models give strong support to several hypotheses to include H(Offensive Initiative) and H(Maneuver Doctrines), but not H(Warfare Methods), H(Mass), H(Battlefleets), and H(Conservation Forces). This could perhaps be due to the coding utilized in the data set, or just the binary nature of the dependent variable

Table 6.3: WL Military Variables Models Part 1

	Model 1:	Model 2:
Binary W == All Other Outcomes	Strategic Lvl	Operational Lvl
Outcome -->	Win War	Win War
Pol Strategy- War Aims	0.3720359 (.2130)*	
Pol Strategy- Eco Production	-0.1284706 (.1799)	
Pol Strategy- Manpower	-0.1414619 (.2126)	
Mil Strategy- Force Utilization	0.2505924 (.2270)	
Mil Strategy- Targeting Policy	-0.0803452 (.1446)	
Mil Strategy- Engagement Policy	0.4197851 (.4498)	
Strategic Offensive Initiative	2.47174 (.2837)***	
National Territory Lost	0.4247342 (.3350)	
Op Lvl War- Engagement Policy		1.182145 (.6525)*
Op Lvl Offensive Initiative		2.0637 (.3698)***
Op Lvl War- Continuous Front		-0.1451305 (.2301)
Territory Lost During Timeframe		-0.609043 (.3495)*
Territory Gained during Timeframe		0.807734 (.2705)***
Mil Principle Doct- Firepower		0.5140044 (.3017)*
Mil Principle Doct- Maneuver		-0.4005403 (.3234)
Mil Principle Doct- Mass		0.6049953 (.2765)**
Mil Principle Doct- Attrition		-0.2759916 (.2704)
Mil Principle Doct- Static Defense		0.2562625 (.3236)
Mil Principle Doct- Withdrawal		0.5722277 (.5265)
Mil Principle Doct- Encirclement		0.9292987 (.2716)***
Mil Principle Doct- Siege		-0.1879529 (.2264)
Land Warfare- Manpower Doct		-0.5544486 (.2754)**
Land Warfare- Defensive Doct		0.4067809 (.3908)
Land Warfare- Offensive Doct		0.4472762 (.3927)
Naval Warfare Doctrine		
Simplified Nav War Doct		
Commerce Raiding Strategy		
Traditional Full Blockade Strategy		
Target Enemy Battlefleet		
Battlefleet Strength in Size		
Larger Star War Battlefleet		
Larger End War Battlefleet		
Wartime Battlefleet Losses		
Air Warfare- Fighter Doctrine		
Air Warfare- Bomber Doctrine		
Initiator	-0.0572009 (.2007)	-0.2308693 (.2149)
Battle Deaths	-0.00000233 (5.91e-07)***	-0.00000245 (6.14e-07)***
Polity IV Score	0.0134536 (.0141)	-0.0090483 (.0149)
Coefficients (Stand Error)	Log Likelihood:	Log Likelihood:
*p < 0.10	-391.47958	-344.86752
**p < 0.05	Pseudo R^2:	Pseudo R^2:
***p < 0.001	0.2048	0.2914
	No of Observ:	No of Observ:
	1503	1491

Table 6.4: WL Military Variables Models Part 2

Binary W == All Other Outcomes	Model 3: Naval and Air War	Model 4: Combined w/o Op Lvl
Outcome -->	Win War	Win War
Pol Strategy- War Aims		-2.567217 (3.9651)
Pol Strategy- Eco Production		33.25893 (23.5018)
Pol Strategy- Manpower		-22.81579 (15.4377)
Mil Strategy- Force Utilization		23.04431 (12.2892)*
Mil Strategy- Targeting Policy		42.31738 (19.6319)**
Mil Strategy- Engagement Policy		-13.21483 (5343.808)
Strategic Offensive Initiative		29.87286 (17.7327)*
National Territory Lost		86.1076 (49.3382)*
Op Lvl War- Engagement Policy		
Op Lvl Offensive Initiative		
Op Lvl War- Continuous Front		
Territory Lost During Timeframe		
Territory Gained during Timeframe		42.2191 (23.2889)*
Mil Principle Doct- Firepower		-5.201647 (5.1034)
Mil Principle Doct- Maneuver		-1.64057 (2.7757)
Mil Principle Doct- Mass		1.617526 (2.3464)
Mil Principle Doct- Attrition		2.447223 (2.1347)
Mil Principle Doct- Static Defense		1.892803 (3.2339)
Mil Principle Doct- Withdrawal		-35.20091 (1840.821)
Mil Principle Doct- Encirclement		18.73142 (8.7360)**
Mil Principle Doct- Siege		-14.5498 (8.5897)*
Land Warfare- Manpower Doct		-1.772704 (2.2929)
Land Warfare- Defensive Doct		3.198019 (3.8877)
Land Warfare- Offensive Doct		32.55144 (18.0585)*
Naval Warfare Doctrine	-0.0019147 (.3606)	6.598209 (2.7119)**
Simplified Nav War Doct	-0.3046711 (1.3222)	-7.453645 (4.2370)*
Commerce Raiding Strategy	-2.755188 (1.4325)**	-47.85061 (25.3549)*
Traditional Full Blockade Strategy	1.888715 (.9286)**	61.05218 (37.9863) *
Target Enemy Battlefleet	-0.6566708 (.8248)	-37.54562 (20.5112)*
Battlefleet Strength in Size	0.0308142 (.0343)	-0.1345789 (.1215)
Larger Star War Battlefleet	-0.2638944 (1.1119)	11.59148 (8.2445)
Larger End War Battlefleet	-0.700542 (1.3930)	-53.48954 (31.2413)*
Wartime Battlefleet Losses	-1.894527 (1.1694)*	-53.23123 (33.9293)
Air Warfare- Fighter Doctrine	0.5536317 (.5389)	-19.75757 (8.5473)**
Air Warfare- Bomber Doctrine	-0.2035345 (.6394)	3.820976 (6.1616)
Initiator	0.606427 (.9139)	-8.771849 (8.6346)
Battle Deaths	-0.00000135 (6.16e-07)**	-0.0000105 (6.73e-06)
Polity IV Score	-0.1110506 (.0704)	-1.189094 (1.0700)
Coefficients (Stand Error)	Log Likelihood:	Log Likelihood:
*p < 0.10	-80.155562	-27.974218
**p < 0.05	Pseudo R^2:	Pseudo R^2:
***p < 0.001	0.2029	0.7218
	No of Observ:	No of Observ:
	526	526

Table 6.5: WL Simplified Military Variables Models

	Model 5	Model 6
Binary W == All Other Outcomes	Simplified Model 1	Simplified Model 2
Pol Strategy- War Aims		
Pol Strategy- Eco Production		
Pol Strategy- Manpower		
Mil Strategy- Force Utilization		
Mil Strategy- Targeting Policy	.5178 (.2453)**	
Mil Strategy- Engagement Policy		
Strategic Offensive Initiative		
National Territory Lost		
Op Lvl War- Engagement Policy		
Op Lvl Offensive Initiative	3.16 (.6138)***	2.071 (.3469)***
Op Lvl War- Continuous Front		
Territory Lost During Timeframe		
Territory Gained during Timeframe		.9804 (.2501)***
Mil Principle Doct- Firepower		
Mil Principle Doct- Maneuver		
Mil Principle Doct- Mass		
Mil Principle Doct- Attrition		
Mil Principle Doct- Static Defense		
Mil Principle Doct- Withdrawal		
Mil Principle Doct- Encirclement		
Mil Principle Doct- Siege		
Land Warfare- Manpower Doct		
Land Warfare- Defensive Doct		
Land Warfare- Offensive Doct		.5423 (.2674)**
Naval Warfare Doctrine		.1028 (.0647)^
Simplified Nav War Doct		
Commerce Raiding Strategy	-1.8862 (.6395)***	
Traditional Full Blockade Strategy	-.7638 (.3658)**	
Target Enemy Battlefleet		
Battlefleet Strength in Size		
Larger Star War Battlefleet		
Larger End War Battlefleet		
Wartime Battlefleet Losses		
Air Warfare- Fighter Doctrine		
Air Warfare- Bomber Doctrine		
Initiator	.2341 (.417)	-.0065 (.2144)
Battle Deaths	-1.85e-06 (5.62e-07)***	-2.46e-06 (5.73e-07)***
Polity IV Score	-.01 (.0258)	-.0141 (.0159)

Finally, three composite models (Table 6.6) were run, utilizing economic, population, and military factors, while still retaining the three control variables in them. The first model (Table 6.6) was a model that was without naval warfare variables, whiles the second and third models (Table 6.6) utilized naval warfare variables at the expense of a small group of observations.

Table 6.6: Composite Win-Lose Models

	Model 1:	Model 2:	Model 3:
Binary W == All Other Outcomes	Key w/o naval	Key Var w/ naval	Final Composite
Outcome -->	Win War	Win War	Win War
War Pop Growth Pct		-37.54869 (8.4857)***	-34.12321 (8.503)***
War Pop Decrease	-0.8864484 (.4128)**		
Start War GDP	0.000314 (1.88e-04)*		
End War GDP		0.000542 (2.22e-04)**	0.000537 (2.2e-04)***
Mil Strategy- Force Utilization	0.6657112 (.3226)**	-1.271988 (.605)**	-1.075888 (.584)*
Op Lvl Offensive Initiative	2.122421 (.458)***	2.414697 (.7029)***	2.337522 (.7121)***
Land Warfare- Manpower Doct		-1.218297 (.5862)**	
Mil Principle Doct- Mass	1.731938 (.4297)***	2.764623 (.9235)***	2.478943 (.9246)***
Mil Principle Doct- Attrition			1.34907 (.5387)**
Commerce Raiding Strategy		-2.023026 (1.1077)*	-2.354286 (1.0819)**
Wartime Battlefleet Losses		-2.259775 (1.028)**	-2.484051 (1.065)**
Initiator	-0.0475935 (.315)	1.056667 (.5838)*	1.550807 (.6318)**
Battle Deaths	-0.00161 (5.38e-04)	-0.0028 (8.18e-04)***	-0.00238 (7.38e-04)***
Polity IV Score	-0.0024616 (.023)	-0.0577466 (.0467)	-0.0540952 (.0476)
Coefficients (Stand Error)	Log Likelihood:	Log Likelihood:	Log Likelihood:
*p < 0.10	-163.11716	-74.643798	-73.457703
**p < 0.05	LR Chi² (8):	LR Chi² (11):	LR Chi² (11):
***p < 0.001	102.91	104.35	107.16
	Pseudo R²:	Pseudo R²:	Pseudo R²:
Note: All actual populations,	.2398	.4114	.4218
averages, GDPs, and deaths are	No of Observ:	No of Observ:	No of Observ:
roundedto the nearest thousandth	787	500	503

As seen by the results, GDP, population, and military variables all combine together to have highly significant results together, which gives some measure of validity to the overall Informal Theory of Interstate War.

These strong results uphold many of the hypotheses put forth in the theory, but not all of them. Population decrease because of the war has a strong negative impact upon victory, as does a large growing population, which would place greater stress upon the Core in the middle of a war. GDP plays an important role, and the higher the End War GDP is, the greater the chance a state has of victory, as its economic pillar has been spared or has limited the damages of war.

Further, states that utilize a mixture of military force employment methods are more likely to win, where reliance on less conventional means as a primary method of fighting increased the odds of defeat. On the ground, operational offensive initiative continues to remain robust and a necessary part of victory. Surprisingly, attritional warfare can prove to be an strategy to victory for many states. But what is more important is how those forces are used, and when forces are massed properly for offensive and defensive operations at the "schwerpunkt", then the chances for a state to achieve victory increases (and holding von Clausewitz to be correct in his assertion). Maneuver however was not significantly statistically relevant in the combined model, nor was control of the sea, while battlefleet losses were.

While these results go a long way to helping provide empirical support for the Informal Theory of Interstate war, its reliance of a binary win-lose dependent variable weakens its overall assessment. Therefore, further testing, and in particular the use of multinomial logit for multiple war outcomes is required.

Tested Win-Lose-Draw-Continue Models and Results

As stated earlier, more than just winning or losing can occur in war. In fact, the Bargaining Model believes that wars can continue until an accommodation occurs

(Werner 1998, Stam and Smith 2002), while Stam's (1996) war outcome analysis believes that wars can (and do) end in draws or some type of negotiated peace. As such, the use of multinomial logit is required to test a dependent variable with four different outcomes. In this case here, it is assumed that to continue the war is the base outcome for these models.

DV: Win-Lose-Draw-Continue Models using Multinomial Logit Regression

Table 6.7: WLDC Endings Best Fit Model #1

Multinomial Logit			
Combined Best Fit Model #1			
Outcome -->	Lose (0)	Draw (2)	Win (3)
War Pop Growth Pct	4.307248 (5.7622)	12.17956 (8.6838)	-63.83916 (14.1335)***
War Pop Decrease	0.9381582 (.822)	0.2274205 (1.7359)	-4.971128 (1.2268)***
End War GDP	-0.00186 (.00157)	-0.000239 (7.49e-04)	0.00112 (3.73e-04)***
Mil Strategy- Force Utilization			
Op Lvl Offensive Initiative	-1.453602 (.7049)**	0.8391827 (.7637)	3.06118 (.8179)***
Mil Principle Doct- Firepower	0.3274682 (.6378)	-1.184405 (1.2588)	-0.8111755 (.8488)
Mil Principle Doct- Maneuver			
Mil Principle Doct- Mass	1.147857 (.6316)*	0.0214197 (1.063)	1.633741 (.8176)**
Mil Principle Doct- Attrition	-0.7451999 (.7734)	0.6825896 (1.2058)	1.178044 (.6883)*
Mil Principle Doct- Static Defense	0.497544 (.6061)	2.48129 (1.0012)**	0.3418711 (.5972)
Mil Principle Doct- Withdrawal	1.970034 (.5440)***	0.4704624 (1.3645)	-16.12557 (4814.25)
Land Warfare- Manpower Doct	-0.4684729 (.7846)	-0.5683137 (1.1501)	-1.485896 (.7034)**
Land Warfare- Offensive Doct	0.0551371 (.8496)	1.877249 (1.1232)*	1.884947 (.8556)**
Naval Warfare Doctrine	-0.0821105 (.1921)	-0.3730737 (.4941)	0.1381031 (.2456)
Commerce Raiding Strategy			
Wartime Battlefleet Losses			
Air Warfare- Fighter Doctrine	-0.0145685 (.3496)	-0.3707846 (.5662)	0.9210962 (.5383)*
Air Warfare- Bomber Doctrine	-1.050935 (.4025)***	17.06095 (1645.58)	-1.85464 (.5940)***
Initiator	1.823928 (.6949)***	1.282806 (1.4671)	-0.6804356 (.8964)
Battle Deaths	-0.00239 (7.59e-04)***	-0.00402 (.00203)**	-0.00157 (6.97e-04)**
Polity IV Score	-0.004322 (.0565)	0.0356837 (.1231)	-0.1228456 (.0631)*
Coefficients (Stand Error)	Log Likelihood:	Pseudo R^2:	Note: GDP and Battle-
*p < 0.10	-178.54692	.4011	deaths rounded to
**p < 0.05	LR Chi² (51):	No of Observ:	nearest 1000th
***p < 0.001	239.15	610	

In this model (Table 6.7), the population and GDP results are similar to the binary dependent variable model, where having a population decrease by the end of the war, along with having a large growing population (i.e. birth rate) during wartime harms your chances for victory, but does not necessarily mean you will lose. Having a high GDP at the end of a war will boost a state's chances at victory.

With the military variables, offensive initiative again gave robust findings, and important factor for victory, and conversely a major factor of defeat if not held. The principle of mass (the "schwerpunkt"), proved less robust, but robust none the less, and while it is an important principle for victory, its use also can foretell defeat as well. Therefore, while it is an important principle to follow in war, it in itself does not guarantee victory.

Static defense utilization was a surprising find, as military theory would have one believe that static defenses will ultimately lead to defeat. However, static defenses lead to stalemate, and this can be seen in such wars as World War I and Korea. Withdrawal of ones forces from a battle, even if involved in a strategic maneuver to stronger positions gives the enemy offensive initiative and territory, and the model robustly found that it will lead to defeat in war.

In agreement with general military theory and the hypothesis of manpower conservation, it was found that states that utilize doctrines that seek to conserve their manpower harm their chances at victory, though that is not to say that non-conservational use of manpower will lead to victory necessarily. Furthermore, in agreement with Allan Stam's general concept of maneuver (with my own firepower emphasis as well),

offensive doctrines that utilize maneuver and firepower over attrition and static defenses will improve their chances for victory in war, or at least that of a draw.

Of somewhat of a surprise, naval warfare variables had little influence when utilized a combined command of the sea variable. In the air however, states that utilize air superiority with their fighters will improve their chance of success in war, while surprisingly and in contradiction to the Informal Theory of Interstate Warfare, strategic bombing does not help win wars on its own, which suggests that tactical bombing may be of greater support to the war effort than strategic bombing.

Table 6.8: WLDC Endings Best Fit Model #2

Multinomial Logit			
Combined Best Fit Model #2 w/o Control Variables			
Outcome -->	Lose (0)	Draw (2)	Win (3)
War Pop Growth Pct			
War Pop Decrease	1.760682 (1.2791)	-101.6711 (2738133)	-1.603064 (.6977)**
End War GDP	-0.0131 (.00499)	0.5554 (.0000414)	0.000402 (2.50e-04)*
Mil Strategy- Force Utilization	-3.362503 (1.1945)***	5.016378 (40283)	1.838308 (.7547)**
Op Lvl Offensive Initiative	-1.03441 (.8107)	-37.26196 (64410)	3.058963 (.8382)***
Mil Principle Doct- Firepower			
Mil Principle Doct- Maneuver	1.825687 (.8994)**	-956.9345 (2741626)	-0.2740777 (.5235)
Mil Principle Doct- Mass	0.1272003 (.8775)	-1354.866 (2756035)	3.458481 (1.1557)***
Mil Principle Doct- Attrition			
Mil Principle Doct- Static Defense			
Mil Principle Doct- Withdrawal			
Land Warfare- Manpower Doct	-0.5140996 (.7623)	-690.4869 (611787)	0.0080138 (.7689)
Land Warfare- Offensive Doct	-0.9348081 (1.054)	2.916981 (67942)	2.007589 (.9866)**
Naval Warfare Doctrine			
Commerce Raiding Strategy	2.055338 (.9309)**	-0.847743 (40283)	-3.229116 (1.312)**
Wartime Battlefleet Losses	0.4650706 (.8706)	150.1524 (2803368)	-2.539747 (1.1569)**
Air Warfare- Fighter Doctrine	0.592333 (.601)	-2.473164 (67942)	-0.5352594 (.5232)
Air Warfare- Bomber Doctrine	-1.021725 (.8664)	-0.7752979 (21962)	-1.122651 (.8334)
Initiator			
Battle Deaths			
Polity IV Score			
Coefficients (Stand Error)	Log Likelihood:	Pseudo R^2:	Note: GDP and Battle-
*p < 0.10	-95.491207	.3923	deaths rounded to
**p < 0.05	LR Chi² (36):	No of Observ:	nearest 1000th
***p < 0.001	123.31	447	

A second model (Table 6.8) was run, this time without the control variables, and switching up some of the military principles and naval warfare variables with other variables. Maneuver alone was not a war winning principle until applied with firepower under offensive doctrine. Otherwise the variables of GDP, population, force utilization, and offensive initiative were significant as was expected. However in the case of force utilization, we had the opposite result as found in the binary dependent variable coding,

where states that utilized conventional warfare only have a better chance of winning a war then unconventional warfare only or a mix of the two types of war.

What was also surprising were the results in the losses accrued to a battlefleet and the use of commerce raiding strategies. Conducting a commerce raiding strategies have a decidedly negative impact on s state's chances for winning a war. Further, the loss of capital ships harmed a chance for a state to win, but did not significantly impact their chances for losing.

It should be interesting to note however that battle deaths were consistently found to be significant in most of it not all of the models utilized in this chapter. This suggests that greater casualties have a negative impact on winning a war, which is of no surprise. However it also shows something else: constant and steady attrition in war. Casualties will continue to rise the longer the war is waged, which gives some credence to why states attempt to use strategies and principles that seek to end wars quickly, if only to save their manpower in the long run through a sustained level of attrition throughout the war.

Cross Tabulation

Cross tabulation isn't necessarily the most complicated or important statistical models. It is merely the tabulation of results of two variables against each other. It is useful for the purposes of this thesis in order to determine how each side utilized certain strategies, doctrines, principles, and operational art during the war. Significantly, it will provide a snapshot for what occurs during the continue timeframe coded into these wars.

Table 6.9: Offensive Land Doctrine Cross Tabulation

Offensive Land Doctrine				
	Attrition-Mass	Maneuver-Firepower		Total
Lose	93	68		161
Continue	369	772		1,141
Draw	14	36		50
Win	23	127		150
Total	499	1,003		1,502

As seen in this cross-tab, (Table 6.9) the use of the maneuver-firepower land doctrine combination was much more significant than the attrition-mass combination. What this tells us is that states and their military often prefer the use of maneuver-firepower doctrines, and will often use them at the same time as the opponent. Therefore, the use of the doctrine itself does not mean victory on the battlefield or in the war. Its employment, at the operational and tactical levels, along with terrain, training, technology, etc. are crucial. Therefore, wars are won not by the doctrine itself, but its use, and over time, the one state is worn down to such an extent that they can no longer follow the doctrine, and are forced to give up using it.

Table 6.10: Maneuver Doctrine Cross Tabulation

Maneuver Doctrine Utilized?				
	No	Yes		Total
Lose	104	59		163
Continue	417	731		1,149
Draw	21	31		52
Win	23	129		152
Total	565	950		1,516

In cross-tab (Table 6.10), the use of just purely a maneuver doctrine, while not significant in the logit models run above, shows like the previous cross-tab (Table 6.8), that both states will often at some time utilize the same doctrine against each other. Therefore, we can come to the same conclusion as the previous cross-tab that states like to utilize similar strategies, operational arts, doctrines, and principles.

VI. Hypothesis Results

H (Population Losses): In both case studies, the results were mixed, due in part to lack of data, and US vs. Germany and Allies vs. Germany. However, casualties played a major factor in the defeat of Russia (leading to revolution) and Germany (inability to man depleted units) in both case studies. In the statistical analysis, the decrease of a state's population throughout the war significantly hampers its ability to win the war. Thus, damage to one's population will impact the war effort, both in its ability to produce arms and troops, as seen in the robust results above. Furthermore, they affect how the population and government leaders perceive how the war is going. Losses on the battlefield may be near, or far away. Yet for those not actively serving in the shield, the pain of war can be felt with the loss of family members, friends, and in the pocketbooks, etc.

What is intriguing is the idea of growth rate of a population during the war. At first, this may seem counter-intuitive. How does a growing population hamper the war effort when manpower is required for the shield and the core to function? At first it would be easy to write of the finding by stating that they can simply replace the losses accrued in war. However, few wars span more than 5 years. New births however require 17+ years in order to physically equip and train a new human to operate in the core or shield.

Thus they become a drain on the war effort because resources that could have been utilized for the shield has to remain for use in the core.

Therefore, we find strong evidence for this hypothesis, that damage to the population pillar of a state's core will lessen the likelihood of victory.

H(Economic Losses): In the two case studies, there was strong support for this hypothesis. Damage to an economy, either through direct or indirect means, will affect the ability of the state to arm itself while providing for its citizens. In the statistical analysis there was support for the state having the highest GDP at the end of the war winning the war, as they were able to out produce their enemy while still being able to support their own core. Therefore, we find evidence for this hypothesis, that damage to the economic pillar of a state's core will lessen the likelihood of victory.

H(Offensive Initiative): In both case studies, the state that won the war had the offensive initiative at both the strategic and operational levels of war, as they were consistently dictating events to the enemy, and continually gaining ground while damaging or destroying the enemy's armed forces. In empirical testing, it was found that both states in the majority of wars will trade offensive initiative, or attempt to gain it at the same time. However, with very robust quantitative findings in the models, offensive initiative is an important factor in attaining victory in war (and conversely and indicator of defeat when it is not held), in particular at the operational level of war. Further, offensive operations are the only sure way to win a war. While how a state goes about it operationally and tactically may differ, the building up of defensive barriers and armament must serve to buy time for offensive operations to occur, least another state

decide to follow the fate of France with its Maginot Line. There is very strong support for this hypothesis, and for offensive operations in general.

H(Warfare Methods): In the two case studies, both states primarily relied on conventional means while still utilizing unconventional warfare to support their conventional forces. Because both states utilized the same methods, the case studies were inconclusive in their results. Quantitatively however, things were different. In the binary dependent variable coding, the results were significant, but depending on the model, there was evidence for use of combined methods, while other models were for use of pure conventional warfare methods. In the mlogit model, the results were against the hypothesis.

While an emphasis on the building and use of conventional forces to win interstate wars should not be underestimated, the question remains if states should still have the capability to defend against unconventional attacks and launched unconventional attacks against the enemy, all while conducting major conventional operations. To this, military theory would state that it is best to rely on one (conventional war), but be prepared to defend against and utilized the other (unconventional warfare) against the enemy to gain an advantage. Until this question is further resolved, it seems that military theory continues to remain the safe bet on this issue. Thus, with conflicting results, though none were correlated with other variables in the modified models, this hypothesis cannot be verified under current tests here, and requires further testing.

H(Maneuver Doctrines): In the case studies, there was strong support for it in the Russo-Japanese War, but less so for World War II. In all of the models however, maneuver alone was not statistically relevant. Only when combined with firepower

doctrines did maneuver doctrines become significantly relevant. As such, this puts into question the differences of coding between the Stam data set and my own, though the Stam data set has a much more board definition then I utilize. Without its melding with firepower doctrines, there is little support for this hypothesis.

H(Mass): There was strong support for this hypothesis in the case studies, and in the various quantitative models. We can therefore uphold von Clausewitz concept of the 'schwerpunkt" at not just the tactical level as many historians and theorists state, but at the operational level of warfare as well, just as von Clausewitz predicted.

H(Battlefleets): There was strong support for this hypothesis in the case studies, and in the majority of the models from which the variable was tested. The greater the losses of capital ships from a state's battlefleet, the less likely a state will win a war. This does not mean that state's should not use their battlefleets in action, but perhaps a cautious naval commander, who is daring when required, but not overly ambitious and wasteful with their ships, serves the interests of their state and the war effort the best. This kind of thinking can justify Admiral Jellicoe's actions better so than Admiral Beatty in World War I, or the caution showed by Admirals Fletcher and Spruance in the Pacific in World War II. Jellicoe, Fletcher, and Spruance all won battles however. Beatty almost lost it twice without support from Jellicoe.[59] But daring does have its use, as Admiral Nelson showed time and time again, however he did create disproportionate losses upon the enemy in battle, which would support the assertions of this hypothesis, even if he was rather bolder than most naval officers before or after him.

[59] I am bias on the Jellicoe-Beatty debate. I am a firm supporter of Jellicoe, and believe Beatty to have been reckless in every command he held while connected with the Grand Fleet in World War I.

H(Sea Control): Both case studies showed strong support for this hypothesis. However the statistical analysis was less compelling. Not all models held it as significant, and only found that enacting certain sea denial (commerce raiding) strategies actually led to defeat. However, this statistical analysis may be skewed due to the nature of naval warfare. Wars are won on land, but naval forces to serve as a force multiplier for land operations and allowing for greater freedom of movement in land operations and in the keeping of supply lines open for ground forces when deployed overseas. Most wars had very few naval battles, and some had not navies involved at all. Further, naval supremacy at sea does not equate to victory on land (such as the US in Vietnam). While there is little support for this hypothesis based upon the quantitative tests here, this hypothesis does deserve more research and analysis.

H(Conservation Force): The case studies had a decided divided view on this, with support for this in the Russo-Japanese War, and mixed evidence for this in World War II. Statistically the results were robust; enacting strategies that seek to conserve forces did not help achieve victory in war, and in fact hurt the chance for victory. As such, there is support for this hypothesis, but it is in greater need for further testing.

H(Core): Can we support the overall hypothesis that states that protects their own core and shield while damaging the enemy core and shield will be victorious? While the determinants are just that, determinants, they do point for support for the hypothesis, though more rigorous mathematical models are required to answer this hypothesis. The analysis above showed that the population and economy needed protection in order to support the war effort for the shield. Further, offensive operation and damage to the enemy shield and core significantly helped a state win the war they were involved in.

What is missing is more data on governance, decision making, and other elements of the shield outside of the armed forces to further validate or refute this hypothesis, but thus far, the hypothesis and overall Informal Theory of Interstate Warfare seems to be an excellent organization and analysis of the state at war.

VI. Implications and Conclusion

So what have we learned in this chapter? Thus far we have strong evidence that states tend to use similar means when fighting, or until the point where they can no longer utilize that strategy, principle, doctrine, or operational art. Furthermore, there is a constant attrition of casualties in war, which may be why military theorists and politicians want quicker ends to wars even when evidence may suggest this may harm their long range war aims, and why military commanders tailor their strategies, etc. for quick, decisive wars when possible. They are not only cheaper in manpower, but in money as well.

A state's economy and population also play a major role in helping or hurting a state's ability achieve victory in war, but conversely is impacted by the events that occur during war. Combined with offensive military action, they are decisive in state's winning wars.

Yet there is a glaring weakness in this type of analysis. It does nothing to show how and why the wars end the way they do when they do. It has only given the determinants of war outcomes. Nothing in this data shows that leaders, the population, or another state determines when the war ends.

Because of this, further testing of old and new determinates of war outcomes must continue, and then compared to see how they fit within the overall Informal Theory of

Chapter 4. Wars are won or lost by offensive action. Primarily the state that utilizes offensive action, and has offensive initiative is dictating events on the battlefield, and forcing the enemy to respond to actions made against it. Offensive action and initiative also provides the promise of gaining territory and destruction of the enemy's forces (though this is not to say that it is without cost, because it is). However, offensive initiative is necessary for winning wars, especially in interstate wars.

Yet what does this mean for civilian leaders, military leaders, and populations? Most interstate wars involve the direct or indirect targeting of not only the shields of their state, but also attacks upon their cores. Further, there is a fine line between too much restraint (i.e. conservation of forces strategies) and too little restraint (unrestricted strategic bombing). Wars are costly, not only in manpower, but in lost GDP as well, and will always have a cost, no matter the spin placed upon them. Wars are not fought by just the armed forces of a state, but by states in its entirety. States may choose how large or small they wish to participate in the war, but states, with their economies, populations, governments, and armed forces (and all other elements of the shield) fight wars and will be targeted. It would be wise for political scientists, military theorists, politicians, and military professions to remember this when they study and actively engage in war, instead of studying and engaging by proxy variables and results.

Chapter 7:

Conclusion

With the results of the case studies and quantitative analysis already presented, what are the implications for this theory, researchers in the fields of political science and military science, policy makers, and military commanders based upon the results of the theory and hypotheses?

First, there is strong support for viewing war in through the structural lens as done in the theory presented. However, it is merely a framework and not a true mathematical model in its current form, though it has the potential to become one in the future. The findings found in the thesis further expand the work already done in war outcome determinants, and help illuminate weaknesses in offense-defense theory and the bargaining model of war, which in the case of the latter should be addressed in order to strengthen the bargaining model, while the former should simply be disregarded as it is beyond its usefulness in the field of study.

I have shown that when states go to war, their populations and economies play an important factor in determining the outcome of a war. Combined with military operations at the strategic and operational level of war, we begin to see the more accurate picture of the (entire) state at war. Damage to both the Shield and the Core can have the direst of consequences on the outcome of a war.

This theory is not a mutually exclusive theory, but is designed to complement the work already crafted, as it could significantly help the bargaining model become a more specific and accurate model. It also expands upon the determinants of war outcomes, refining the work of such authors as Allan Stam (1996), while not directly conflicting with their overall results. The theory is where all theories in both fields of study should be heading: the combination of smaller theories into larger, more complex, and accurate

theories and models. But is what has been presented really new? Many of the concepts certainly are not. And much of what has been stated is considered common sense, or well known. However, not much of it has been tested in political science or military science. If it could be compared to physics, it is as if we know the atom exists, but hold little knowledge beyond that it exists. Why these concepts have yet to be tested, and in such detail, is unknown. Further, why a theory has yet to be created to encompass the state at war in such detail before this is also unknown.

In the case of my Informal Theory, I have utilized many well-known concepts of both how a state operates and is organized with well-known principles and concepts of warfare into one, something that has yet to be done on this scale in political science, and is only done so in military science in war games and simulations of potential conflicts or historical lessons, but nothing systematic. As such, it is merely the first step in continuing research. Thus the "so what" question asked is while these concepts and ideas are obvious to many, they have yet to be tested on such a scale and in such a manner.

For researchers, continued work on wartime variables, in particular military related variables needs to continue. It should not only continue beyond single observations per war dyad to changes made throughout the war, and beyond that of the strategic level of war to incorporate the operational and (eventually) the tactical levels of war. Such attempts by Biddle (2004) at the tactical (and very low operational level) can be expanded upon up into the operational level and beyond. The military and many national security think tanks routinely simulate and war game combat operations at all levels of warfare. However, simulations and war games, just like case studies and empirical analysis suffer from an information problem.

To further our knowledge, there must be an accepted call to arms, which seeks two things: closer cooperation with other areas of study, and attempts to lessen the information problem. This task will not be easy, as both researchers in both political science and military science do not fully embrace each other, nor other relevant areas of study that are related to waging war. The majority of political scientists tend to leave out detail in military variable (though there are some notable exceptions to this), while the majority of military scientists and practitioners tend to do the same in their research in regards to political variables. Therefore, political scientists and military scientists and practitioners should look beyond their specific areas of study and work hand-in-hand together, and do so more often. Their fields of study are too interrelated to not do so, even if the tendency is not to work together.

In order to correct and limit the information problem, there should be a concerted effort, not unlike that of the Correlates of War data set, but far more expansive, specific, and detailed in wartime information. This new data set should strive to expand our current data, specifically data within the areas of population, economics, production, political governance, military organization, military doctrine, principles of warfare, the operational and tactical levels of war, military decision making, training, technology etc. with the eventual goal of connecting these vast and under researched areas together. This endeavor would be far beyond anything the COW data set has accomplished thus far.

This would be no easy task, as it would require modeling and simulation of weaponry, production information, detailed analysis of doctrine and training, and much of that data is not available in English, if at all. For example, information in English on the Austro-Hungarian army during World War I has a great many gaps in it due to the

collapse of the empire in 1918, with much of that information lost. What is there is mostly in German, Hungarian, and several other languages. Yet no one can doubt that massive effect the Austro-Hungarian army had upon the Russians and Italians in the First World War.

Research at this level of detail is impossible for one person. For this endeavor to succeed, historians, military professionals, think tanks, academia (both professors and students) will have to endeavor upon this great and noble undertaking. It will be long and tedious work, but it will help solve the information problems that currently plague the study of warfare in both fields.

But in order to advance our cause, it must be done. The atomic bomb, nor knowledge of black holes and the expansion of the universe were hardly found by one person, but the by combined efforts of many scholars, theorists, and researchers, along with technicians, engineers, mathematicians, etc. It none the less can be done with sustained will power and energy for it to succeed.

The field should also conduct research not only into more operational and tactical variables, but that of training, doctrine, methods of war, technology, etc. Perhaps the most important thing missing in not only my own thesis and analysis, but in all of political science, is how leaders, commanders, war fighters, and personnel respond under the stress of combat and warfare (Rosen 2005). It is easy to test people in a controlled environment, to see whether or not they will act this way or that. It is however something completely different (and impossible) to put true fear, the fear of death, defeat, and loss of life and true stress into a testable controlled environment. And how people will respond not when only money is at stake or based off of some survey, but when their own

very existence and the existence of their way of life is at stake, is difficult to quantify. How does one react when forced to make decisions that could have major ramifications not only for them, but for the personnel under them or the future of their state? As Evan Thomas describes in his book on the Battle of Leyte Gulf (1944), "who can know what is it really like to stand, bone-weary, on the bridge of a ship in action, responsible for hundreds if not thousands of lives, unsure of the enemy's strength and where-abouts, and yet forced to make fatal decisions" (Thomas 2006, 354). Only a very few can truly know what that stressful burden feels like. For some, their time responsible for their personnel was only a few chaotic minutes or hours, others months, and for some, years.[60] And yet, how they respond to that stress, and the decisions they make will have a very large impact on the outcome of battles, campaigns, and wars. The coding of training, and intangibles such as leadership, courage, morale, etc. will be a difficult, but necessary undertaking if we are to further the field of study.

And finally, researchers should look beyond their potential prejudices of war. War is evil, but at times a necessary one, at times one of choice. In autocracies, the people are less to blame, but in a democracy, everyone has a say and not only culpability in their state's war outcomes, but a responsibility in helping achieve victory (or defeat) in war. War must not be romanticized, nor despised, but seen as a human endeavor, though a very destructive one.

Perhaps researchers should keep in mind the comments of Evan Thomas ended his book on the Battle of Leyte Gulf, where he stated that this battle, and we should

[60] Run-ins with the Iranians in the Persian/Arabian Gulf as Officer of the Deck on my DDG were not fun, and at the time I thought little about it, I was just doing my job as I was trained to and how I wanted to. In retrospect, I have an appreciative understanding of the pressures and stresses commanders may be under, even if my stress lasted mere minutes and not days, weeks, months, or years. However, some of those minutes felt like a lifetime to me then and now.

extrapolate that to war in general should be "remember[ed] for its individual acts of heroism and defiance, but more so for the blunders and misunderstandings that are inherent in war" (Thomas 2006, 356).

Those blunders and misunderstandings inherent in war should also be remembered by policy makers and military commanders as well. Policy makers and commander should remember that not only are their armed forces at war with another state's armed forces, but that their state is at war with another state. Since World War II there has been a push to limit war and its effects upon everything outside of the armed forces. In the past thirty years in the United States, it has become fashionable to believe that new weaponry ("smart weaponry") will somehow allow for no civilian casualties in war. Yet there is a paradox in that assessment. That same population that many wish to avoid harming at all is an element of the enemy state, and whether freely or through force, support that state as it wages war against the United States.

Because of this, modern thoughts of bloodless wars should be tempered with reality. War involves killing. And when one state goes to war against another state, choices must be made, and the repercussions of which accepted in how one will prosecute the war. While attacks should always be made against the armed forces of an enemy state, the defeat and destruction of an enemy's armed forces is difficult. Unless the state wishes to embark upon a military buildup of massive proportions that can ensure overwhelming their opponent's armed forces completely, states should consider both direct and especially indirect attacks upon the enemy's core.

While in the US (and many other states) the concept of and practice of the destruction of the enemy's armed forces is constant, it is none the less a very difficult

task. Politicians and military commanders should think as Grant, Sherman, Sheridan, Pershing, Marshall, Eisenhower, King and Nimitz thought of war: war requires attacks upon both the enemy's shield and core. Furthermore, leaders should recognize that their own core needs protection and guidance to support its own shield. This kind of coordination is time consuming and difficult, and may be unpopular. No matter the difficulty, it is a leader's responsibility to do so.

If war was truly about just armed forces fighting each other, and ideas of proportionality, then they conflict with some specific results of this thesis. How else can there be an account for a decrease in a state's population and GDP if attacks (both direct and indirect) were not made upon it? How else can one account for the results that state that taking the enemy's national territory? This thesis and line of thinking are backed by findings made by Quackenbush (2012) with regards to the capture of an enemy capital, and with Martinez (2012) and the effects of various aerial strategies have upon war outcomes.

Besides lifting the restrictions upon attacks upon the enemy core, leaders should ignore the concept of proportionality when responding to the enemy and instead seek to use overwhelming force. This is backed by the empirical results of the mass and offensive doctrine variables and hypotheses. Not only should that force be an overwhelming mass of force at the schwerpunkt, but a force that, as seen like overwhelming mass in the previous chapter, a force that is willing to take risks and seeks swift victory over conservation of forces. Leaders would be wise to remember that there is a natural attrition of casualties in war, and that the longer a war lasts, the more casualties that will occur, and only swift action that seeks victory regardless of casualties

will avoid prolonged losses over the long term, as seen in the constant losses over time in the casualty variable tested in Chapter 6.

Finally, offensive action (coded as offensive initiative in the data set and hypothesis) is what wins wars. Sitting on the defensive hardly takes territory, nor deters an enemy from attacking. Only offensive action can stop an enemy from attacking because it places them on the defensive. No matter the current technological level, successful states overcome barriers to offensive operations to win wars. Offensive operations however are more expensive in the manning and equipping of forces designed to move vast distances into the enemy's territory and kept well supplied. However, the price of victory in war is worth the expenses to maintain such a force in peacetime, so if deterrence fails, victory will be won on the battlefield. This would lend credence to the ancient Roman saying attributed to Vegetius: *Si Vis Pacem, Para Bellum* (If you wish peace, prepare for war).

This should only be viewed as the first steps. Any errors made are my own, and are unintentional and not out of malice. To me, this will always be an unfinished work, though I hope to come back to this and refine and expand upon the theory and lessons learned sometime after my service in the US Navy. I hope other researchers will expand upon the findings here, make this theory and other theories within political science and military science stronger, and take up the call to arms for a combined effort at data collection for the greater good of our understanding of the state at war. It is the least that those who do not serve actively or who have already served can do to ensure better analysis for the fields of study and perhaps ensure practically that fewer wars occur, and if not for the sake of ourselves, then for our children and our children's children future.

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VITA

Matthew T. Knuth is a serving officer in the US Navy, and is qualified as a Surface Warfare Officer. He graduated from the University of Missouri in 2006 with a Bachelor of Arts in Political Science, and was commissioned an Ensign in the US Navy at the same time. Since then, Matthew has served as the First Lieutenant (Deck Division Officer) onboard USS WINSTON S. CHURCHILL (DDG-81) and as the Damage Control Assistant onboard USS BOONE (FFG-28) before his current assignment as a Naval Science Instructor as the University of Missouri NROTC Unit. He is married to Leann Knuth, and has one daughter, Brianna.